IMPLICATIONS OF TAX REFORM IN SELECTED

COUNTRIES FOR TAXATION OF INCOME IN AGRICULTURE

by

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DECLARATION

I the undersigned declare that the work contained in the thesis is my own original work and has not previously in its entirety or in part been submitted at any University for a degree.

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ACKNOWLEDGEMENTS

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SUMMARY

If monetarism was the economic fashion of the 1970's, tax reform has become the vogue of the 1980's. This study consequently reviews the implications of tax reform for tax provisions applicable to agriculture, particularly those in South Africa. Income tax concessions and relevant provisions on farm tax shelters receive the most attention. This is done against the background of an economic-theoretical perspective on different tax bases and recent reforms in Australia, Canada, New Zealand, the United Kingdom and the United States.

An analysis of different tax bases illustrates that their measurement and implementation are fraught with difficulties. The prestige of the income tax has been tarnished by its perceived unfairness, a proliferation of tax concessions, inflation and the promotion of direct consumption taxes. As a result of the many disenchantments with and shortcomings of the income tax there is clearly a trend towards income tax restructuring. Although the restructuring in the countries reviewed in this study differs greatly, three main trends are discernible. Firstly, there is a movement towards greater reliance on indirect taxes. Secondly, there is a trend towards lowering tax rates and broadening the base which in many but not all cases is accompanied by the elimination of income tax concessions. Thirdly many countries have provided a more neutral tax treatment of income from different sources because different rates and allowances often have been the source of tax avoidance and tax sheltering.

Base broadening and rate cutting have important implications for agriculture since the industry has enjoyed preferential fiscal treatment and has been widely regarded as being one of the main tax shelter industries. Fiscal preference has manifested itself in the application of income tax to farming by way of cash accounting, accelerated or immediate write-offs of capital expenditures, the favourable valuation of livestock, averaging measures and capital gains tax exemptions.

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Agriculture has traditionally provided two basic types of tax shelters: deferral and conversion. The tax deferral comes through mismatching and current deductions of costs which, in many other industries, would have had to be capitalised. The activities for which the costs were incurred then produce income in later years, at which time the deferred taxes have to be paid. In several situations this later income is considered as a capital gain which is either favourably taxed or not taxed at all. In agriculture many of the benefits of deferral and conversion have been increased by leverage. In many instances tax preference required the introduction of quarantining provisions to ensure that the tax benefits would not be enjoyed by part-time farmers.

A survey of research literature reveals that income tax concessions and tax sheltering have bestowed great benefits on agriculture, albeit at a high cost to the fisc. It also reveals how the patterns of ownership, the control of assets, the distribution of income and wealth, the form of organisation, prices and supply of products and the allocation of resources have been moulded by behaviour induced, at least in part, by tax concessions.

Recent international reform movements have addressed several of the detrimental consequences of income tax concessions, but in many instances have focused on symptoms only. Rather than attempting to regulate further the undesirable effects of the present system, a complete reform of the income tax as it applies to agriculture is suggested. It is proposed that deductibility allowances for capital or development expenditures be placed on a par with other commercial sectors; that the standard value scheme for livestock be replaced with new livestock valuation schemes; that the need for quarantining provisions be eliminated and that new options for averaging be considered.

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OPSOMMING

Terwyl monetarisme die ekonomiese modewoord gedurende die sewentiger-jare was, is die tagtigerjare daarenteen deur belastinghervorming gekenmerk. Hierdie studie ontleed gevolglik die implikasies van belastinghervorming vir landboubelastingkonsessies, veral in Suid-Afrika. Inkomstebelastingkonsessies en landboubelastingskuilings geniet spesiale aandag. Die ontleding geskied teen die agtergrond van 'n ekonomies-teoretiese perspektief op verskillende belastingbasisse asook onlangse belastinghervormings in Australië, Kanada, Nieu-Seeland, die Verenigde Koninkryk en die Verenigde State van Amerika.

'n Ontleding van verskillende belastingbasisse bring aan die lig dat die meting en implementering daarvan uiters problematies van aard is. Persepsies van onbillikheid, die proliferasie van belastingkonsessies, inflasie en die promosie van 'n direkte uitgawebelasting het die aan-sien van inkomstebelasting ietwat ondermyn. Vanweë tekortkominge en 'n ontnugtering met die inkomstebelastingstelsel is 'n tendens te bespeur om dit eerder te herstruktureer. Alhoewel daar verskille bestaan in die wyses van herstrukturering in die lande wat in hierdie studie ontleed word, is drie tendense duidelik waarneembaar. Eerstens word daar toenemend op indirekte belasting as 'n bron van inkomste gesteun. Tweedens word belastingkoerse verlaag en die belastingbasis verbreed. Laasgenoemde gaan dikwels met die uitskakeling van belastingkonsessies gepaard. Derdens poog verskeie lande om verskillende bronne van inkomste aan 'n meer neutrale belastingheffing te onderwerp omdat dispariteite in belastingkoerse en -toelaes dikwels die bron van belastingvermyding en -skuilings is.

Die verbreding van belastingbasisse en die verlaging van belasting-koerse het belangrike implikasies vir die landbou, omdat dié sektor dikwels fiskale bevoorregting geniet en as een van die belangrike sektore vir belastingskuilings geag word. Fiskale bevoorregting manifesteer in die inkomstebelasting by wyse van belastingheffing op 'n kontantbasis, versnelde afskrywing van kapitaaluitgawes, die

voordelige waardasie van vee, nivelleringskemas en die vrystellings van kapitaalwinsbelasting.

Landbou bied tradisioneel twee basiese vorme van belastingskuiling: uitstel en omsetting. Die uitstel van belasting word bewerkstellig deur die ontkoppeling van inkomste en uitgawes en deurdat uitgawes wat normaalweg gekapitaliseer sou word, as 'n onmiddellike aftrekking toegelaat word. Die bedrywighede waarvoor die aftrekking toegelaat is, lewer eers inkomste in daaropvolgende jare op wat dan aan uitgestelde belasting onderwerp word.

Die uitgestelde inkomste word dikwels as kapitale wins geag wat òf gunstig belas word òf van sodanige belasting vrygestel word. Die voordele van uitstel of omsetting word geredelik deur hefboomwerking vergroot. Fiskale bevoorregting vereis menigmaal fiskale inperkings om te verhoed dat deeltydse boere nie in die belastingvergunnings mag deel nie.

'n Literatuurstudie toon dat inkomstebelastingkonsessies en belasting-skuilings die landbou groot voordele laat toekom, maar dat dit teen groot koste vir die fiskus geskied. Die patroon van eienaarskap, beheer van landboubates, die verdeling van inkomste en rykdom, organisasievorme, pryse en die aanbod van landbouprodukte asook die allokasie van hulpbronne word gefatsoeneer deur optrede wat deels deur belastingkonsessies beïnvloed is.

Alhoewel resente internasionale belastinghervorming verskeie nadele van inkomstebelastingkonsessies aangespreek het, was die fokus daarvan dikwels net op die simptome toegespits. In plaas daarvan om voort te gaan om die ongewenste gevolge van die huidige stelsel te reguleer, word 'n nuwe inkomstebelastingbedeling vir die landbou voorgestel. Daar word voorgestel dat die onmiddellike aftrekking van kapitaal- of ontwikkelingsuitgawes op gelyke voet met ander handelsektore geplaas word; dat die skema van standaarwaardes vir vee met nuwe veeskemas vervang word; dat die behoefte aan fiskale inperkingsmaatreëls verdwyn en dat alternatiewe nivelleringsopsies oorweeg word.

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ABBREVIATIONS

For reference purposes the following abbreviations have been used in the study:

NZ   -   New Zealand

OECD -   Organisation for Economic Co-operation and Development

RSA   -   Republic of South Africa

UK   -   United Kingdom

USA   -   United States of America

PART I

RESEARCH OBJECTIVES AND ORGANISATION OF THESIS

CHAPTER 1

RESEARCH OBJECTIVES AND ORGANISATION OF THESIS

Of all the powers of Government, other than its authority to declare war, none bears so incisively on the welfare of citizens - privately and in their economic enterprise - as does its power to tax. Because farmers as individuals, farm business units and agriculture as a sector are politically highly sensitive to tax policy they often enjoy a special place in tax law. This special treatment has been extensively used and exploited both by farmers and non-farm investors. Although farmers and organisations representing their interests have supported tax breaks or concessions for agriculture, there is growing evidence that short-term gains from these concessions may adversely effect longer-term agricultural returns (Bullock, 1985). In addition, income tax rules have influenced investment behaviour that was characteristic of many farmers currently facing financial difficulties (Carman & Hardesty, 1986).

Most, if not all, tax concessions constitute a subsidy to economic activity. They are just as clearly a subsidy as are direct payments (Surrey, 1973). Yet by some quirk of human cognition, a peculiar sophistry, tax concessions are not generally regarded in that light. Indeed, time and again a deduction has been voted by politicians on grounds that it will accomplish a desired end without a net cost to Government. It is hardly an exaggeration to suggest that a hundred kinds of economic activity that are subsidised by the tax device could be endowed equally via appropriation.

Recent analyses have indicated that the loss of revenue from tax concessions to agriculture is substantial (Australia, 1986a; Canada, 1985b; McDaniel & Surrey, 1984). In Australia, for example, the revenue forgone due to expensing agricultural outlays was estimated to be $183 million in 1984/85 (Australia, 1986a, p.16). Over the period 1971 to 1984 tax expenditures in the USA increased from an amount representing 25 per cent of federal revenue to 49 per cent (Galper, 1986, p.27). Revenue losses associated with the expensing of certain capital outlays in agricultural and the capital gains treatment of

certain farming income were an estimated $1140 million for 1985 (Surrey & McDaniel, 1985, pp.6-25). A tentative estimate of the cost of the deductibility of expenditure on developments and improvements by South African farmers was R117 million for 1983/84 (Heyns, 1984). However, a study by Du Plessis (1985) indicates that the income tax concessions enjoyed by farming for the years 1981 to 1984 amounted to more than 70 per cent of "full" taxes which could theoretically have been assessed during those years.

Tax concessions have spawned a particularly contentious issue: namely, tax shelters and tax-motivated investment. Taxpayers in high-income brackets usually have greater tax incentives for diverting investment to agricultural activities to reduce income tax liabilities. Cattle feeding is perhaps the most well-known example of tax-motivated farming. The concessions that encourage such investment artificially distort the returns to that sector relative to other sectors and reduce economic efficiency (Rossi, 1987). Some tax experts also argue that tax shelters erode the progressive feature of income taxes, invite both legal manipulation and illegal evasion, are selectively preferential and distort signals for allocation and distribution that the market system normally generates (Davenport, 1985; Davenport, Boehlje & Martin, 1982, pp.12-14; Harl, 1985).

During the past few years, internationally, tax reform has shifted into high gear. One feature found in many of these reforms is the lowering of the top marginal income tax rate. Another major pre-occupation has been the reduction in the number of brackets for individual income taxes. Still another feature is the reduction in the normal corporate income tax rate. In most instances the lowering of tax rates is "financed" through the removal of tax concessions.

Because little fundamental change had been attempted, the purpose of this study is to describe the characteristics of agricultural tax concessions and assess the impact on the agricultural sector of likely major structural changes to the taxation system. To accomplish this, it was necessary to decide which countries (besides South Africa) and concessions to include in the study. The countries which have been selected are Australia, Canada, New Zealand, the United Kingdom and the United States of America. This was done for two reasons. Firstly, because many of the agricultural income tax concessions

correspond to those of South Africa. Secondly, the effect of recent reform proposals is in the process of being analysed and provides a framework in which to begin to assess similar changes to South African income tax law. Although land, estate and value added taxes have become major issues for farmers,[1] the concessions selected for discussion have been limited to those in the income tax system, namely capital and/or development expenditures, livestock valuation, averaging provisions and the utilisation of these concessions by so-called armchair, gentleman or hobby farmers. In some instances reference is made to capital gains taxes as they are often part of income tax shelters. The income concessions have been selected in accordance with the guidelines developed by McDaniel and Surrey (1984) to determine whether a particular provision within the income tax constitutes a tax preference.

In undertaking this study, the author was led to the inclusion of material which goes beyond consideration of the direct effects of tax concessions on agriculture. It was necessary, in seeking to assess the likely impact of suggested reforms, to include aspects of the taxation systems from a perspective broader than that of sectoral reform. Consequently, Part II concerns theoretical issues and tax reform proposals which are as important for agriculture as for other sectors. Chapter 2 deals with the decision that many of the recent reform Commissions had to face, namely whether to remain within the framework of the conventional income tax or to move to an alternative tax base. In practice most countries have rejected a consumption or expenditure based approach on the grounds of transition problems, the public's lack of familiarity with and reservations about an expenditure-based system, complexity for many taxpayers and problems of international co-ordination. Despite recent reform initiatives important elements of the "hybrid system" remain, particularly in agriculture. At the risk of both excessive selectivity at some points and over-generalisation elsewhere, the Chapter endeavours to convey why consumption tax has been widely propagated as an alternative to income tax. In the following Chapter reference is made to some of the major problem areas in existing tax systems that gave rise to the move towards reform. Particular attention is paid to tax sheltering and arbitrage because many avoidance opportunities in agriculture arise from the coexistence of tax rules appropriate to income taxation with other rules appropriate to consumption taxation.

Part III contains details of the characteristics and implications of farm income tax concessions in the countries included in this study. Chapter 4 deals with capital and/or development expenditures. Chapter 5 concerns the concessionary tax treatment of livestock, while Chapters 6 and 7 consider averaging and tax farming, respectively. The concluding sections of each Chapter set out reform proposals warranting consideration.

Part IV summarizes the main conclusions.

FOOTNOTES

1. For an overview of these taxes in the context of agriculture see Bird
    (1974), Boehlje (1981), Freebairn (1988, pp.89-104), Hady (1963,
    pp.26-33), Land Value Taxation (1982), Nieuwoudt (1987, pp.10-14) and
    Zimbabwe (1986, pp.216-239).

PART II

THEORETICAL ISSUES AND TAX REFORM

CHAPTER 2

DIFFERENT TAX BASES: CONCEPTS, THEORY AND OPERATION

A.   INTRODUCTION

Since the Carter Commission (Canada, 1966) and Meade Committee (UK, 1978) Reports in 1966 and 1978 tax policy debate has focused upon the deficiencies of the system of income taxation and on the merits of a tax mix switch towards greater reliance on consumption taxation, respectively. In many countries indirect taxation of consumption is supported almost exclusively as an adjunct to income taxation. At the same time, moves towards extending the income tax base to ensure full coverage of sources are stronger than ever; witness, for example, the changes to fringe benefits and capital gains taxation and the elimination of various forms of tax concessions.

Recently Australia, the United States and New Zealand have made major changes in the tax base and rate structure, and Canada and even Zimbabwe are involved in reform exercises.[1)] Each of these national debates (perhaps reflecting academic debate) has been characterised by considerable uncertainty as to the optimum tax base, or the optimal mix of bases.

The Meade Report (UK, 1978) recommended a direct consumption or expenditure tax of the cash flow - deductible saving type - as did the initial US Treasury Blueprints Report for the USA (USA, 1977) and the O'Brien Commission in Ireland (1982). The New Zealand reforms (albeit ongoing) placed increased emphasis upon the consumption base via the indirect tax route. The Canadian proposals resemble the New Zealand changes, with increased emphasis on the indirect consumption tax base and better design of consumption and income tax structures. The proposals of the Margo Commission (RSA, 1987) also fit into this general pattern. In particular, the proposals for increased emphasis and improved design of consumption taxation involve the adoption of a direct consumption tax (termed a comprehensive business tax) which is effectively a cross between the Hall-Rabushka flat tax and the cash-flow tax (Hall & Rabushka, 1985). In contrast to the Meade

Report and Blueprints, which were proposals for a comprehensive consumption tax base, the Margo Report envisaged the direct consumption tax as part of a hybrid income-consumption tax system. Here it differs from other hybrid proposals which almost invariably have implied sales or indirect consumption taxes (either retail sales taxes or value-added taxes) in conjunction with an income tax. Somewhat ironically, direct consumption taxes have been proposed (in recent times) almost exclusively as complete replacements of the income taxes.[2]

The United States reforms provide quite a contrast. Despite a history of expenditure or direct consumption tax proposals, and partial moves in that direction with limited savings exemptions, the 1986 tax reforms represented a significant endorsement of the classical, comprehensive income tax (CIT) base system. The United States example, following the United Kingdom's lead, demonstrates that the introduction of a direct consumption tax is politically difficult, notwithstanding considerable academic and bureaucratic pressure for its introduction.

This brief review of international developments reveals that questions concerning the appropriate role for, and design of, consumption taxes have been especially prominent in reform discussions. However, despite the recurrence of these issues in all the national debates, no simple conclusions have emerged. Indeed, the issues have been treated in a detached and almost ad hoc manner, with one reform debate appearing to pay little attention to the consumption tax discussions of another country.[3] In some cases the indirect (sales) tax route has been favoured, in others, the direct consumption tax route, although as far as could be ascertained the latter has not been implemented anywhere.[4] This Chapter defines and explains various tax bases, but is principally concerned with income and consumption taxes. It seeks to clarify understanding of the similarities and differences between, say, a cash-flow tax and a value-added tax. Both positive and negative reasons have been advanced for taxation levied upon a consumption base. The negative reasons are essentially arguments that a CIT is difficult to levy in practice, and that the reform measures called for by a thorough-going CIT reform are unsatisfactory. Understanding of these flaws in income taxation is essential to an appreciation of why consumption taxes have been

advocated. The Chapter can also be regarded as a prelude to Chapter 3 that focuses on the reasons for and the actual tax reforms that have taken place.

The structure of the Chapter is as follows: Section B defines and explains various tax bases at the conceptual level; Section C explains how these theoretical bases are translated into the mechanics of income and (various) consumption taxes. It describes some of the deficiencies of the income tax system and explains how direct and indirect consumption taxes work.

B.   CONCEPTS AND THEORY

I.   Introduction

For a great variety of reasons, much consideration has been given to increasing the taxation of expenditure, while reducing the taxation of income. Indeed, throughout the past century, both economic writers and revenue gatherers have deliberated over the superiority of income as the tax base as compared with the expenditure base. Some 200 years earlier Hobbes questioned:

> "For what reason is there, that he which laboureth much, and sparing the fruits of his labour, consumeth little, should be more charged, than he that living idlely getteth little, and spendeth all he gets: seeing the one hath no more protection from the Commonwealth than the other? But when the Impositions are laid upon those things which men consume, every man payeth Equally for what he useth" (cited in Kaldor, 1955, p.5).

Of course, the idle spendthrift may become the idle miser, perhaps yielding Stamp's interpretation:

> "If a man is so rich that he finds it hard work to spend his money and it accumulates almost without effort on his part, is it any reason why his taxation should be restricted [to his expenditure]?" (cited in Kaldor, 1955, p.48)

Moreover, it was recognised during the late 19th century that the poorer classes and those who 'laboureth much' were more likely to be spending classes than saving classes, as Hobbes had painted them. The same pattern of propensities to consume underlies concerns in the 1980s about the regressive impact of consumption taxation.

Income taxes developed as concern about the capacity to pay taxes grew. Mill stated, in the context of the just application of taxation, "that the first rule is ... taxation in proportion to means" (cited in Kaldor, 1955, p.26). Proportionality, of course, has long been out of vogue, while taxation according to means has been interpreted in many ways but most commonly as according to income.

Indeed, the ability to pay (taxes) and income became almost synonymous, hence the imperative for income taxation. The relationship had two parts. First, many writers thought income better represented taxable capacity than did one's actual spending. Second, it is only recently[5] that writers on taxation have understood how to administer expenditure taxes which take account of capacity to pay. Even advocates of expenditure as the ideal tax base could see little further than indirect sales taxes in terms of practical administration. Thus, although Fisher in the 1920s pointed out the theoretical equivalence of exempting savings from income taxation and taxing consumption, he could find no practical way to achieve it.

The revival in interest during the 1970s in expenditure as the ideal tax base may be attributed to two principal factors, apart from the administrative solutions. Especially under the pressures of inflation during the 1970s, major flaws in the operation of income taxation have come to be recognised, flaws which are mostly inherent in its composition. Further, the discrimination of income taxation against saving, although recognised as far back as 1861 by Mill, has taken on greater significance with high rates of taxation and declining rates of saving. There is now a widespread view that expenditure taxation would improve efficiency considerably,[6] while traditional concerns about expenditure taxation and protection of the poorer classes now may be practically handled by other government instruments.

Section II below discusses the concepts of income and consumption, and sets out the nature of income, expenditure and wealth tax bases. In

the following section the bases are explained with reference to particular tax systems which have been proposed. For example, the conceptual and practical differences between sales taxes, income taxes and a value-added income tax are elaborated. However, some general distinctions are established prior to the detailed elaboration of these alternative tax systems.

II. Definition of different tax bases

Following the work of Schanz, Haig and Simons[7] in particular, income has come to be defined as the "net accretion to economic power between two points in time" (Haig, 1921, p.75) or the amount which could be spent by an individual and still leave him "as well off at the end of the period as he was at the beginning" (Hicks, 1939, p.172). Abstracting for the moment from complications due to inflation, one more precise definition may then be the sum of all increments to wealth, irrespective of source (and net of the costs of gaining such increments).

This accretions definition accords with common perceptions which are to think of income from the sources side (e.g. wages + interest + dividends + rent). Thus from the sources side, income consists of returns to the input of labour, capital and land. These income flows can be fitted into a more general framework to allow for wealth holding. At any time, the stock of wealth (W) is an accumulation of these increments or income, less that part of income which has been consumed. Following Bradford (1980, p.78) one may write:

$$W_{t+1} = E_t + (1 + r)W_t - C_t \qquad (1)$$

where E_t is earnings resulting from the input of labour or effort over the period t, rW_t denotes the return on wealth in the form of land and/or capital, and r, and C_t are interest rate and consumption respectively.[8]

By rearranging this identity:

$$C_t + \Delta W_t = E_t + rW_t \qquad (2)$$

or in more familiar terms:

$$Y = C + S \qquad\qquad (2a)$$

where Y = income or $E_t + rW_t$, and S equals saving or the change in wealth, ΔW_t. This rearrangement highlights the accounting identity between sources and uses, or inflows and outflows. From the uses side, income is given by expenditure (consumption) plus what is not spent (i.e. what is saved). Expressed this way, <u>the difference between the income tax base and the consumption tax base is the flow or amount of saving over the period</u>.

The existing stock of wealth, or the accumulation of past saving flows, cannot (again) enter the income base directly,[9] but can become part of the consumption tax base if saving is negative. The tax treatment of the existing stock of wealth has both distributional and efficiency consequences and in a number of ways bears upon the perceived fairness of consumption taxation. If wealth is not passed from one generation to another wealth at the start of one's life would, like that at the end, be zero, and the tax system could content itself with the transactions in between. However, large and conspicuous inheritances exist (as do many minor ones), often conferring considerable economic power upon their receivers.

The tax treatment of wealth has important implications for the choice between income or consumption as tax bases. Transfers of wealth may be taxed either in the hands of the giver or the receiver, or both, while the stock of wealth may itself be taxed through an annual wealth tax. In general, consumption taxes would include the receipt of gifts in the (consumption) tax base <u>when spent</u>, but not otherwise. Thus, given large wealth accumulations, a reasonable case for supplementing a consumption tax with a wealth tax or a tax on the transfer might appear to exist (cf. Andrews, 1974, pp.1113-1119; Henderson, 1984, p.89 & UK, 1978, p.40). An alternative approach is the so-called lifetime expenditure tax, also known as a cash-flow income tax, which essentially is a consumption tax which incorporates in its base gifts and bequests <u>made</u> as well as those received and spent.

While wealth does not enter the income tax base, net increments to wealth do. Under a fully comprehensive income tax, therefore, all wealth would have been taxed at least once if one were starting at period 0.[10]

III. Income as a tax base

This section develops the discussion of the concept of income as accretion to net worth, or as any gain in economic power or wealth which enables consumption without dissipation of one's capital. Goode (1977, p.3) has termed this definition of income as the "capital maintenance" definition.

The appropriate tax treatment of capital appreciation and depreciation has given rise to two distinct approaches to the definition of income. The Haig-Simons accretion concept (Haig, 1921; Simons, 1938), which has become standard and which is accepted here as the concept of income underlying income taxation, implies the "maintenance of capital". This concept takes into account all changes in capital value in determining the income base. Taxable capacity is determined on an annual basis. The alternative, Hicksian concept (Hicks, 1939) stresses the "maintenance of consumption" and excludes capital revaluations. It implies a definition of income which is effectively equal to lifetime income, or consumption plus gifts and bequests.

The Hicks consumption maintenance definition is as follows:

> "It would seem that we ought to define a man's income as the maximum value which he can consume during a week and still **expect to be** as well off at the end of the week as he was at the beginning"(Hicks, 1939, p.172). (emphasis added)

As Kay and King (1983, pp.73-74), among others, have noted, Hicks' definition creates a number of difficulties, which Hicks himself acknowledged were serious enough to imply that income cannot be measured in practice. In particular, Hicks' definition renders income a subjective matter, because income would depend upon individual interest rate and price change expectations. For example, if one accepts Hicks' definition, why should an individual (A) who invests R1000 at an interest rate of 20 per cent be regarded as better off (i.e. receiving a higher income) at the end of the year than an individual (B) who accepts a 10 per cent rate of interest? It could be that the difference in returns reflects different perceptions about the risk of investments.

Another difficulty with the definition is its __ex ante__ nature. Actual income received over a period may differ markedly from what was expected to be received. Receipts may exceed expectations if good fortune occurs, or may fall below longer-run expectations in the event of misfortune, such as a stock market decline. It would be extremely difficult to exclude such windfalls from actual receipts. For example, despite accountants' best efforts to the contrary, it is rather anachronistic to distinguish an anticipated change in capital value from an extraordinary one. This may not seem particularly troublesome in that the Receiver of Revenue need only interest himself in what actually happened, not what was expected to happen. This 'after the event' view, which is also in accordance with the income definition of Haig and Simons, has some uncertain consequences for the measurement of income. Moreover, in some instances (as illustrated below), the Hicksian concept seems more sensible than the Haig-Simons one.

Haig defined income as "the money value of the net accretion to one's economic power between two points of time" (Haig, 1921, p.7). Simons was explicit about income being the sum of consumption plus the change in wealth. His definition was:

> "the algebraic sum of (1) the market value of rights exercised in consumption and (2) the change in the value of the share of property rights between the beginning and end of the period in question" (Simons, 1938, p.50).

Both Haig's and Simons' definitions of income clearly imply the maintenance of existing capital, in terms of events or receipts that occurred over a given period. The definitions explicitly account for increases and decreases in capital value which might be excluded under Hicks' definition. The problem at issue is one that pervades income taxation in many ways - the separation of capital from income. Specifically what is the appropriate tax treatment of capital appreciation? The distinction between consumption maintenance and capital maintenance can be illustrated by means of examples.

Consider a bond holder whose R1 million bond pays a 10 per cent fixed rate of interest per annum.[11] If the market rate of interest rises to 11 per cent the investor would suffer a capital loss of R100 000

(the capitalised amount by which the return on his investment falls below the general level of returns),[12] an amount just equal to his bond's interest yield. He must save all his interest to maintain his capital, and under the Haig-Simons definition would have zero taxable income.

The Hicksian interpretation is rather different. This is because Hicks in fact stressed the "maintenance of consumption". In clarification of his definition above he stated that income is: "The maximum amount of money which the individual can spend this week, and still expect to be able to spend the same amount in real terms in each ensuing week" (Hicks, 1939, p.174). Thus in the case of the investor above, he can maintain his spending of R100 000 interest per annum indefinitely, and his taxable income would therefore be R100 000. This approach is very similar to that of Fisher who defined income in terms of the "yield" from factors of production, and thus explicitly excluded saving and changes in the value of capital assets (Goode, 1977, p.7). This definition leaves income equal to consumption, Fisher's preferred tax base.

But what of capital appreciation? Suppose the interest rate instead fell to 9 per cent, such that the bond holder had, instead, a capital gain of R100 000. Hicks was not explicit whether such a gain would be included as income. Although if he spent all the appreciation, the investor would be still as well off at the end of the week as he expected to be at the start, he would not be able to maintain that level of consumption. It would appear, therefore, that Hicks' later statement would rule out the inclusion of capital appreciation in income. Defining income as maintenance of consumption is restrictive in this sense.

Kaldor put the problem somewhat differently. He chose to define capital appreciation as income only "... wherever it secures for the recipient an increased command over both consumption goods and income yielding resources - i.e. an increase in the purchasing power of his wealth in terms of commodities whether viewed as a stock or as a flow" (1955, p.69).

In Kaldor's view, an increase in capital values due to a fall in interest rates does not leave the investor with greater spending

power, because the income he can expect from his (increased) capital has not risen. Alternatively, if he cashed out his bonds and spent the increase in his capital - he clearly has a higher immediate capacity to consume - the investor would find that he would receive less money income in the future. Kaldor, therefore, at least implicitly, was taking a much longer-term lifetime view of taxable capacity. It is clear that in many cases, capital revaluations do not imply any increase in lifetime resources. Thus Kaldor, like Hicks and Fisher, rejected the inclusion of such capital revaluations under income.

Goode (1977, p.14), taking the Haig-Simons viewpoint, states clearly the counter view:

> "The immediate increase in consumption power that occurs when interest rates decline represents a new opportunity for asset owners that merits inclusion in the index of ability to pay. The capital gain obtained by those who invested before the decline in interest rates reflects a genuine advantage they enjoy that is not obtained by those who invest later or by other income recipients."

Of course, not all changes in capital value are of this type. While some asset values rise and fall seemingly at whim, many changes are closely related to changes in expected yield. Such expected appreciations and depreciations further differentiate the Haig-Simons and the Hicksian definitions and, also, Kaldor's concept of income from that of Hicks.

Hicks saw capital and income as "two different ways of expressing the same thing, not two different things" (in Kaldor, 1955, p.65). Insofar as an asset's value represents the present value of the expected future stream of income, capital appreciations (or depreciations) simply reflect expected increases (decreases) in future yields which, under comprehensive income taxation, will be taxed in due course. Thus the appreciation in the value of a company's stock, in the wake of a takeover bid, say, reflects the higher earnings potential under the new management arrangement. When that higher earnings yield is realised, it will be taxed.[13] In the Hicksian view, there would not seem to be a case for taxing the capital gain

also, yet the Haig-Simons definition most certainly would. Haig-Simons argues that taxable capacity is higher as a result of the windfall appreciation. The capital gain, like the future income flow, clearly constitutes a return to or yield from the investment and should be taxed. In contrast, Hicks' "maintenance of consumption" concept rules out the capital gain and the increase in yield as being sustainable increases in taxable capacity.

The Kaldorian interpretation, in this case, differs from the Hicksian one, and lines up with Haig-Simons. That is, Kaldor would accept capital appreciation as income where the appreciation yields a real increase in purchasing power in terms of capital assets. Only then can an investor secure a larger command over both consumption and future income. Kaldor, nonetheless, recognised that other forms of capital appreciation might be worthy of tax through a tax on capital. He specifically pointed out that "annual income is not in itself an adequate measure of taxable capacity" (1955, p.66).

There is an important exception to the general inclusion of capital appreciations as income in the Haig-Simons' view of the world. The exception arises in the context of dual corporate and personal tax arrangements. It is inappropriate to tax the capital gains associated with the retention of previously taxed company profits, any more than it is appropriate to tax the distributed profits a second time via the personal income taxation of dividends. For example, Bossons (1986, p.261) states:

> "The traditional definition of the ideal income tax system
> is one in which the separate taxation of company income is
> effectively eliminated with the full integration of the
> corporate and personal income taxes, with the cost base of
> company shares adjusted to reflect retained earnings so that
> only "goodwill" gains (capital gains in excess of
> retentions) are taxed through the capital gains tax."[14)]
> (emphasis added)

Gains in the market value of a company due to the retention of after-tax profits merely imply an increase in asset value or a reinvestment of funds in the same way as if the asset holding of an unincorporated business increased due to investment of its

proprietor's net earnings in bonds or property. The retention gains do not represent increases in taxable capacity, although resultant future income flows do.

The capital maintenance and consumption maintenance definitions are most markedly different in their treatment of capital gains and losses. Provided they are not due to a change in the general level of prices and with the exception of corporate retention gains, Haig-Simons always includes capital gains and, symmetrically, losses in the measurement of income. The "consumption maintenance" definition, on the other hand, typically excludes changes in capital value. It is the former definition which underpins comprehensive income taxation.

The economic definition of income is thus a pragmatic one. Real increases in purchasing power are regarded as having occurred whenever the capacity to consume rises, whether that increased capacity is due to a windfall, relative price changes, or a revaluation of future prospects (e.g. reflecting a change in future earnings). In the latter case, the capacity to consume explicitly is held to rise both when the asset value increases and again when the earnings are realised.

This is perfectly analogous to the income tax treatment of saving. Thus both income earned in period t and interest earned in period t + 1 on saving from t are argued to confer separate and distinct increases in the capacity to consume, and hence both would reasonably be liable for taxation.

In general, the Haig-Simons concept of income is inclusive of all accruals to real net worth over a (short) period of time. All sources of gain would be taxed alike; gain occurs whenever higher consumption is made possible and, when the gain is not realised as a flow of income or yield, it is established by the change in valuation of assets. The concept is indifferent between realised and accrued changes in wealth. Such accretions are equal to the amount which could be consumed over a period while maintaining the real value of wealth unchanged. The Haig-Simons potential consumption, or capital maintenance, base must therefore be equal to the actual consumption

base plus any accrued accumulation (less any decline) in capital or wealth. The next section discusses consumption as a taxation base.

IV The consumption base

Given the identity existing between consumption plus the change in wealth or savings, and income in equation (2a), it might be thought that consumption is just as difficult a concept to define as income. This is not the case, because consumption is always a "realised" activity. Consumption is measured as and when it happens; the timing issues raised in the context of the income base - which really relate to the determination of the future capacity to consume - are ignored. While other problems may be severe for consumption taxation, it is argued that those created by capital goods or the future capacity to consume are not.

As noted above, income derived from capital goods, whether in the form of a yield or capital appreciation, must be included in the income tax base, irrespective of the fact that the goods were purchased out of taxable income. Both income that is saved and the yield on that saving are taxed. The consumption base, however, does not incorporate income that is saved until the later date when the income is consumed. The consumption base is unconcerned with accruing wealth or changes in the capacity to consume when they are not realised. Most significantly, the consumption tax base is indifferent in its application as to whether a consumer wishes to consume goods immediately or save now and consume later. The decision to save is seen not as evidence of greater spending power, as with the income tax, but as a postponement of consumption until the future. Hence, at least under its classic formulation, the consumption tax postpones tax liability until saving is consumed. It does this by removing saving from the taxation bases now and taxing consumption of the capital and its yield later.

In the identity $Y = C + S$, total receipts (Y) are matched by total outflows on consumption and saving (C + S). This Chapter refers to two main types of consumption taxation on the basis of how each relates in practice to this identity. Indirect consumption taxes are taxes administered or levied upon C at the time of transaction itself. Direct consumption or expenditure taxes, however, are most

commonly proposed for administration from the other (source) side, on Y - S. Both, however, effectively deduct saving from the current year's income tax base and tax capital and its yield only when consumed.

The difference between a consumption base and the income base, therefore, is "in an important sense only a difference in timing" (Andrews, 1974, p.1116). Ultimately all income is taxed under both bases.[15] Under a consumption tax the taxation of saved income is simply deferred until the saving is liquidated, whereas the saved income is taxed as accrued under the income tax.

Some writers have attempted to make the timing differences disappear by defining income and consumption in terms of an individual's lifetime rather than a year. For example, Kay and King (1983, p.80) wrote: "We enter the world with nothing, and we leave the world with nothing. Our lifetime accounts must balance ... man's total lifetime income .... is equal to the total of what he spends on consumption and gifts to others". Similarly, Aaron and Galper, and Andrews before them, termed a tax on consumption plus gifts made a cash-flow income tax, asserting the underlying principle is "that all income should be taxed once in the course of a taxpayer's lifetime" (Aaron and Galper, 1985, p.66).

It is only relatively recently that timing issues have been recognised as important. Both Haig's and Simons' definitions of income referred to accretions over undefined periods of time. Kaldor was also unconcerned about the matter. He stated that "Over a taxpayer's whole life the accumulated total of Realised Income should come to the same as the accumulated total of Accrued Income; and in consequence the accumulated tax liability should also come to the same". He went on to recognise that taxation based upon realisation may mean postponement of tax liability but stated: "It would not pay the taxpayer to manipulate realisations with this end in view much beyond the point at which such manipulations evened out his expected rate of taxable net gains over time" (Kaldor, 1955, p.39).

For purposes of tax administration, the Haig-Simons definition is treated as applying to an annual period. While considerable debate exists as to whether taxable capacity is better measured over one's

lifetime or over annual parts thereof, the economic concept of income has merged with that of the tax practitioners and the relevant period has been defined as one year.

It is on this basis that Andrews argued: "The difference in timing between a consumption-type and an accretion-type tax is ... immensely important in defining the real burden of the tax" (Andrews, 1974, p.1117).[16] Postponement of tax liability effectively grants a tax saving (relative to income taxation) equal to the rate of interest.[17] Thus if tax of R100 is levied two years later than when the gain accrued, the taxpayer has effectively gained two years' interest on the R100 which he retained. The taxation of pension earnings is a typical example. Suppose a worker can invest the saved portion of his earnings in a pension fund earning a 5 per cent per annum (real) rate of interest for 25 years. Ideal income tax treatment would tax his R1000 earnings, say, and the interest annually. At a tax rate of 40 per cent, he can expect a pension entitlement of R1256 [R1256 = R1000(1-0.4)(1+0.05(1-0.4))^{25}]. This compares with an entitlement of R3386 [i.e. R1000 x (1.05)^{25}] in the absence of taxation. Consumption tax treatment would allow the deferral of tax until the pension was received (and spent). Thus, tax of R1354 would be due on the pension of R3386, leaving a net pension of R2032. Hence, deferral of tax would allow the worker a saving of R776 (i.e. R2032-R1256), a 62 per cent increase in consumption.

Clearly the postponement of tax liability is meaningful. Under an income tax, postponed consumption yields only the net of tax rate of interest. Under consumption taxation it yields the full rate of interest. This distinction is significant. Firstly, it implies that another way of expressing the difference between the consumption and income bases is that the latter includes interest (or more generally the return on capital), whereas the former does not. Secondly, because the return to postponed consumption is lower under an income tax, current consumption is favoured and saving disfavoured. In contrast, a consumption tax does not affect the returns to postponing consumption and, therefore, is neutral as between present and future consumption. These points are elaborated on below.

1. <u>The double taxation of saving</u>

Income taxation not only taxes income when it is earned, but also
taxes the income yield obtained on saving or investment of past
income. In other words, income consumed immediately is taxed only
once, but income which is invested and consumed later is taxed
"twice". It might be argued that this is not the case; in
particular, that as it is the yield from the investment being taxed on
the second occasion, it is new or different income and "double
taxation" has not occurred. For example, Goode (1980, p.54) contends
that the original income and its yield should both be taxed "because
they represent distinct increases in the power to consume". Advocates
of this view claim that the higher taxation of the saver is not a
perchance result of his postponing consumption, but a deliberate
reflection of the saver's increased income or power to consume in the
second period, due to the investment return.

However, viewed <u>ex ante</u>, consumption postponed is reduced relatively
to immediate consumption under an income tax. Mill as a supporter of
the "double tax" school of thought writes:

> "To tax the sum invested, and afterwards tax also the
> proceeds of the investment, is to tax the same portion of
> the contributor's income twice over. The principal and the
> interest cannot both together form part of his resources;
> they are the same portion twice counted: if he has the
> interest, it is because he abstains from using the
> principal; if he spends the principal, he does not receive
> the interest. Yet because he can do either of the two, he is
> taxed as if he could do both - and could have the benefit of
> the saving and that of the spending concurrently with one
> another" (cited in Kaldor, 1955, pp.79-80)

It is this so-called "double taxation of savings" under an income tax
that is often seen as inequitable and inefficient. The following
examples are illustrative. Assume an interest rate of 10 per cent, a
tax rate of 40 per cent, and an individual saving of R100. If the
interest income is subject to tax, the individual can consume R106
(R100 + R10 interest less R4 tax) in the next year. Alternatively,
R106 in consumption would be sacrificed in one year's time if the R100

were consumed this year. Without the tax on interest, R100 consumed now implies R110 consumption forgone next year. Thus, the cost of consuming now (not saving) is reduced by taxing the returns to saving. Alternatively, the relative price of future consumption compared to current consumption is distorted. It is for this reason that taxation on an income base discourages saving relative to taxation on a consumption base.

Consider an alternative expression of this argument, again using a tax rate of 40 per cent. Two individuals both have R1000 income. One consumes his R600 net income immediately, while the other invests his R600 at 10 per cent for 10 years. In 10 years' time the investment would have grown to R1556, in the absence of tax on the interest, but under income taxation would accumulate to R1074 only.[18] To recognise the reduction in consumption implied under this treatment, the R1074 possible consumption 10 years hence is only 41 per cent of the saver's consumption possibilities in the absence of taxation,[19] a reduction of almost 60 per cent. In contrast, the person consuming immediately sacrificed only 40 per cent of possible consumption.[20] Thus postponed consumption is taxed much more heavily than immediate consumption.

Of course, viewed **ex post**, as is commonly and misleadingly done, the saver appears to have consumption opportunities of R1074 compared with the spender who has only R600 consumption. But this clearly ignores the fact that consumption ten years hence is not as valuable as consumption now. The present value of R1074 is only R414 (i.e. $R1074/(1.1)^{10} = 1074/2.594$), some 69 per cent of the "spender's" net income (of R600).

In other words, life-time tax liability is higher in present value terms under an income tax for those who save compared with those who choose to save less. A consumption tax levies the same present value tax liability, irrespective of consumption-savings decisions (assuming that the savings return or rate of interest is equal to the rate of time preference for discounting).[21] The different equity implications of income and consumption tax bases, in large part, depend upon the relevant time horizon for assessment of tax liability - whether it should be the increment to income over a year or life-time consumption; that is, whether the capacity to consume at

each point in time is a more appropriate basis for taxation than the actual realisation of that capacity over one's lifetime.

2. The equivalence of saving exclusion and yield exemption

An important consequence of the laws of time, discounting and interest rates is that postponing tax liability via the exclusion of savings from the tax bases is equivalent to exemption from taxation of the yield from saving (under the assumption mentioned above). Unfortunately, this equivalence is often not made clear and confusion about the real base of consumption taxation reigns widespread.

Contrast the following statements:

"As income equals consumption plus savings plus taxes, the difference between the two tax bases is the inclusion of savings under an income tax. Both tax systems would apply to wage and capital income. A consumption base is income less savings where income includes wages, interest, dividends, rents and capital gains, as under the income tax base. It is only income not spent on consumption that differentiates the systems. Neither system need discriminate by income source" (Shoven and Taubman, 1980, p.206). (italics in original)

"A second method of computing the base for a tax based on consumption is to exempt all capital income from tax. Dividends, interest, capital gains, and profit from a personal business would be excluded from an individual's tax base" (Bradford & US Treasury, 1984, p.9).

Although these statements appear contradictory and may lead to different interpretations of the merits of consumption taxation, they can be shown to be fully equivalent under certain conditions elaborated on in Section C.III.4.

The easiest way to comprehend this savings deduction-yield exemption equivalence is with an example. Consider an individual who one year saves R1000 and receives 10 per cent interest, and the next year withdraws the R1100 and spends it. Under the standard savings

deduction approach, the individual would have taxable income <u>reduced</u> by R1000 in year 1 (reducing tax liability by R400, at a tax rate of 40 per cent). In year 2, he would be liable for tax of R440 on the R1100 consumed.

Under the alternative capital income or interest exemption approach, the R1000 saved would not have been deductible in year 1 (and thus would not have reduced tax liability by R400). Nor would any tax liability be incurred in year 2. Thus, it seems that the interest exemption is more generous - zero tax compared with R40 (R440 - R400) under the savings deduction approach. But, of course, tax liability of R440 in year 2 (under the savings exemption approach), at an interest rate of 10 per cent has the same discounted present value as the R400 deduction in year 1 (i.e. 440/1.1 = 400). Alternatively, the savings deduction in year 1 can be thought of as having a value in year 2 of R440. It is by virtue of this deduction that tax liability over the full period is eliminated. Thus both the taxpayer and the Treasury would be indifferent[22] between deducting savings from taxable income, and exempting interest on that savings.[23] The only difference is in the timing of payments, but not in their present value.

This example is, of course, much simplified - and there is a need to account for the tax treatment of interest paid, depreciation (or the costs of assets), the sale of assets and so on. However, the example does illustrate the essential differences between two ways of determining a consumption tax base. In one case, rules are devised for determining net savings (income less consumption), and in the second case, rules are devised for exempting capital income receipts. In both cases, however, there is a zero net tax liability on saving or its yield.

Of the direct consumption taxes considered later, one, the Hall-Rabushka tax, exempts capital income receipts, and the other, the Aaron-Galper cash flow tax, combines both approaches. Most assets receive cash-flow treatment, but consumer durables are treated by exempting their yield. (While indirect or sales taxes are equivalent to each other and can be thought of as exempting saving (investments are expensed)), their administration, of course, is different.) In respect of consumer durables, indirect taxes, in general, effectively

apply the tax-prepayment approach. That is, consumer expenditures are taxed when made (with no deduction allowed); there is no attempt to tax yield (in contrast to investment assets) and resale is generally exempt.

3. <u>The return on postponed consumption and intertemporal neutrality</u>

This section provides a simple algebraic proof that taxing consumption is equivalent to not taxing the fruits of saving. Suppose an individual works and consumes in period I and then retires and consumes his savings and their yield in period II. The individual must decide how to allocate his consumption between periods or, alternatively, decide how much to save of his first period's income for consumption in the second period. This decision is shown schematically in Figure 1.

Consumption next year

$C_2 = Y_2 = Y_1 (1+r)$

A

slope $= -(1+r)$

$\hat{C}_2 = Y_1 (1+r) (1-t)$

A"

slope $= -(1+r)$

$U(C_1 \ C_2)$

slope $= -(1+r(1-t))$

A'

$\bar{C}_1 = \hat{C}_1 = Y_1 (1-t)$

$C_1 = Y_1$

B'

B
Consumption this year

$\bar{C}_2 = Y_1 (1-t) + rY_1 (1-t) (1-t)$
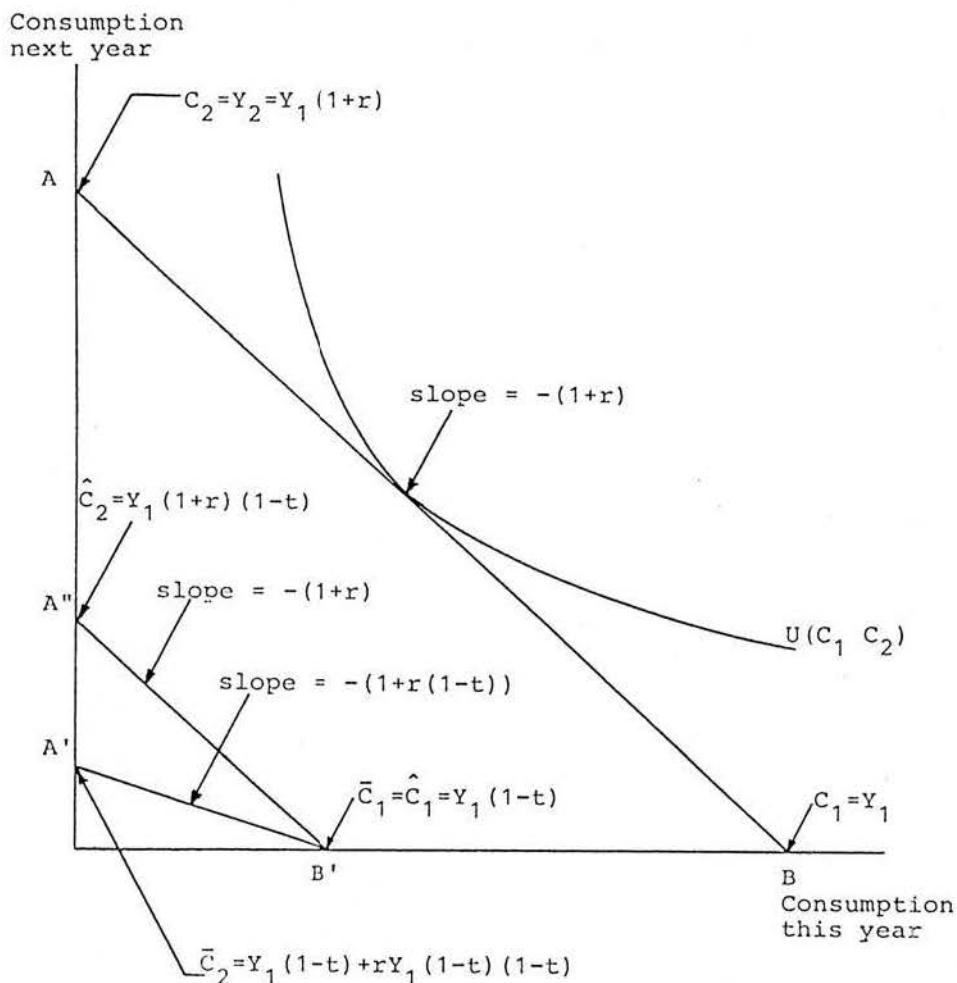
Figure 1: INTERTEMPORAL CONSUMPTION CHOICES

<u>Source</u>: Bascand (1988, p.120)

Consumption this year, C_1, is shown along the horizontal axis, and consumption next year, C_2, along the vertical axis. The indifference curves map out the individual's preferences between consumption now and consumption next year. The position of the budget line AB is determined by the individual's endowment (endowed wealth or human capital) plus income earned, which is shown in this diagram in terms of potential units of current consumption as Y_1. (That is, if the individual consumed his endowment in period I he could consume Y_1 units of consumption.)

Movements along the budget line (in a north-westerly direction) describe the sacrifice or trade-off of current for future consumption. As current consumption C_1 is forgone, potential future consumption C_2 is increased. The rate of exchange between current and future consumption is given by $\Delta C_2/\Delta C_1$. That is, the change in C_2 received in exchange for a change in C_1. In fact, if all current consumption were given up for future consumption, the individual could consume Y_2 units of consumption in period II, where $Y_2 = Y_1(1+r)$, or consumption forgone from period I plus the rate of interest received on that forgone consumption. As this implies, the rate of exchange between C_1 and C_2 ($\Delta C_2/\Delta C_1$) is determined by the rate of interest r. The rate of interest is the "premium paid" or the sacrifice for consuming now rather than later.

An individual gains utility from both current and future consumption, and one may therefore write the utility function as:

$$U = U(C_1, C_2)$$

In the absence of taxation, one may write the terms of this 'trade' of present consumption, C_1, for future consumption, C_2, as follows:

$$(-)\ \frac{C2}{C1} = (-)\ \frac{Y_1(1+r)}{Y_1} = (-)\ (1 + r) \tag{3}$$

where Y_1 is initial endowment plus income earned (i.e. $Y_1 = w.H$, where w is the wage rate and H equals hours worked if endowment is zero), and r is the rate of interest.[24] This equation says that the maximum consumption that could be obtained in period II, if all income from period I were saved, would be given by $Y_1(1+r)$. Thus,

the relative price of present and future consumption is equal to one plus the rate of interest (1+r) or, alternatively, the return from postponing consumption is the rate of interest.

With income taxes, however, the terms of this trade of present for future consumption are altered to equal only one plus the after-tax rate of interest $[1+r(1-t)]$. Future consumption is more costly in terms of forgone current consumption or, alternatively, forgone current consumption yields less in terms of future consumption. This is because the interest received on the forgone consumption is itself taxable. Thus in period II the most that may be consumed is saving from period I plus the net interest. One writes:

$$(-)\frac{\Delta \bar{C}_2}{\Delta \bar{C}_1} = (-)\ \frac{Y_1(1-t) + rY_1(1-t)(1-t)}{Y_1(1-t)} = (-)\ (1+r(1-t)) \qquad (4)$$

denoting after-tax consumption by $\bar{C}_1$ and $\bar{C}_2$. The return to postponing consumption is less under income taxation by the tax on interest. That is, the budget line under income taxation is given in Figure 1 as A'B', where A'B' has slope $(-)(1+r(1-t))$.

As was observed earlier, consumption taxation implies that income which is saved is not taxed until later when consumed. Thus, under consumption tax treatment the maximum consumption in period II is given by the net sum of saving (gross income from period I) and the interest return, or:

$$\hat{C}_2 = Y_1(1+r)(1-t)$$

Consumption in period I at most could have been $\hat{C}_1 = \bar{C}_1 = Y_1\ (1-t)$. Thus the terms of trade of present for future consumption under consumption tax treatment equal:

$$(-)\frac{\Delta \hat{C}_2}{\Delta \hat{C}_2} = \frac{Y_1(1+r)(1-t)}{Y_1(1-t)} = 1 = r \qquad (5)$$

which is exactly equal to the price in the absence of taxation. In Figure 1 the budget line is shown by A"B' for a consumption tax. In other words, under consumption taxation, consumption forgone today yields exactly as much in terms of future consumption as it would in the absence of taxation, that is the full rate of interest. Hence, consumption taxation is equivalent to not taxing the return on

investment or saving (because the return is equal to that applying in the absence of taxation). One can say, therefore, that consumption taxation is neutral in terms of the intertemporal consumption decision, whereas income taxation is not.

There is a counter view to this treatment of saving as postponed consumption, and the rate of interest as equal to the return to waiting. Its common expression is that saving or investing does return a real increase in purchasing power; the return on capital is not illusory. Keynes, for example, stated that: "It should be obvious that the rate of interest cannot be a return to saving or waiting as such. For if a man hoards his savings in cash, he earns no interest, though he saves just as much as before" (cited in Goode, 1984, p.54).

Keynes stated even more explicitly: "An act of individual savings ... is not a substitution of future consumption-demand for present consumption-demand - it is net diminution of such demand" (cited in Goode, 1984, p.54). Despite these views, and while recognising that a number of motives may explain saving, individuals must, and do, allocate consumption between different periods. Moreover, there is considerable evidence that individuals regard future consumption as having a lower value than current consumption (Hausman, 1979), and that they do trade one for the other. Likewise, it is clear that tax saved today (T) allows increased consumption of rT+T in one year's time (where r = the rate of interest).

There is an important distinction that Keynes' statement fails to recognise: the rate of interest can be the return to waiting without significantly affecting the amount of saving. While it is common to describe income taxation as distorting saving, in economic terms the distortion is of the intertemporal consumption decision, and this distortion could be quite large in welfare loss terms even if saving is little affected.[25] Nevertheless, Menchik and David (1982) have shown that if individual utility is a function of both lifetime consumption and bequests, a consumption tax which excludes gifts and bequests made from its base will no longer be intertemporally neutral and will distort saving behaviour. (The argument is equivalent to the distortion which arises from substitution of any non-taxed for taxed good.) Including gifts and bequests in the basis - a so-called

lifetime income tax, in Kay and King's or Aaron and Galper's terms - removes this non-neutrality.

Yet another aspect of this issue is the treatment of "pure profits" or the excess of total profits over the cost of capital. The observable return to capital does not in itself distinguish these components, but investment in profit earning activities will occur only where the expected risk adjusted return is at least as great as that obtainable in terms of interest upon government bonds. Thus, pure profits only exist to the extent that risk adjusted returns on capital exceed the rate of interest. Pure profits result, for example, from invention, monopoly, scarcity of resources, and entrepreneurship. While most of observed profits are equivalent to the return required by investors to hold capital from one period to another (i.e. the cost of capital), and hence are omitted from the consumption base, pure profits should, and typically will, enter the base. For example, they would be taxed upon consumption under a sales tax or a cash-flow tax. In contrast, typically, they will not enter the base of a wage tax.

4.   The equivalence of a consumption tax and a wage tax

A number of writers have demonstrated that a consumption tax is equivalent to a wage tax, provided that there is no initial wealth, so that labour income is the only source of income and all income is eventually consumed (not rolled over infinitely), or that gifts and inheritances are taxed (which overcomes the roll-over problem).[26] The equivalence holds when the rate of interest is equal to the discount rate, because the interest an individual receives on savings just compensates for postponing consumption until a later period. As we observed earlier, with a consumption tax, maximum potential consumption in period II equals income from period I plus the return on savings, less tax:

$$C_2 - Y_1(1+r)(1-t)$$

Now if the discount rate or rate of time preference (p) equals the rate of interest (r), then the return on savings or capital does not enter into the consumption base. This can be seen by discounting both sides of the equation, or by dividing through by 1+p. Thus the

discounted present value of consumption in period II equals after-tax labour income only, as follows:

$$\frac{\hat{C}_2}{1+p} = \frac{Y_1(1+r)(1-t)}{1+p} = Y_1(1-t), \text{ for } r = p$$

where Y_1 = labour income, and $\hat{C}_2$ equals consumption in period II.

In other words, the present discounted value of the consumption tax base is labour income.

Just as a consumption tax leaves unchanged the relative price of future and current consumption, so too does a tax on wage income only. Thus one has

$$\frac{\Delta C_2}{\Delta C_1} = \frac{Y_1(1-t)(1+r)}{Y_1(1-t)} = 1 = r \tag{6}$$

as in the absence of taxation in equation (3) and with consumption taxation in equation (5). Note, however, that in this simple model in which an individual works and consumes in period I and then retires and consumes saving and their yield in period II, there is no allowance for pre-existing wealth or capital income in period I. Were the model extended in this way, the equivalence of the wage tax and the consumption tax would break down. This caveat is illustrated in the next section.

V.   Comparison of tax bases

This section illustrates the impact on current and future consumption of four different forms of taxation in order to summarise the differences and equivalences between the income and consumption tax bases. While to some extent it pre-empts subsequent discussion of the tax systems it is useful at this stage to draw together the above discussion of income, wage income, consumption and wealth taxation.

Table 2.1 provides a comparison of the main taxes by reference to a two-period model in which an individual works in period I and is retired in period II. There is no pre-existing wealth and income is consumed in the two periods (i.e. there are no bequests). Individual A

TABLE 2.1: COMPARISON OF INCOME, WAGE AND CONSUMPTION TAXES

	Income Tax 20%		Wage Tax[1] 20%		Cash-Flow Tax[2] 20%		Sales Tax[3] 25%	
Period I	A	B	A	B	A	B	A	B
Wage income	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Savings	0	4,000	0	4,000	0	4,000	0	4,000
Tax on income	4,000	4,000	4,000	4,000	4,000	3,200	0	0
Consumption	16,000	12,000	16,000	12,000	16,000	12,800	16,000	12,800
Tax on consumption	0	0	0	0	0	0	4,000	3,200
Period II								
Interest income @ 10%	0	400	0	400	0	400	0	400
Tax on income	0	80	0	0	0	880	0	0
Consumption	0	4,320	0	4,400	0	3,520	0	3,520
Tax on consumption	0	0	0	0	0	0	0	880
Wealth	0	0	0	0	0	0	0	0
Sum Periods I & II								
Total income	20,000	20,400	20,000	20,400	20,000	20,400	20,000	20,400
Present value[4]	20,000	20,364	20,000	20,364	20,000	20,364	20,000	20,364
Total tax	4,000	4,080	4,000	4,000	4,000	4,080	4,000	4,080
Present value[4]	4,000	4,073	4,000	4,000	4,000	4,000	4,000	4,000
Total consumption	16,000	16,320	16,000	16,400	16,000	16,320	16,000	16,320
Present value	16,000	15,927	16,000	16,000	16,000	16,000	16,000	16,000

1. Perfectly equivalent, in terms of this individual, to the operation of the Hall-Rabushka
    tax.

2. Cash-flow tax is of Aaron-Galper type with savings deducted from income to determine
    taxable income, and where interest and withdrawals from savings accounts are both taxable.

3. Tax rate expressed as ad valorem, or tax-exclusive tax rate, ie tax as percentage of
    consumption exclusive of tax. Alternatively, the tax could have been expressed as a 20%
    tax on expenditure inclusive of the tax (ie R16,000 expenditure equals R20,000 income less
    R4,000 tax).

4. Period II values are discounted by the rate of interest (r=10%), ie by dividing by (1+r).

consumes all income in period I, while B saves 20 per cent of his gross income.

It may be observed that as between individuals A and B, the income tax levies a higher tax on B than on A. While B consumes more than does A in rand terms (R16 320 as compared with R16 000), in present value terms B has lower consumption. In this two-period model the higher tax burden associated with the income tax was only 1,5 per cent [i.e. (4072-4000)/4000], but in the case where saving is accumulated over many years and the interest is taxable, the greater relative burden of the income tax rises rapidly.

It is apparent that a consumption tax levied at a certain tax rate will collect less revenue than an income tax at the same rate. Alternatively, to yield the same revenue as an income tax, the consumption tax must tax labour income at a higher rate. It might be contended that today's exempt saving will be taxed when consumed tomorrow, but, while this is true for any one individual, some part of national income is continually being saved and hence expenditure will always be smaller than income.

In contrast to the income tax, the wage tax, cash-flow and sales taxes are neutral as between the non-saver (A) and the saver (B). In present value terms, A and B have the same consumption and pay the same tax.

The equivalence of the wage, cash-flow and sales taxes is noteworthy. Each tax results in identical levels of consumption. Hence, in this two-period model, a tax on wage income only - i.e. a tax which exempts capital income - is equivalent to a tax which allows a deduction for saving (i.e. the cash-flow tax). It is equivalent, furthermore, to taxing expenditure only (the sales tax).

The table also illustrates that all of the taxes, including the income tax, are equivalent in respect of individual A who spends all income, that is, has no saving. The non-equivalence in general of the income tax, and as reported for B, is simply due to the so-called 'double taxation of saving'.

Table 2.2 illustrates that the equivalence between consumption taxes and a wage tax breaks down when pre-existing wealth is allowed for. Tax reform is not, of course, a _de novo_ exercise. Income has been earned in prior periods and wealth accumulated. Table 2.2 attempts to accommodate this assumption into the simple model of income and consumption, by supposing individuals A and B have wealth equal to R4000 at the start of period t. (This wealth could be the accumulation of past savings or inherited.) An immediate implication of this assumption is that interest income exists in the period of tax reform (i.e. period t), and thus may enter the tax bases. It does for each of the taxes with the self-evident exception of the wage tax.

While the wage, cash-flow and sales taxes remain neutral in their treatment as between individuals A and B, the cash-flow and sales taxes yield a higher present value of tax receipts and lower consumption than does the wage tax. Moreover, in this example and over the two periods considered, the consumption taxes (excluding the wage tax) actually yield higher revenue than does the income tax, because _all_ the pre-existing wealth is consumed and liable for taxation. (Only the yield on the wealth is taxed under the income tax.)

In general, only a small proportion of pre-existing wealth would be consumed each year - it would not be completely dissipated as in the example. Moreover, in aggregate the capital stock grows annually, through net additions (saving). The example is realistic, nonetheless, for certain groups who do dissave. In this sense, the table represents the concern expressed at the time of the 1985 Australian Tax Summit that the proposed sales tax would disadvantage holders of wealth who spend that wealth and effectively dissave, especially the elderly (Collins, 1985, p.14).[27]

VI.   The wealth tax base

It has been observed that the flows of income, consumption and saving determine wealth. Recall from the identities in (2) and (2a) that:

$$\Delta W_t = Y_t - C_t$$

TABLE 2.2: COMPARISON OF INCOME, WAGE AND CONSUMPTION TAXES ALLOWING FOR PRE-EXISTING WEALTH

	Income Tax 20%		Wage Tax [1] 20%		Cash-Flow Tax [2] 20%		Sales Tax [3] 25%	
Period t	A	B	A	B	A	B	A	B
Pre-existing wealth [4]	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Interest	400	400	400	400	400	400	400	400
Wage income	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Savings	0	4,000	0	4,000	0	4,000	0	4,000
Tax on income	4,080	4,080	4,000	4,000	4,080	3,280	0	0
Consumption	16,320	12,320	16,400	12,400	16,320	13,120	16,320	13,120
Tax on consumption	0	0	0	0	0	0	4,080	3,280
Wealth at end of period	4,000	8,000	4,000	8,000	4,000	8,000	4,000	8,000
Period t+1								
Interest income @ 10%	400	800	400	800	400	800	400	800
Tax on income	80	160	0	0	880	160	0	0
Consumption	4,320	8,640	4,400	8,800	3,520	7,040	3,520	7,040
Tax on consumption/withdrawals	0	0	0	0	0	1,600	880	1,760
Wealth at end of period	0	0	0	0	0	0	0	0
Sum Periods t & t+1								
Total income	20,800	21,200	20,800	21,200	20,800	21,200	20,800	21,200
Present value [5]	20,764	21,127	20,764	21,127	20,764	21,127	20,764	21,127
Total tax	4,160	4,240	4,000	4,000	4,960	5,040	4,960	5,040
Present value	4,153	4,225	4,000	4,000	4,880	4,880	4,880	4,880
Total consumption	20,640	20,960	20,800	21,200	19,840	20,160	19,840	20,160
Present value	20,247	20,175	20,400	20,400	19,520	19,520	19,520	19,520

1. Perfectly equivalent, in terms of this individual, to the Hall-Rabushka tax.
2. Cash-flow tax is of Aaron-Galper type with savings deducted from income to determine taxable income, and where interest and withdrawals from savings accounts are both taxable.
3. Tax rate expressed as ad valorem, or tax-exclusive tax rate, ie tax as percentage of consumption exclusive of tax. Alternatively, the tax could have been expressed as a 20% tax on expenditure inclusive of the tax (ie R16,000 expenditure equals R20,000 income less R4,000 tax).
4. This wealth is wealth existing at the start of Period t. It could be inherited or saved from Period t-1, but if inherited we assume the inheritance is not taxed in the hands of the recipient.
5. Period t+1 values discounted by the rate of interest (r=10%), ie divided by (1+r).

If and when consumption exceeds income, W will become negative and wealth may be seen to enter the consumption tax base. However, insofar as saving is not consumed, but are rolled over from one generation to another, wealth will escape taxation under a consumption tax regime. A tax on wealth (or at least transfers among generations), in conjunction with an expenditure tax, might be justified then as a means of ensuring that lifetime income is taxed. It is important to recognise that this justification holds little force in the case of income taxation which incorporates saving in the tax base (i.e. wealth is taxed as it accumulates under an income tax). Only insofar as some income escapes taxation might a wealth tax be necessary to ensure lifetime taxation of income under an income tax regime. While the taxation of wealth is often advanced in conjunction with consumption taxation, it is, nonetheless, also sometimes considered as part of an income tax system. The argument essentially reduces to the proposition that wealth confers benefits independent of the future consumption possibilities it creates. The Meade Committee wrote: "Apart from providing a source of income which is compatible with a life of leisure, wealth gives opportunity, security, social power, influence and independence" (UK, 1978, p.40). Two forms of wealth taxation commonly are advanced. First, the actual wealth holding may be taxed annually, along with income or consumption. Second, transfers of wealth, that is gifts and inheritances, may be taxed.

The advantages that accrue from wealth holding apply irrespective of the source of wealth. Nevertheless, inherited wealth tends to upset sensibilities more so than that accumulated via one's own endeavour. The former is regarded as more deserving of taxation, because its accumulation has involved no sacrifice of leisure on the part of the recipient. In order to tax inherited wealth more heavily than saved wealth, it would be necessary to levy a transfer tax.[28] A tax on wealth holdings cannot discriminate by source of wealth, whereas the transfer tax, insofar as it is effective, will prevent the inheritance of large fortunes. Moreover, a tax on wealth holdings gives an incentive to wealth holders to dissipate their wealth by gift or bequest amongst family members, or to create a number of smaller fortunes. In this case the benefits of wealth holding may be substantially retained through intra-family transfers of both cash and in-kind forms.

Transfer taxation may have similar effects depending upon how it is levied. For example, progressive taxation of gifts and bequests would encourage diminution in the size of gifts and multiplication in the number of gifts. There is considerable evidence that transfer taxes are relatively easy to evade or avoid (Johns and Sheehan, 1977, pp.328-349). Moreover, the taxation of wealth distorts saving decisions in the same way as does income taxation. Insofar as wealth is accumulated in order to facilitate future consumption, this point is unexceptional.

However, Brennan and Nellor (1982, pp.427-436) have shown that where non-consumption related benefits (i.e. "psychic" returns) are associated with wealth taxation, a wealth tax in conjunction with consumption taxation may be less distorting than consumption taxation alone. In other words, taxing only consumption, when other benefits from wealth holding exist, creates a distortion in favour of saving. Brennan and Nellor also demonstrate that a "comprehensive income tax involves excessive taxation of wealth (saving) irrespective of how substantial the alleged psychic return on assets may be". Any further tax on wealth would exacerbate the non-neutrality of the income tax. The authors point out, however, that the distortion to saving posed by a comprehensive income tax may be less than that posed by consumption taxation, when psychic returns are important. Interestingly, Brennan and Nellor found that only a labour income or wage tax is inter-temporally neutral, in the presence of non-consumption related benefits from wealth. In the absence of such benefits, consumption taxation and labour income taxation are equivalent.

Arguments surrounding the taxation of wealth are tied in a number of ways to the tax treatment of gifts and bequests. On equity grounds, wealth taxation may be considered a supplement to the standard tax bases. This was the position of Kaldor and the Meade Committee, for example. In terms of the framework above (i.e. $Y = C + \Delta W$), transfers of wealth have special importance in distinguishing income and consumption over a person's lifetime. In the absence of gifts and bequests, lifetime income and consumption would be equal. For this reason, "consumption tax" proposals often insist on the taxation of gifts and bequests made.

In line with the Haig-Simons income definition expounded earlier, gifts and bequests undoubtedly would form part of the donee's base, when received. This is because the donee's consumption possibilities have been increased. Different views exist as to the correct approach from the donor's side: one method would allow no reduction from the donor's base; that is gifts would be treated as consumption by the donor (Aaron and Galper, 1985, pp.95-96). Alternatively, the gift is viewed as one way in which the donor chooses to use his economic opportunities, like any other use such as saving or current consumption. This treatment is equivalent to the comprehensive income tax treatment of other forms of saving, i.e. it results in the double-taxation of saving.

A second approach is to deduct the gift from the donor's base, but to include it in the recipient's base - on the grounds that the transfer of wealth does not represent consumption by the donor. The gift would still be taxed on receipt under an income tax as it is regarded as accommodating consumption by the recipient. It would also enter the consumption tax base (when consumed), unless, of course, it is rolled over again, from generation to generation and so on. This approach regards the gift as a mere transfer from one taxpayer to another and implies that consumption opportunities occur only on the part of the donee. Such treatment is analogous to consumption tax treatment of saving, where gifts are regarded as saving upon the part of the donor.

A third approach treats the gift as consumption on the part of the donor, by including it in his base, but not on the part of the recipient. This approach is often associated with proposals for a tax on the transfer itself, and is thus roughly the equivalent of applying gift and estate duties. It is difficult, however, to reconcile this treatment with the conceptual justification of taxation of consumption opportunities, as the recipient whose opportunities are increased is not subject to tax thereon.

C.   TAXATION OF INCOME AND CONSUMPTION BASES : OPERATIONAL ASPECTS

I.   Introduction

In Section B conceptual definitions of the income, consumption and wealth bases were advanced. As Bradford (1980, p.78) noted, however,

"the terms ['income'], 'consumption' and 'wealth' are not operationally defined a priori; they are defined in the process of determining tax policy". This section describes the operation of various taxes which are levied upon the income and consumption bases. (The wealth base is not considered further.) The discussion is couched in terms of the comprehensive and ideal definition of the taxes in order to elaborate the conceptual definition of the different tax bases.

Statement 2 in the Margo Commission's Report (RSA, 1987, pp.462-463) classifies, somewhat arbitrarily, the many tax forms of revenue raising that are generally employed with respect to three bases: income, expenditure, and wealth (the accumulated difference between income and expenditure). Taxes may be direct or indirect. By direct taxes are meant those taxes assessed on each individual's or tax unit's income, consumption or wealth during the tax period, and (potentially) taking into account the circumstances of the taxpayer.[29] In contrast, indirect taxes fail to account for an individual taxpayer's circumstances, and in any case are generally (though not necessarily) levied at some point in the income generation or distribution chain, where it would be difficult to take account of individual circumstances. For example, taxing wage and salary income through the PAYE system directly taxes the income of an individual. Payroll tax, however, is an indirect tax on labour income, as it is levied without reference to an individual's income over the tax period.

Expenditure may also be taxed directly, essentially by deducting saving (including the purchase of capital assets) from all income (whether from labour or capital) over the duration of the tax period. Alternatively, expenditure may be taxed indirectly, either through a sales or ad valorem tax or via a specific or excise tax such as the tax on beer.[30]

Despite strong advocacy on their behalf, direct taxes on consumption have as far as could be ascertained not been implemented at the national level anywhere in the Western world, although many forms of saving are exempted, and components of investment are often given preferential treatment. On the other hand, direct taxes on income are the major single source of revenue for most nations (RSA, 1987,

p.471).   Moreover, indirect taxes upon expenditure also feature
prominently in most Western countries.   Taxes on wealth, by
definition, tend to account for the levels of individuals' wealth,
although the taxes may be levied upon holdings (e.g. land tax) or upon
transfers (e.g. gift duties).   This section will consider both direct
and indirect forms of consumption taxation with indirect taxation
including turnover, wholesale sales, value-added and retail sales tax
schemes, and with the direct tax schemes including that advanced by
Hall and Rabushka, as well as other cash-flow taxes which allow
expensing of investments.

II.   Income Taxation

Tax administrators and policy analysts have translated the Haig-Simons
definition of income as the accretion of net worth into the notion of
(income underlying) the comprehensive income tax (CIT).   This
translation proceeds from the sources (right hand) side of equation
(2) and is made operational as follows:

$$Y_T = E + I + R + P + G + K + A - H$$

Where Y_T is comprehensively defined taxable income and is equal to
the sum of E = labour earnings, I = interest, R = rent, P = profits
and royalties, G = gratuitous receipts, K = in-kind benefits or
imputed yields, A = accrued wealth changes, less H which equals the
costs of obtaining income.   Such costs include the obvious ones of
materials, labour and interest and also the costs of assets or the
consumption of fixed capital (i.e. depreciation and maintenance).
Some of these items are elaborated below.

1.   Accrued wealth changes

Income taxation is based on the premise that accretions should be
taxed as and when they occur.   Thus gains (losses) in asset values
should be taxed (deducted) as they accrue;   the timing of their
realisation (cashing-out) is unimportant.   The reasoning is that
accrued wealth changes enable greater consumption just as do realised
gains.   For example, one may borrow against the appreciation of assets
and consume the proceeds of the loan. [31]

While it is common to think of capital gains in terms of increases in the values of equities, comprehensive income would also include accruals in the value of property, housing and consumer durables, assets such as jewellery and art, and pension rights. "It is necessary to ensure that all investment income currently earned by institutions is attributed, by one means or another, to the individual to whom it will ultimately accrue and is then taxed accordingly" (Kay and King, 1983, p.76). Thus an individual member of an occupational pension scheme would be regarded as having rights to some share of the earnings of the pension fund and would be liable for tax upon those fund earnings as they accrue. Of course, the attribution is not at all simple, as individuals have different claims to the earnings depending upon the type of fund - for example, whether benefits are related to contributions or not, whether pensions are portable, incur penalties upon withdrawal, and so on.

The determining of accrued wealth changes is beset with problems which arise largely because some assets are not, or are only rarely, traded in markets. If markets existed for all assets, "net worth would simply be the market value of assets minus the market value of liabilities, and calculating the change in net worth (to include in income) over a particular interval of time would be trivial" (Shoven, 1977, p.257). Valuation of non-marketed assets is very troublesome and thus many accretions can practically be taxed only upon realisation.

Various methodologies have been proposed to adjust realisation based tax payments to approximate tax liability on an accrual basis (see, for example, UK, 1978, Chapter 7 and Brinner, 1973). Tax based on realisation accords the taxpayer the advantage of deferral of tax liability; deferral is equivalent to an interest-free loan, and thus grants the taxpayer a saving equal to the interest receivable on the tax liability over the period of deferral.[32] For example, suppose capital gains tax of 49 per cent was payable on a capital gain of R10 000 made in 1987 but realised (for the same real gain) in 1990. The R4900 tax due has been retained by the taxpayer for three years, a saving to him of the net of tax interest he could receive on the R4900 for three years. At a net interest rate of 5 per cent this would be a saving of R772 [R772 = R4900 x $(1-(1.05)^3)$]. Alternatively, his R10 000 gain could be grossed up by the (compound) net rate of

interest over the three years, say 5 per cent. In this case the gain taxable would be R11 576 (R11 576 = R10 000 x $(1.05)^3$). Or, the tax rate could be grossed up by the net rate of interest over the three years, i.e. 0.567(= 0.49 x $(1.05)^3$).

Other accrual income changes may be important also. For instance, some bonds do not carry a coupon rate of interest but rather have a defined redeemable value, in a fixed number of years. Suppose a bond is redeemable for, say R1000 in five years, and sells for R750. Strictly, the R250 appreciation should be taxed as it accrues, which would not be especially troublesome were there no other conditions attached to the bond. However, if the redemption value is tied in any way to contemporaneous events such as the rate of inflation, estimation of the accrued gains would have to be adjusted accordingly.

Both practical and conceptual problems dog the taxation of accrued gains. While pension fund earnings do represent accretions to members' net worth, they may have little or no bearing upon a member's current capacity to consume. For example, it may not be possible to borrow against pension entitlements, or to do so only up to a specified surrender value which is, perhaps, unrelated to the earnings of the fund. Such accretions hardly secure for the recipient an increased command over consumption opportunities, and would hardly assist the fund member in meeting any tax liability upon the fund's earnings.

Symmetrical treatment of accrued gains and losses should occur. Thus decreases in net worth, due, for example, to decline in share prices, would be deducted from income, as they occurred (and carried forward by the rate of interest where losses exhausted current taxable income).

2.   Imputed and in-kind incomes

To date, the discussion of accretions has considered income earning assets which differ only as to whether they yield a stream of cash receipts or accrued changes in their value. A further class of assets, of which owner-occupied housing is the most important, yield a stream of consumption services directly (rather than through consumption of a stream of cash or accrued yields). Home-owners, for

example, receive housing services which have a rental value equivalent to the rent they would receive if they rented the house to tenants. Under a CIT such market rent is quite correctly taxable in the hands of landlords, as would be the imputed rental value of the housing services home-owners enjoy. Both Haig and Simons were explicit that this imputed income should be taxed (Haig, 1921, pp.7-8, 14-15; Simons, 1938, p.50). Of course, the costs of obtaining this income, such as interest and depreciation, justifiably would be deductible expenses in earning the rent income. Similar yields of consumption services are obtained from other consumer durables such as motor vehicles and hi-fi equipment. Until 1963, the income associated with home-ownership in the United Kingdom was imputed to individuals for the purposes of measuring taxable capacity (Hellmuth, 1977, p.170) and imputed rent is taxable in Sweden (Lodin, 1983). An approximation to the taxation of imputed rent also existed briefly in Australia prior to 1923 (Reece, 1985, pp.239-242). Note that the inclusion of the imputed income equivalent of consumption services in income would be in addition to the incorporation of the net changes in the value of the asset (i.e. a house) over the period.

3.   Costs of gaining income

In order to derive the real change in net worth, it is necessary to deduct from gross accruals the true costs incurred in earning income. Measurement of these costs can prove, however, quite troublesome, while the failure to allocate costs correctly to the period in which income accrues results in significant distortions and frequently in substantial tax reduction for many taxpayers.

The first class of problems is that due to the definition of legitimate deductions or legitimate costs of earning income. The business lunch is a good example of a more general problem. Expenditures which are really consumption should not be deductible from income, but in a number of circumstances are. Conversely, business activity which hinges crucially on communication and meetings has a valid basis for claiming business lunches as a cost of earning income. The farmer's white-painted, slatted fence, the real estate agent's Mercedes-Benz and many other examples demonstrate that the measurement of taxable income after subtracting costs is highly ambiguous. These problems - that is, the distinction between pure

consumption benefits and the costs of earning income - is common to all definitions of income, and equally to the definition of consumption for a consumption tax. For instance, a sales tax is plagued with the same problems of determining legitimate expenses in determining net taxable sales.

A second class of problems, however, is peculiar to income taxation, because the treatment of these costs is time sensitive. As noted above, timing issues matter in the measurement of income but not of consumption. Depreciation provisions reflect the intention of the law to deduct the costs associated with the true or economic rate at which the value of an asset declines. If the tax provisions correctly reflect economic depreciation, income from an asset will be measured accurately and tax distortions of investment would be reduced. In practice, however, the costs of many investments may be deducted significantly in advance of the receipt of income, and, indeed, often at the time of investment. For example, agricultural development costs, capital improvements inappropriately classed as maintenance or the costs of establishing forestry plantations can usually be expensed (i.e. deducted immediately in full) under current tax law. Deducting the cost of investments (i.e. expenses returning future, as opposed to current income) in full is, effectively, consumption tax (or cash-flow) treatment. It is equivalent to the same concession under income taxation as that due to deferral of tax, for example under a realisations based capital gains tax. The gain is the implicit interest receipt from reducing tax liability now rather than (at a less valuable time) in the future. As with gains realised in the future which should be grossed up to reflect their real value, so too deductions prior to income should be denied, and instead capitalised and subsequently depreciated over the period in which income is earned. Recent reform initiatives led to introduction of a number of measures to counter the "mismatching" of receipts and expenses. They include, inter alia, restrictions on cash accounting and interest deductions, the capitalisation of various business expenses and the introduction of at risk rules or minimum taxes. Subsequent Chapters refer to these measures as they apply to agriculture in particular.

The tax treament of human capital investments stands in stark contrast to the aforementioned cash-flow treatment of many capital investments. As noted earlier, changes in the value of human capital

are omitted from the Haig-Simons accretion concept. Perhaps
consistent with this exclusion of gains, the costs of investment in
human capital are typically non-deductible, despite the fact that
individuals' earning capacities undoubtedly decline and the value of
investments may depreciate. For instance, the prevalence of
retraining and upgrading of human capital through further education
clearly indicates that the value of prior investments has declined
over time, whether due to obsolescence or to the physical depreciation
which means that a 70-year old cannot perform as well as a 40-year
old. The appropriate tax treatment would be symmetrical with that of
a physically depreciating asset, that is the deduction of economic
depreciation of the capitalised value of expected earnings. Note that
some education costs may be expensed, when depreciation would be
appropriate. For example, training courses generally represent the
costs associated with obtaining future increases in earnings, but
(optionally) may be deducted in full when the investment is
undertaken. Such deductions are especially concessionary given that
the increase in the value of human capital is not taxed (although the
future income stream will be). Once again, cash-flow or consumption
tax treatment instead of income tax treatment applies. Overall, the
treatment of human capital investment is less "favourable" than
consumption tax treatment because the costs of investments generally
are not deductible while the yield (labour income) is.

4.   Price level changes

Changes in the general level of prices confer nominal increases in
value upon many assets and decreases in real values for others (e.g.
assets with a fixed nominal return). The Haig-Simons concept of
income is defined with respect to the maintenance of real wealth and
thus requires that nominal gains not be taxed as income while real
losses due to inflation should be fully accounted for. Serious
distortions to economic efficiency and arbitrary and capricious
changes to the real burden of taxation result from the failure to
index the income base (Sieper, 1986; USA, 1977). In contrast to the
equanimity of Goode (1980, p.64) who stated: "I doubt that it would
be prudent to adjust the tax system to make us more comfortable with
inflation. Much can be said for the contention that, in conditions of
moderate inflation, an unadjusted income tax helps compensate for
inequities and also slows inflation", Sieper (1986, pp.293-294)

argued that "The distortions caused by the interaction of inflation and the historical cost income base are serious at even moderate rates of inflation; at the rates of inflation to which we have become accustomed they are dramatic".

While indexation is a complicated task, reasonable methodologies have been devised. In short, comprehensive income taxation, à la Haig-Simons, is pure fancy in the absence of inflation adjustment of the income base. There are two broad problems for income taxation brought about by inflation. The first - bracket-creep or fiscal drag - stems from the progressive rate structure of the personal income tax system and results in taxpayers having their real tax liabilities increased. Any positive exemption or system of differential tax rates by income will result in fiscal drag. The problem can, to some extent, be corrected by indexation of tax brackets.

A much more serious consequence of inflation is that the inherent difficulty of correctly measuring capital income is greatly exaggerated by price level changes. As noted above, the Haig-Simons concept of income implies that only (accrued) receipts beyond those required to maintain capital at its value at the start of a period should be taxed. Inflation, however, implies that some part of the apparent or nominal yield of an asset is required to be saved simply to hold the real value of the asset constant (or to maintain its real yield in future). For example, the holder of a R1 000 bond who receives R150 in interest in a period when prices rise by 8 per cent must set aside R80 of that interest merely to protect the real value of his R1 000. Conversely, nominal yield understates a debtor's real gain. For example, a R1 000 mortgage has the real value of R920 when prices rise by 8 per cent, a gain or reduction in debt of R80 in respect of the mortgage. In contrast, consumption taxation, it is argued, is quite neutral amidst general price level changes. The reason is that the tax base is always determined with respect to current year transactions (and hence prices). Table 2.3 illustrates the price level neutrality of consumption taxation. The table has a similar two-period structure to Tables 2.1 and 2.2. An investor purchases an asset to the value of R4 000 in period I, which yields a real pre-tax return of 10 per cent. It, therefore, has a value of

TABLE 2.3: COMPARISON OF INCOME AND CONSUMPTION TAXES UNDER INFLATION

	Income Tax 20%		Savings Deduction Consumption Tax[1] 20%		Yield Exemption Consumption Tax[2] 20%		Sales Tax[3] 25%	
Period I[4]	**1**	**2**	**1**	**2**	**1**	**2**	**1**	**2**
Wage income	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Savings	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Tax on income	4,000	4,000	3,200	3,200	4,000	4,000	0	0
Consumption	12,000	12,000	12,800	12,800	12,000	12,000	12,800	12,800
Tax on consumption	0	0	0	0	0	0	3,200	3,200
Period II								
Asset value	4,400	8,800	4,400	8,800	4,400	8,800	4,400	8,800
Nominal yield or income	400	4,800	400	4,800	400	4,800	400	4,800
Tax on income	80	960	80	960	0	0	0	0
Consumption	4,320	7,840	3,520	7,040	4,400	8,800	3,520	7,040
Tax on consumption	0	0	800	800	0	0	880	1,760
Wealth	0	0	0	0	0	0	0	0
Real consumption	4,320	3,920	3,520	3,520	4,400	4,400	3,520	3,520
Sum Periods I & II								
Total income	20,400	24,800	20,400	24,800	20,400	24,800	20,400	24,800
Real present value[5]	20,364	20,364	20,364	20,364	20,364	20,364	20,364	20,364
Total Tax	4,080	4,960	4,080	4,960	4,000	4,000	4,080	4,960
Real present value	4,073	4,436	4,000	4,000	4,000	4,000	4,000	4,000
Total consumption	16,320	19,840	16,320	19,840	16,400	20,800	16,320	19,840
Real present value	15,927	15,564	16,000	16,000	16,000	16,000	16,000	16,000

1. Cash-flow tax is of Aaron-Galper type with savings deducted from income to determine taxable income, and where interest and withdrawals from savings accounts are both taxable.

2. Perfectly equivalent, in terms of this individual, to the operation of a wage tax.

3. Tax rate expressed as ad valorem, or tax-exclusive tax rate, ie tax as percentage of consumption exclusive of tax. Alternatively, the tax could have been expressed as a 20% tax on expenditure inclusive of the tax (ie R16,000 expenditure equals R20,000 income less R4,000 tax).

4. The columns headed "1" report the tax and consumption out-turns under income taxation and three forms of consumption taxation, assuming no change in the general price level. The columns headed "2" report the out-turns under the assumption that the price level doubles between the two periods.

5. Period II values are discounted by the rate of interest (r=10%), ie by dividing by (1+r).

R4 400 in Period II. The columns headed "1" report the tax and consumption out-turns under income taxation and three forms of consumption taxation, assuming no change in the general price level. The columns headed "2" report the out-turns under the assumption that the price level doubles between the two periods, such that the investor's asset value is R8 800 in money terms, a nominal gain of R4 000, but a real gain of only R400. The income tax levies an additional real tax burden of R364 under the inflationary conditions, while the consumption tax variants leave the real tax burden and real consumption unchanged. The same real return is obtained under inflation, with any of the saving deduction, yield exemption and sales tax approaches. However, a consumption tax is subject to the same bracket-creep problem as an income tax. It is only neutral in terms of the capital income aspect (although the bracket indexation problem is trivial in comparison).

A comprehensive package of income tax reforms to allow for inflation would include in real taxable income:

(a) real rather than nominal interest as income and as a deductible expense;

(b) current cost depreciation rather than historical cost depreciation;

(c) a stock valuation adjustment;

(d) real capital gains and losses; and

(e) indexing of losses carried forward.

5. Double taxation

Income from unincorporated businesses and partnerships is taxed as personal income in the hands of the owners or partners to whom it accrues. In contrast, income sourced to corporate enterprises generally is taxed both at the enterprise level (the company tax on profits) and when distributed to shareholders, with the result that distributed corporate source income is taxed more heavily than unincorporated income.[33]I Ideally, corporate-source income would

correctly be imputed to company shareholders and taxed in their hands at their individual marginal tax rates - full partnership or integration treatment. There is no justification in Haig-Simons for taxing business income twice. However, sound reasons have been advanced for maintaining a tax on corporate income (provided integration with personal taxes can be achieved). The main reasons advanced are that a company tax is a useful withholding device for tax both on income accruing to foreign investors and as a "convenient" way of taxing income earned by residents through business activities (Boadway, Bruce and Mintz, 1986; UK, 1978, Ch.12). Furthermore, removal of the tax would grant a windfall gain to existing shareholders. Any reform which reduces the corporate tax burden will confer such gains.

6. Deficiencies in current income tax arrangements

This section briefly summarises the main deficiencies of current income tax rules, as they relate to the CIT model. Other deficiencies which have encouraged tax reform are considered in Chapter 3.

Broadly speaking, the principle of taxation of comprehensive income is often violated because in practice different sources of income receive very different tax treatments. First and foremost, the taxation of capital and business income is seriously deficient - tax rates on different uses of capital are very different. Important sources of income are largely or totally exempt from taxation. The definition of (net) income is frequently distorted by the difficulties in measuring actual costs of earning income and legitimate deductible expenditures. In respect of the relative merits of the income and consumption tax bases, it is important to distinguish where possible violations of the CIT principle which are inevitable and inherent to income taxation, from those which are simply deficiencies of tax design. Where possible, these distinctions are identified below.

Taxation of business and capital income is the most troublesome for CIT reforms. Examples are the problems associated with asset value changes. Consider the tax treatment of a forest planted in year 1 and felled entirely for sale as timber in year 30. Is it appropriate to deduct the costs of planting and maintenance as they are incurred and to treat the sale proceeds as income or capital gain in year 30, or

should an uncertain amount of income be imputed each year as the value of the plantation increases? Lump sum pension and life insurance schemes are merely the individual taxpayer's counterpart of the forest.

Conversely, the declining value of assets (e.g. the depreciation of plant and machinery) is also very troublesome for taxation purposes, especially when commodity prices or technology change substantially.

Clearly, for assets where there is a wide interval of time (e.g. greater than the annual accounting period for tax purposes) between purchase (or payment) and sale (realisation), the separation of income from capital is a difficult task, and one which leads to many departures in tax law from the comprehensive concept of income. Important departures are:

(i) Taxation of gains at realisation rather than as they accrue, which leads to deferral and therefore lessening of tax liability - taxpayers with accrued but unrealised capital gains pay less tax than those with realised gains, even when their true incomes are equal. For example, at a marginal rate of 49 per cent, a cash-generating (annual realisation) activity must earn 13 per cent before tax to equate with an activity that yields 10 per cent but which is realised 15 years hence. [34]

(ii) Accounting rules for asset depreciation which are more (or less) generous than actual diminution of asset value - and thus cause the increase in taxpayer's net worth to be under-(over-)stated. The current approach whereby plant and equipment are depreciated quite rapidly is often arbitrary in its effects and concessional overall. Consequently, economic depreciation is often proposed.

(iii) Inflation related problems, including the deductibility or taxation of nominal interest payments or receipts, respectively; depreciation rates which do not reflect declines in real value; and the lack of indexation of the costs of inventories. To take an example, with inflation at 8 per cent a lender who receives R1 000 interest upon his R10 000 one-year loan has a real income of only R120, since the accumulated assets with interest are worth, in the previous year's purchasing power, 92 per cent of

R11 000 or R10 120. However, some tax systems would treat R1 000 as income, and not allow the real capital loss. Conversely, the borrower who is able to deduct R1 000 from his business income for tax purposes is able to reduce his taxable income by more than his real interest costs.

(iv) Asymmetric treatment of gains and losses - in many instances there are quite restrictive conditions on the carry forward and tax deductibility of losses. Nor are losses indexed. This asymmetry has been extended to the capital gains tax. This bias against losses creates distortions among business firms and discriminates against risky investments (Spending and Taxing: Australian Reform Options, 1987).

In principle, all of these time-dependent and inflation-related problems can be corrected, although corrections will be approximate only in some cases. For example, conversion from a realisation to accruals base is difficult but rules can be devised (as New Zealand and Canada have done or suggested). Some **ad hoc** adjustment to realisation could be made by adjusting tax liability by an interest rate to reflect the deferral gains, but this still would disguise many non-neutralities. For instance, assets which gained in value only towards the end of the period would be over-taxed (alternatively, the average rate of interest would exceed the correct rate in this case because liability is deferred for a shorter period than on average). Implementation of appropriate depreciation, inflation adjustment, and integration rules as was suggested by Treasury I (USA, 1984b) appear feasible and would certainly reduce the distortions of the current income tax. Nonetheless, many of the inevitable approximations called for have been criticised, especially indexation (Aaron and Galper, 1985, pp.61 - 63; Bradford, 1986). Depreciation rules which are appropriate one year may be seriously deficient the next, for example, following commodity price or technological changes.

In the Harberger (1962) world of a fixed capital stock, where the tax treatment of saving is unimportant, the optimal taxation of capital income is achieved by equality of tax rates among all uses of capital. This is the basis for the broad-based comprehensive approach to income taxation. Judgements appear to differ on how thoroughly this approach can be implemented, and clearly the more doubtful

critics regard past and probable failings as an important rationale for the adoption of a consumption tax. Even very careful and thorough-going reform will leave not insubstantial weaknesses in the taxation of capital income, particularly in terms of timing and deferral issues. The "playing field" may be much more level, but rankings of before-tax rates of return still will be disturbed by income taxes. The neutralities of consumption taxation described previously have some advantage here.

III. Consumption taxation - different approaches

Consumption may be taxed indirectly by way of taxes levied upon expenditure transactions, or directly by way of personal expenditure tax, either of the income-less-saving form or of the tax-prepayment form (i.e. yield exemption), or some combination of these approaches. The indirect approach clearly has public pre-eminence in Australia, Canada, New Zealand and South Africa. (cf. the reform proposals of the Australian Draft White Paper (Australia, 1985a), Canadian White Paper (Canada, 1987c), the New Zealand Government (NZ, 1985) and the Margo Commission (RSA, 1987)). Yet, at first glance, examination of the current income tax systems in the light of the accounting relationships outlined above (i.e. C = Y - S) suggests the direct route might be preferable, because many current systems currently exempt much saving, for example home ownership, retirement provision, mining and agricultural expenditures. Indeed, the extension of expensing was often suggested during the Margo Commission's investigation because important sectors such as agriculture and mining have been accorded tax treatment similar to direct consumption tax. As a result it was argued that a transition to a direct consumption tax base would be far less "pie in the sky" than a shift to a pure and comprehensive income tax. The Margo Commission in contrast argued that expensing helps taxpayers to "zero-out", that is, to reach a position where deductions exceed receipts so that no taxes are paid (RSA, 1978, p.76). The Commission concluded that in principle expensing is not a "valid" form of deduction for an income tax because it erodes the tax base by ignoring the time value of money (p.76).

The remaining sections discuss a number of approaches to consumption taxation and draw some distinctions among them. In the next section, some general aspects common to each of the approaches are examined.

1.   <u>Cash flow basis</u>

Perhaps the most significant practical difference between consumption
taxation and income taxation is the cash-flow accounting for most
investments. The costs of investments or assets are "expensed" - that
is, are fully deductible - in the year paid, rather than amortised via
depreciation schedules. Furthermore, the full value of assets is
included in the tax base on sale, as opposed to including the (real)
gain under capital gains taxation. This approach is common to both
direct and indirect forms of consumption taxation, and the only
exceptions are for consumption assets such as housing which receive
the alternative tax-prepayment treatment (discussed below).

The rationale of this cash-flow treatment is essentially the rationale
of consumption taxes: Cash receipts would be taxed only if consumed,
as reinvested receipts will be exempt. Every investment transaction
must trace back to an equal saving transaction. Hence, expensing
investments is equivalent to deducting saving. Thus, cash-flow tax
treatment ensures taxation of current consumption (income less
saving), as under indirect taxation.

It might appear that inflation raises tax liability in this case, as
no adjustment is made for the inflated increase in cost from purchase
to sale. Note, however, the cost of the asset was deducted fully in
"base year" prices, which is equivalent to perfectly indexing its cost
and amortising at the true rate of depreciation. The sale proceeds
would be traced in the same year's rands or prices, and hence
inflation adjustment is automatic.

The major advantage of cash-flow treatment is, of course, that no
imputations or accrual estimates need be made. Instead of estimating
changes in the values of assets, cash outcomes - purchases and
receipts - are accounted for. It is this feature which renders the
operation of consumption taxes simple. At once, complexities relating
to real and nominal value changes, accrual versus realisation issues
over the timing of income, and recovery of cost provisions, are
transformed into simple current accounting transactions. Accrual
realisation issues are at the heart of difficulties under an income
tax. By contrast, under cash-flow taxation, tax liability depends
upon how income is used, and is always related to current use. There

is no need to discriminate between capital income receipts and capital gains. While realisation in an income tax system leads to deferral of liability as compared with the treatment of current forms of capital income, under a cash-flow taxation system no deferral exists, because all forms of income are taxed as current consumption.

2. <u>Tax-prepayment approach and the treatment of borrowing and lending</u>

Under income taxation, interest payments (ideally, inflation adjusted) are deductible and receipts taxable; borrowings and investments do not, in principle, affect the tax base.[35] Cash-flow forms of consumption taxation on the other hand typically incorporate borrowings in the base and allow deduction for capital plus interest repayments, the discounted present value of which would be equal to the current value of the loan.[36] The rationale for this treatment may be seen from the following identities, ignoring transaction costs:

<u>Deductions</u>	<u>Taxable Additions</u>
Investments (asset price)	= Discounted present value of yield + sale value
Discounted present value of loan repayments + interest payments	= Borrowings (loan value)

These accounting relationships suggest that under a cash-flow system the granting of deductions for investments and loan repayments and taxing borrowings and cash-flow receipts effectively exclude capital income from the tax base. In the first year, borrowings and investments offset exactly, as do receipts and repayments - in present value terms - in subsequent years.[37]

In contrast, the tax-prepayment approach disallows the deduction for repayments and interest and also exempts interest receipts. Investments are not expensed, nor borrowings included in the base. This approach, which also goes by the name of yield exemption, means that the investment effectively is not deducted from the base, nor is the return on it included in the base. "Because this [approach] means that the actual tax liability occurs at the time of the investment

(which is, in effect, treated as part of consumption), "Blueprints" calls it the "tax prepayment approach" (Bradford, 1980, p.86).

The opportunity for prepayment of tax in this way is especially useful for the treatment of assets whose yield and sale are difficult to incorporate in the base. An example is housing. Potentially, as would happen under a strict cash-flow tax system, it would be possible to deduct from the base in year 1 the cost of a house, include in the base any borrowings and withdrawals in payment (these first year transactions would balance exactly), and in subsequent years to deduct from the base payments of mortgages and interest and include in the base the net imputed rental. It would be much more practical, however, to deny the initial deduction and not attempt to tax the imputed yield or consumption services. This alternative strategy is the tax prepayment approach. The Hall-Rabushka tax proposal applies the tax prepayment approach exhaustively to all assets.

3.   Capital appreciation and depreciation

Capital income is assessed under income taxation not by deducting acquisition costs from sales proceeds, but by allowing for the depreciation of the value of assets to be deducted. Problems arise because the cost of acquisition is generally measured in historical cost rands, often far removed from the real value of rands at the time of sale - cost and sales have different bases. Tax liability falls only on realised rather than accrued gains, yielding significant deferral benefits. Consequently, income that is accrued but not realised is taxed much more lightly than income that is realised or received as a stream, while "income" that merely represents changes in the general price level in practice is subject to tax.

Under consumption taxation, there is effectively no concept of accrual - only realised receipts are taxed. Nonetheless, consumption taxes can be shown to be neutral as between accrued income that is realised many years hence and income that is continuously realised. The timing of realisation does not affect the real tax burden because gains not realised (i.e. accrued) add equally to income and saving, and thus give rise to exactly offsetting additions to and deductions from the tax base. Equivalently, realised gains that are immediately re-invested provide no net increase in the tax base.

Because investments are expensed, the cost of capital is recovered in full from the tax base at the time of purchase; there is, therefore, no need for depreciation provisions. Expensing of investments means that investments carry a "zero cost basis", and hence the taxable receipts from asset sales do not need to be adjusted for acquisition cost. There is no need, therefore, for indexation, or the adjustment of asset cost to the same price level as receipts from sales. Proceeds from sale are taxable in full (there is no "cost" to be deducted). This treatment automatically taxes capital gains and, moreover, taxes these gains at the same real rate as is applied to other investment income (e.g. that received as interest). On this account there would be no case for a separate capital gains tax.

Exceptions are assets whose costs are not deducted at time of purchase, for example housing, art, jewellery and antiques. (These assets normally would be treated as tax-prepaid, i.e. not deductible at time of purchase, with their yield exempt).

The question arises as to whether capital gains on the sale of such assets should be taxed. A common view does not appear to have emerged. Hall and Rabushka state that, ideally, unexpected capital gains (on tax prepaid assets) should be taxed, but for "practical reasons" they choose not to do so in their proposals (1985, p.59), Aaron and Galper (1985, p.93) would do so by incorporating the "excess of the sales price over the purchase price, adjusted for inflation" in the tax base. Bradford (1981) on the other hand, is content not to tax such appreciations. The Meade Committee (UK, 1978) sought to resolve the issue by forcing assets likely to yield appreciable gains (in particular housing) to receive the cash-flow treatment (i.e. deduction of cost, and taxation of sale proceeds), but on the other hand proposed capital gains taxation on art and jewellery. The problem with tax prepayment for appreciating assets, as the Meade Committee saw it, was due solely to the progressivity of the (expenditure) tax system. While Aaron and Galper did not state their reasoning, Hall and Rabushka saw the problem as one when windfall or unexpected gains occur. These two views correspond to the conditions when the equivalence of cash-flow and tax prepayment approaches break down, and are examined in the next section.

4.   **Some caveats to the saving exclusion-yield exemption equivalence**

While the saving deduction-yield exemption equivalence is frequently asserted, and indeed underlies the proposed treatment of certain assets in many consumption tax proposals, the equivalence, in fact, holds only under the following set of reasonably restrictive conditions:

(i)   Tax rates are constant over time and in relation to expenditure levels.

(ii) A "perfect" capital market exists, in the sense that borrowing is unconstrained at the risk-free interest rate. There is no uncertainty as to the returns.

The first problem may be demonstrated easily. Consider an investment of R10 000 for a work of art which is expected to yield a capital gain when sold, and does so to the tune of R20 000 (sale price is R30 000).[38]   Assume that the investor is subject to a marginal tax rate on expenditure of 50 per cent (<u>tax inclusive</u>).[39]   Under the tax prepayment approach, out of an income of R20 000 the investor was liable for R10 000 tax, purchased a R10 000 asset, and received a non-taxable capital gain of R20 000.

In the alternative, cash-flow treatment, he could have invested the full R20 000 income (i.e. received no initial tax liability because investments are expensed) and received a taxable capital gain of R40 000.   Again the net return would be R20 000.   Inclusion of the investment in the investor's tax base means that "he has in effect been taxed at 50 per cent" (UK, 1978, p.180).   The tax was prepaid by taxing the investment.   But where tax rates are progressive, the investor (and the Treasury) would not be indifferent among these options.   The Meade report (UK, 1978, p.180) argued as follows:

"If [an investor] is a man who starts in humble circumstances liable to a low rate of expenditure tax, speculates with modest sums in purchasing assets which appreciate very greatly in value, and then realises the proceeds so that he becomes relatively wealthy and subject to a high rate of expenditure tax, it will make a great deal

of difference to him whether he is taxed at the low rate on
what he put in or at the high rate on what he takes out, and
it will make a great deal of difference to the average rate
of tax which he pays,"

A progressive tax must be applied to actual, **ex post** circumstances,
with regard to the success or otherwise of an investment. Ability to
pay and vertical equity, the concepts underlying a progressive tax
structure, carry little force if they do not distinguish "...(T)hose
who are lucky from those who are unlucky ..." (Graetz, 1980, p.171).

This observation raises a second interpretation of the above example,
one that demonstrates the second problem for the saving
exclusion-yield exemption equivalence - uncertainty as to the rate of
return. What, for example, would be the public reaction to highly
successful (tax-prepaid) speculations which receive no additional tax
liability upon realisation (consumption)? Those investments which
receive above average rates of return benefit from prepayment of tax,
whilst low return assets are disfavoured when discounted at the
average rate of return.[40)]

Suppose in the above example the investor borrows R10 000 to
supplement his own R10 000 after-tax income, as he is denied the
deductibility of his investment. As in the alternative case, he can
now purchase a R20 000 investment. If the non-deductible rate of
interest he pays upon his loan is less than the non-taxable rate of
return he receives upon the investment, he is favoured relative to the
treatment obtained under the saving deduction approach, for in that
case his interest payments would have been deductible and his return
taxable, a net addition to the base.

Alternatively, the actual rate of return might exceed the individual's
discount rate (by definition, his expected rate of return) through
windfall or unexpected fortune. While such gains are taxed under the
cash-flow approach, they escape tax when the tax is prepaid. On the
other hand, unexpected or below-average rates of return receive no
loss offset when the tax already has been paid. The government is
party to both type of investment and receives tax on the average rate
of return. A characterisation of the government as a joint venturer

in taxpayers' investments has become popular. Graetz (1980, p.173) states in connection with the cash-flow method:

> "In effect, [the government] invests a percentage equal to the taxpayer's marginal tax rate in each venture - for example, with a 60 per cent marginal tax rate, the taxpayer's initial tax saving is 60 per cent of the cash investment and the government receives 60 per cent of the gain or contributes 60 per cent of the loss".

But, as the above example demonstrates, this analogy breaks down when the tax is prepaid. To paraphrase Graetz, under yield exemption the government would not share in any gains or losses on investments or borrowings.[41)] Although as noted above the government would not be disadvantaged. (It would share in losses in a positive way, and "miss out" on the gains). Ex ante, one approach does not seem preferable to the other. However, for the distributional, ex post reasons given earlier, the cash-flow (saving deduction) approach is to be preferred for most assets. Explaining to the public that what the government misses out on in highly successful investments it makes up for on "losing" (i.e. relative to the average rate of return, not to zero!) investments seems problematical.

A less value laden argument concerns pure profits. Insofar as these are not anticipated (i.e. not reflected in the cost of funds), the cash-flow tax will reach them, but yield exemption will not. Indeed, it is a long-standing proposition that the present value of a cash-flow base is equal to the present value of pure profits (discounting at the real cost of funds) (Brown, 1948; Boadway, Bruce and Mintz, 1986).

Taken together, these arguments - uncertainties about yields, the progressive nature of the intended tax, and the desire to tax pure profits - imply that the cash-flow (saving deduction) approach is to be preferred for most assets. Exceptions are made only for those assets which are rarely traded and whose value is mostly for the consumption services they provide; specially consumer durables.

5.   Taxation of consumption from business income or business cash-flow

For the reasons advanced in Section C.II.5 (p. 43), it is assumed that in any consumption tax system, a corporate tax would remain. In particular, this tax would have the purpose of withholding tax revenues from foreign investors. Business income would be granted cash-flow tax treatment under a reconstituted company tax, as this would ensure integration of the tax on business and personal cash-flow, and preclude any discrimination against corporate activity. A tax on business cash-flow would relate quite neutrally to either an individual cash-flow (direct) consumption tax or to an (indirect) sales tax. The business tax component of the Hall-Rabushka income based value-added tax would be very similar in structure and effect. This section illustrates the integration aspects of a tax on business cash-flow, and defines its base, but operational details are discussed in the context of specific consumption tax systems below.

Table 2.4 demonstrates that a tax on this base would be neutral as between unincorporated and incorporated enterprises.[42] Furthermore, the business tax would leave unaffected the rate of return available to an investor. As with the individual cash-flow tax described below, investments are immediately deductible in full to the business entity. The table is drawn-up on the basis of a 20 per cent tax inclusive consumption tax and a 40 per cent cash-flow company tax. The consumption tax may be thought of as either a cash-flow tax base, or as a general sales tax. In both the unincorporated and incorporated business' case, there is an effective tax saving to the investor of R200 on his investment of R1 000 by the foregoing of consumption (lines 1 - 3 in Table 2.4).

While the unincorporated enterprise goes untaxed, the company may invest the funds and claim a 100 per cent deduction against income for tax purposes. The after-tax value of the R1 000 is, therefore, R1 667 and the company can realise a tax saving of R667 on the invest-ment.[43]   On this R1 667 investment, the company makes a R167 (10 per cent) return, on which it pays R67 (40 per cent) in tax. The unincorporated enterprise's investment of R1 000 returns the same R100 cash yield. Both forms of business yield R100 in dividend to the investor, who, upon consumption, is liable for 20 per cent tax. The

TABLE 2.4 CONSUMPTION TAXATION AND BUSINESS INCOME

Cash-flow and value-added tax rates at 20 per cent tax-inclusive (25 per cent tax-exclusive). Company tax rate 40 per cent (tax-inclusive); 100 per cent investment write-off. Real before-tax rate of return 10 per cent.

		Unincorporated Business	Incorporated Business
1.	Saving and equity investment by individual	1000	1000
2.	Saving of consumption tax	200	200
3.	After-tax cost of investment	800	800
4.	Funds received by business	1000	1000
5.	Investment (assets purchased) by business	1000	1667
6.	Tax saving through investment expensing (40 per cent on R1667)	-	667
7.	Business cash-flow (receipts less costs) at 10 per cent return	100	167
8.	Tax on business cash-flow	-	67
9.	Net cash-flow yield available for expenditure	100	100
10.	Tax on cash-flow or VAT on	20	20
11.	After-tax return to investor	80	80
12.	Rate of return to investor (line 11 divided by line 3 = line 9/line 1)	10%	10%

yield to the investor is R80 or 10 per cent of the after-tax cost of the investment. Aaron and Galper (1985, p.82) state:

> "The separate corporate cash-flow tax on earnings paid to investors does not, therefore, change the rate of return to the corporation or the individual shareholder. The tax exactly offsets the advantage of immediate deductibility of the cost of acquiring assets. The result is perfect integration of corporate and individual cash-flows with no distortions imposed by the corporate".

In order to ensure taxation of income accruing to foreign shareholders
and creditors it would be necessary to levy an implicit individual
cash-flow tax upon company distributions to foreign shareholders. In
the same way, a withholding tax on interest payments to foreigners
should be collected (interest receipts would normally be taxed for
domestic creditors) as deductions for interest would be granted under
cash-flow treatment. An alternative treatment is that advanced in the
Hall-Rabushka tax which effectively forces creditors to prepay taxes
on interest receipts, as no deduction would be granted to companies
for interest payments.

The base of a tax on business cash-flow is illustrated by following
identity:[44)]

$$N = (R + B) - (W + M + I + iB)$$

where N = net cash-flow

    R = total receipts

    B = net borrowings (i.e. borrowings less repayments)

    W = wages

    M = materials and other non-wage costs

    I = investment

    i = interest rate on borrowings (B).

IV   Direct consumption taxes

Consumption taxes implemented by deducting net saving from income have
the apparent advantage that they are applied at the personal level and
therefore may take account of individual (or tax unit) circumstances.
It is a relatively simple matter to achieve progressivity with a
direct consumption tax through its rate structure. By contrast, with
indirect consumption taxes, the desired progressivity must be attained
through selective exemption of goods consumed disproportionately by
"the poor" or through a cash transfer system, as it would be
administratively too costly to differentiate the (sales) tax rates
among purchasers according to their taxable capacity.[45)] This
section sets out in more detail two proposals for the operation of
direct consumption taxes; indirect tax arrangements are discussed in
the following section.[46)]

1. <u>Aaron-Galper cash-flow income tax</u>[47)]

One method for implementing consumption taxation is the cash-flow
income tax, also called an expenditure tax, a direct consumption tax
or a consumed income tax. The particular model described here is that
of Aaron and Galper (1985), although this discussion is concerned with
the structural features of the model rather than its specific
details. Its base is cash receipts less cash saving, where receipts
include all labour income plus asset sales, rent, interest, profits,
dividends, cash benefits, gifts and bequests. The tax is rendered a
consumption tax by virtue of an exemption for saving, defined as all
payments into special registered accounts. Withdrawals from these
accounts are taxed, and borrowing is regarded as a withdrawal. Loan
repayments of principal and interest may be deducted. Investment
assets that are currently able to be depreciated, plus financial
assets, can be expensed. The tax is progressive, having graduated
marginal tax rates and a personal exemption. Certain consumer
durables are treated as tax-prepaid; specifically, housing, works of
art, motor vehicles and household goods. Gains on sale would be
taxable for "investment-like" durables (e.g. art and jewellery). Tax
on corporate-source income is also implemented as a business cash-flow
tax; the business tax arrangements are very similar to those of the
personal cash-flow tax.

The Aaron-Galper cash-flow tax is one of a group of models which
relies upon qualifying accounts for determining saving and repayment
deductions and taxation of borrowings. Payments into the account
qualify for tax deduction, withdrawals are liable for tax. The often
alleged simplicity of a cash-flow tax arises because virtually all an
individual's transactions could be conducted through a cash management
account. It would not be necessary to apply the tax rules to
individual transactions into and out of the account, as the annual
change in balance would determine tax liability.

The individual cash-flow tax is set out in detail in Table 2.6 and the
simplified fashion in which it could be applied is set out in Table
2.5. The tax is structured so as to determine net or assessable
cash-flow, which may be thought of as total additions to a cash
management account, less withdrawals from the account, were all an
individual's financial dealings conducted through such an account.

This approach is portrayed in Table 2.5, which reports the tax return for an individual worker or small businessman who received employment income of R27 000 makes deposits into his registered account of R20 500 and makes withdrawals of R19 700, comprising sale of financial assets R7000, borrowings of R 10 000, a cash withdrawal of R2000, plus the withdrawal of interest and dividends of R700.

Table 2.6 details the underlying transactions, which would be reported on supplementary forms provided by the institution managing the account. In this detailed presentation, all personal income, business income, and capital receipts plus transfers effectively would be added to determine total assessable receipts. Deductions are allowed for cash saving, purchases of assets, repayments and other forms of saving, plus admissible business costs.

For example, consider a worker who purchased shares, say, of R15 000, which he financed out of sales of stock and borrowings. Over the course of the year he both withdrew from and deposited cash to his account and paid R1500 in principal and interest on his borrowings (an implicit saving). He also contributed to a retirement annuity scheme, for which he receives a deduction. All of these financial transactions could be handled through a single cash-management account, hence the simplified tax return in Table 2.5. Auditing of financial transactions would be simplified by matching tax file numbers with registered financial accounts.

The same tax form serves for self-employed or small businessmen as for wage and salary earners, although supporting verification of receipts and payments would be necessary. As discussed earlier, a corresponding cash-flow tax would apply to companies. The tax base, like the individual tax, would include all cash inflows including borrowings (but not dividends received) and deduction would be allowed for all cash outflows except distributions to shareholders or purchases of equities. For example, tax would be assessed on distributed cash flow. Integration of corporate and individual taxes is automatically achieved.

In principle, investment, saving, and borrowing transactions could be conducted outside qualifying accounts and be granted a tax prepayment treatment (i.e. saving would not be deductible against tax liability

TABLE 2.5: SIMPLIFIED TAX RETURN: CASH-FLOW TAX

Item	R
Add	
1. Employment income	27,000
2. Business receipts (all receipts of businesses owned or operated by you - detail)	
3. Gifts and bequests	
4. Other taxable receipts	
5. Withdrawals from qualifying accounts	19,700
6. Total receipts (sum 1 to 5)	46,700
Deduct	
7. saving/deposits in qualifying account	20,500
8. Business payments (all payments of businesses owned or operated by you - detail)	
9. Other admissible payments	
10. Total admissible payments (sum 7 to 9)	20,500
A. Assessable cash-flow (6 minus 10)	26,200
B. Tax exemptions: Personal exemption for tax free consumption	5,100
C. Taxable income (A minus B)	21,100
D. Tax assessed	XXX

TABLE 2.6: DETAILED TAX RETURN: CASH-FLOW TAX

	Item		R
Add			
1.	Personal incomes		
	1a Wage and salaries	25,000	
	1b Fringe benefits	2,000	
	1c Pension and life assurance receipts	0	
	1d Capital gains on certain goods	0	
	1e Interest	500	
	1f Rent	0	
	1g Dividends	200	
	1h Partnership income or distributions received	0	
2.	Business receipts (all receipts of business owned or operated by you - detail)	0	
3.	Capital receipts		
	3a Asset sales	7,000	
	3b Borrowings	10,000	
	3c Cash withdrawals	2,000	
4.	Transfers		
	4a Gifts and bequests	0	
	4b Government transfer payments	0	
5.	Other taxable receipts	0	
6.	Total receipts (sum 1 to 5)		46,700
Deduct			
7.	Cash saving/deposits	3,000	
8.	Purchases of financial, real estate and depreciable assets	15,000	
9.	Loan repayments and interest payments	1,500	
10.	Pension and life assurance payments	1,000	
11.	Business payments (all payments of businesses owned or operated by you - detail)	0	
12.	Other admissible payments	0	
13.	Total deductions (sum 7 to 12)		20,500
A.	Assessable cash-flow (6 minus 13)		26,200
B.	Tax exemptions: Personal exemption for tax-free consumption		5,100
C.	Taxable income (A minus B)		21,100
D.	Tax assessed		XXX

and borrowings would not enter the base). Symmetrically, the income received from assets held outside registered accounts would be non-taxable. In their proposal, Aaron and Galper allow very limited transactions 'off-account'; some minor borrowing would be allowed (and its counterpart repayment transactions also excluded) to 'permit households to borrow - without incurring an extra current tax liability' (1985, p.74).

Other cash-flow tax proposals have been more flexible in allowing a tax prepayment treatment, for example, Blueprints for Basic Tax Reform (US, 1977) and to a lesser extent the Meade Committee (UK, 1978) who permitted bank accounts to be unregistered, but required most business and financial assets to be registered.

The problem is as follows. If borrowing outside registered accounts is permitted, the funds could be deposited into registered accounts and used to purchase assets for which deductions against tax liability could be claimed. While the yield from the assets and subsequent withdrawals would be taxable, in due course, tax liability is thereby deferred. Against this gain, however, must be set the tax deduction forgone on the loan repayments (interest and repayments are normally deductible). The accounting identities given in Section III (1)(b) above illustrate that these offsetting 'extra' deductions and deductions forgone would have equal present values. The 'additional' tax deferred from year 1 given by tB, where t is the tax rate and B is borrowings, is just equal to the 'additional' tax due on non-deductible repayments tR, where

$$R = \sum_{i=1}^{n} R_1$$

That is:
$$tB = \sum_{i=1}^{n} \frac{tR_1}{(1+r)^n} \quad \text{where r is the rate of interest}$$

The Meade Committee were concerned, however, about opportunities afforded taxpayers to bring forward their consumption, while leaving loan and tax settlement till death. This would place extra strain upon the taxation of bequests. Aaron and Galper chose to include gifts and bequests made and assets transferred into trusts in the base of the donor. (The only exception is gifts to one's spouse.)

Transfers received also would be taxable in the hands of donees, when consumed. This treatment ensures that a taxpayer is taxed once upon all the resources available to him over the course of his lifetime. The giving of gifts is regarded as a consumption activity or use of resources.

As noted earlier, provisions for consumer durables and housing have been explained by Graetz (1980). In short, durables are treated as tax prepaid, but gains on sale (sale price less indexed acquisition cost) would be taxable. Also outlined above was the counterpart of a tax on business cash-flow. All receipts, except those from the issue of new capital, would be taxable. Investments and other legitimate expenses would be deductible immediately and in full.

An important concern about cash-flow taxation of corporate source income is the impact this might have on taxation of income accruing to foreign residents, and the opportunities created for international tax minimisation. It must be recalled that a cash-flow consumption tax effectively exempts capital income and taxes domestic consumption flowing from labour income. In the absence of special provisions, income flowing to foreign shareholders, which currently is taxed at the company tax rate, effectively will escape taxation under cash-flow rules, as consumption offshore cannot be taxed. Following the transaction through, the initial investment would be deductible and the subsequent distribution of dividends taxable (that is, the cash flow of the company is taxed when distributed). These transactions have equal present value with, therefore, zero net revenue consequences. The distributions received offshore are not taxed. While optimal rules for taxing international income flows are not universally agreed, few would suggest the elimination of tax on the income of foreign residents. Perhaps in order to avoid this outcome, Aaron and Galper (1985, p.84) propose that an additional withholding tax be applied to all remittances to foreign shareholders.

2.   Hall-Rabushka simple flat tax (H-R tax)

A further method of implementing a direct consumption tax is that proposed by Hall and Rabushka (1983, 1985). The proposal ensures that all income (except the exempted amount and gifts and bequests) is taxed once at a single rate. Wage income and occupational pension

payments only are taxed in the hands of employees. The business tax is a comprehensive withholding tax on the difference between gross revenue and allowable costs, calculated on a cash-flow basis. All receipts from sales of inventory and assets are included and purchases of the same are expensed. Also deductible are materials, wage payments and other services costs of production. Where the approach differs from other direct consumption taxes (such as the cash-flow tax above) is that it operates on the sources side of the income-consumption circle, and applies on a fully tax-prepaid basis with respect to dividends and interest. That is, interest and dividend payments are not deductible; nor are they taxable as receipts. (Likewise, borrowings are excluded from the base and loan repayments not deductible.) The base of the business tax is total value-added less value-added due to labour. The business tax applies to all forms of business[48] and is thus neutral with respect to organisational structure.

This is demonstrated in Table 2.7. Incorporated and unincorporated enterprises are treated identically. In the table the incorporated enterprise is assumed to borrow funds in addition to its equity injection through the issuance of shares. The interest on the loan is not deductible, nor taxable to the creditor. This ensures that businesses are indifferent among debt and equity sources of finance, while purchases of bonds or equities by investors receive identical treatment. As is true of unincorporated enterprises, perfect integration of the business and wage tax is ensured. If an owner of a small business chooses to pay himself a wage income, it is deductible to the business and taxable to the owner. He might do this to take advantage of personal exemptions (a tax-free threshold). If he chooses not to pay himself wages, he pays tax on his business income instead. In Table 2.7, the investor paid tax of R200 on earnings (from the previous period) and invested his R800 in a new business. His investment receives a tax saving of R200, as he may purchase a R1000 machine and deduct it in full (at a 20 per cent tax rate, R1000 = 800 x 1/(1-0.2)). In the table it is assumed that he chooses not to pay himself wages. He receives R80 after-tax return from his investment of R800, a 10 per cent rate of return.

TABLE 2.7 CONSUMPTION   TAXATION   AND   BUSINESS   INCOME   UNDER   THE
         HALL-RABUSHKA TAX

Wage and business tax rates at 20 per cent tax-inclusive.

100 per cent investment write-off.

Real before-tax rate of return 10 per cent.

		Unincorporated Business	Incorporated Business
	Individual Wage Tax		
1.	Earned income	1,000	1,000
2.	Tax on earnings	200	200
3.	Saving and equity investment by individual	800	800
	Business Tax		
	Funds received by business		
	- equity investment	800	800
	- borrowings	0	1,000
		800	1,800
4.	Revenue from sales	2,000	4,375
5.	Allowable costs		
	- materials	900	900
	- labour costs	0	1,000
	- investment (assets purchased) by business	1,000	2,250
	(Tax saving through investment expensing at 20% tax rate)	(200)	(450)
		1,900	4,150
6.	Taxable business cash-flow (receipts less costs, i.e. line 4 minus line 5)	100	225
7.	Tax on business cash-flow income	20	45
8.	Interest payments @ 10% (not deductible)	0	100
9.	Net cash-flow yield to owner/ investor	80	80
10.	After-tax return to owner/ investor	80	80
11.	Rate of return to owner/ investor (line 10 divided by line 3)	10%	10%
	Return to creditors (interest receipts not taxed)	10%	10%

The figures differ for the incorporated business in some cases, in order to provide a fuller picture of the workings of the tax. Thus the company business was assumed to borrow R1000 which enabled a larger scale investment (R2250), with a larger tax saving due. (The tax saving arises because the investment is deductible.)

The rate of return before tax is 10 per cent as can be deduced by dividing line 6 by the asset value. This before-tax rate of return is maintained as a 10 per cent after-tax rate of return on the after-tax cost of the investment to the individual investor.

The two-tier (individual and business) tax in effect taxes consumption as defined in national accounts. Consistent with this perspective, capital gains are not taxed, even for consumer durables, although Hall and Rabushka stated that unexpected gains ideally would be taxed. No allowance was made for taxing cash transfers, gifts or bequests. The tax could be modified to incorporate gifts and bequests in the individual's taxable income, in which case it would be equivalent to the Aaron-Galper cash-flow tax on all sources of income.

The chief advantages of the Hall-Rabushka tax over other consumption taxes are:

(a) Its simplicity: record-keeping is minimised and the complexities that arise with the qualifying accounts approaches of other consumption taxes are avoided. Withholding of taxes is greatly facilitated and difficult income sources such as interest and dividends are excluded anyway.

(b) In contrast to the indirect VAT, Hall-Rabushka is able to accommodate progressivity via personal exemptions and/or graduated tax rates (though the latter were not proposed by Hall and Rabushka). As the personal exemption applies only to the individual tax on wage and pension income, it does not reduce the tax liability on business income. (Cash transfers are not taxed.)

(c) The base potentially is broader than that applying under most VATs as government and non-profit organisations are included. Furthermore, rental and owner-occupied housing is more easily accommodated than under the indirect approach. For instance,

suppliers of housing fall within the scope of the business tax, as do house builders. Purchasers of houses for domestic use cannot deduct the costs and therefore bear the tax.

(d) The inflationary effects of indirect taxes, such as value added or retail sales taxes.

A distinguishing feature of direct consumption taxes is that they are levied on an origin rather than a destination basis which is normal for sales taxes. That is, no facility is made for exempting exports, though one could be developed along the lines of goods produced for export sale being deducted from sales in calculating tax liability; imports would not be deducted (Bradford, 1986, p.81).[49]

The 'destination principle' - exempting goods consumed overseas so that all goods bound for the same destination are treated equally - has long held preference, due in part to popular misunderstandings of exchange rate changes. If exports are subject to tax, then any rise in the price of goods due to imposition of sales tax would have to be borne by the exporter (assuming that a higher price could not be charged to foreign consumers). Unless the exchange rate depreciated to offset the loss, exporters' profitability would be reduced. Of course, exchange rate movements are indifferent among commodities. While this argument might be important in the case of indirect consumption taxes, where different goods bear different tax imposts, it is much less a problem with the uniform treatment of the Hall-Rabushka income based value-added tax.

The 'origin principle' - taxing all goods with the same origin equally (i.e. exemption of importing and taxation of exports) - has a number of advantages, however. First, it is consistent with income and profit taxes, which are not rebated on exporting activities. Second, it avoids the conundrum where goods purchased overseas out of tax-exempt (export) income, rather than imported directly, avoid taxation. The Meade Committee (UK, 1978, p.173) state: "With the 'origin principle' the UK exports which indirectly financed the foreign holidays of the UK tourist would themselves have borne the tax". In essence, the case for the destination principle is a pragmatic one; it avoids 'imperfect' exchange rate adjustments and is consistent with international practice for value-added taxes.

The Hall-Rabushka tax is simply a tax on value added from the sources or income side of the accounts, in contrast to a VAT on the uses side. For this reason, the Meade Committee (UK, 1978, p.157) termed such a tax system an ITVAT or income tax form of value-added tax although the actual administrative details of the Hall-Rabushka tax are somewhat different from, and simpler than, the Meade Committee's arrangements. The Hall-Rabushka tax avoids taxing saving by expensing investments, but avoids the troublesome practices of registered and non-registered assets and borrowings by excluding borrowings from base and treating all lending as tax prepaid. Note, however, the Hall-Rabushka tax differs in an important way from the standard tax-prepayment treatment of borrowings and loans. Whereas borrowings outside qualifying accounts can grant taxpayers saving deductions and defer tax liability under cash-flow treatment (see above), business enterprises only (not individuals) can deduct investments under the Hall-Rabushka tax. The 'problem' will still exist, therefore, for unincorporated enterprises, but equity investors will not be able to bring consumption forward in the same way as might occur under the cash-flow tax.

The Hall-Rabushka tax is a mixture of yield exemption (or tax prepayment) and cash-flow tax treatments. Investments are deductible to the firm and receipts taxable. Thus the business tax in one sense operates as a cash-flow tax, with the government sharing in gains and losses. The H-R tax therefore successfully reaches "pure profits" received through businesses. For individuals, the tax appears to operate on a yield exemption basis - equity or interest bearing investments are not deductible nor receipts taxable. But, in fact, dividends received by a shareholder will be an amount net of the tax paid on business cash-flow (including "pure profits").

International capital flows present similar difficulties as for the cash-flow tax. Once again, a withholding tax on remittances to overseas might be required to avoid revenue loss.

V   Indirect consumption taxes

Indirect consumption or sales taxes, levied on the "uses" side of the income-consumption balance sheet may be administered at a number of different points in the production-distribution chain. They may be

administered at pre-retail stages (as with a wholesale sales tax (WST)), at the retail level only (as with a retail sales tax (RST)), or they can be applied at each and every level, as with a value-added tax (VAT). There are strong economic and administrative arguments for levying consumption taxes at either as late a stage or at an early stage. Levying at the early stage makes administration easier and evasion more difficult. However, problems arise with taxes levied at an early stage because some businesses straddle the distribution channel, making it difficult to determine on what price to levy a wholesale tax or to ascertain "transfer pricing" within company groups. Some countries have opted for "early stage" consumption taxes (Australia), others "late stage" taxes (South Africa) and others "all stage" taxes (New Zealand).

Figure 2.2 provides some understanding of why taxation of sales of goods and services to households is the same base as that of a direct consumption tax. The chart schematically describes the flows of payments for factor inputs and payments for goods and services produced. In this simple model, expenditure by households is equal to incomes received by households. The model is timeless, in that interest and profit payments (receipts) by firms (to households) relate to past saving or investments. While at any point in time expenditure is less than income receipts by the extent of saving, in a lifetime model the two have equal present values (assuming bequests are zero). Thus we might either tax payments by households for goods and services or tax receipts by households for the purchase of their factor inputs by firms.

Often indirect taxation of consumption is supported almost exclusively as an adjunct to income taxation; support - on this front, at least - has been for increased hybridisation of the income and consumption bases. At the same time, moves to purify the income tax towards full coverage of sources are stronger than ever. In contrast, and somewhat ironically, given their partial, de facto implementation (in agriculture and mining, for example), direct consumption taxes have been proposed almost exclusively as complete replacements of the income tax. Two major reasons for the seemingly contradictory stances towards indirect and direct consumption taxes are advanced:

INCOME AND
FACTOR INPUTS

OUTPUT AND
EXPENDITURE

HOUSEHOLDS

Factor services
(land, labour,
capital)

Wages,
Rent,
Interest,
Profit

Payments
for goods
& services
purchased

Goods and
services
produced

FIRMS
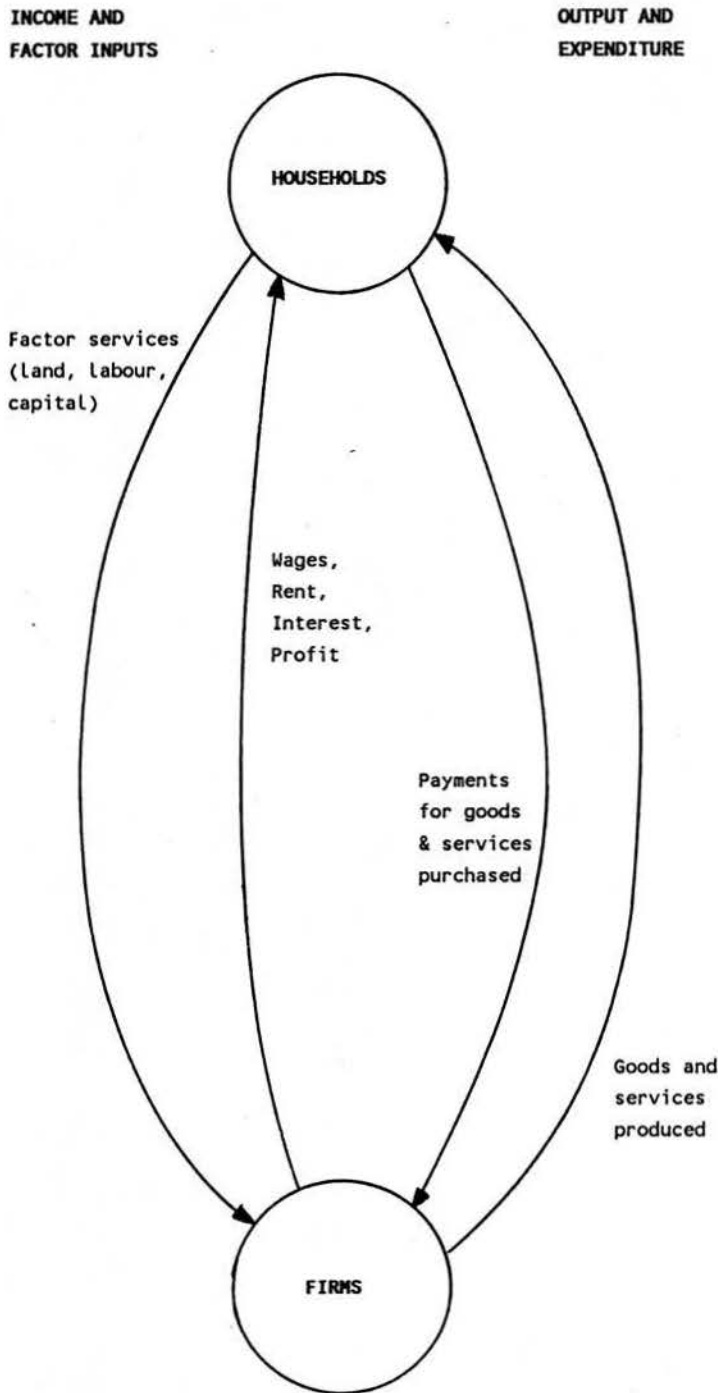
FIGURE 2.2: INCOME AND EXPENDITURE FLOWS

(i) The principal virtues of consumption taxation are its exemption of saving and its neutrality across different uses of capital. Discussing partial replacement of income taxes with a broad based sales tax, Kesselman (1986) stated: "the combined proposals might be understood as an attempt to tax various forms of capital income more uniformly without raising total tax borne by capital incomes". Partial implementation of indirect consumption taxation is consistent with these goals, in that by itself[50] it treats different forms of saving equally, although exempting only a portion of them. In contrast, partial adoption of direct consumption taxation (with saving exemptions) is much more likely to involve non-neutralities among saving instruments and perhaps among uses of capital. Some forms of saving are encouraged relative to others. As different saving instruments are applied to activities of different degrees of risk, some uses of capital will be favoured relative to others.

Moreover, generalised saving exemptions through such vehicles as qualifying accounts or investment retirement accounts[51] may not actually accomplish their goal of promoting net increases in saving. First, they are of an inframarginal nature, in that existing saving may simply be diverted to the tax preferred account. Second, existing wealth may simply be sheltered in the guise of saving, for example by borrowing against one's house for the purpose of investing in tax-free accounts, and gaining full exemption for the "new" saving deposits.[52]

This is not to say that a partial, generalised and neutral saving incentive cannot be implemented with partial direct consumption taxation. Equivalent to the indirect approach would be a net investment credit, or partial expensing of the cost of investments with the rest depreciated at true economic rates (Harberger, 1980 p.307; King, 1975, pp.271-279). Nonetheless, these options are more complex than the indirect tax route. Comprehensive income tax reform is required in both cases for the efficient allocation of capital.

(ii) Indirect taxation is often supported as a means - often, as "the only" means - of reducing the strain on the income tax, as reflected in high marginal tax rates and widespread avoidance and

evasion. It is argued by Bascand (1988, p.83) that, for the most part, indirect taxation will, in fact, accomplish very little in this regard, although it remains true that the different tax base (domestic spending) will raise some revenue from those who currently escape the tax net, for example by evasion. The concern about avoidance relates heavily to the less than full taxation of income from capital, yet, as was shown above, consumption taxes exempt capital income from taxation, and hence, reduce the tax burden on interest and profits relative to that applying under an income tax. Because of the equivalence between exemption of saving and exemption of interest, avoidance of income tax due on interest and other capital income would simply render the income tax equivalent to a consumption tax. One cannot recover the evaded taxation of income by subsequently adding a sales tax which exempts saving or capital income, although the pre-existing stock of wealth, including that acquired illegitimately, will be taxed when consumed. This is a 'once-off' effect.

Direct consumption taxes, when implemented fully, may have minimising effects on avoidance. For instance, much of what is regarded as income tax avoidance would constitute appropriate treatment under (direct) consumption taxation. However, again partial operation may be less desirable than with an indirect tax approach. For example, limited tax-deductible saving accounts provide incentives for complex investment arrangements that will minimise tax liability.

The implication of these arguments is that if "hybridisation" of income and consumption taxation is considered desirable, it should be accomplished via indirect rather than direct taxation of consumption. A further consideration is that indirect taxes already exist in practice, and it is more likely that one indirect tax system would be replaced by another, rather than by direct consumption taxation treatment.

The following paragraphs reflect the operation of various forms of indirect taxation, with emphasis placed upon the relatively 'neutral' retail sales tax and value added tax arrangements. The equivalence of a retail sales tax and a value added tax is illustrated in Table 2.8

TABLE 2.8: COMPARISON OF TURNOVER, WHOLESALE, RETAIL SALES AND VALUE-ADDED TAXES

Stage of Production	Turnover Tax (10%)			Wholesale Sales Tax (10%)			Value-Added Tax (10%)			Retail Sales Tax (10%)		
	Before Tax	Tax	After Tax	Before Tax	Tax	After Tax	Before Tax	Tax	After Tax	Before Tax	Tax	After Tax
Manufacturer												
Sales	250	25	275	250	0	250	250	25	275	250	0	250
Purchases	-	0	-	-	0	-	-	0	-	-	0	-
(Net) Tax		25			0			25			0	
Wholesaler												
Sales	600	62.5	687.50	600	60	660	600	60	660	600	0	600
Purchases	250	(25)*	275	250	0	250	250	25	275	250	0	250
(Net) Tax		62.5			60			35			0	
Retailer												
Sales	1000	108.75	1196.25	1000	0	1060	1000	100	1100	1000	100	1100
Purchases	600	(87.50)*	687.50	600	(60)*	660	600	60	660	600	0	600
(Net) Tax		108.75			60			40			100	
TOTAL TAX		R196.25			R60			R100			R100	

* Tax is not deductible, and treatment assumes that the retailer has a fixed rand margin; if retail sales were priced on a two-thirds mark-up (as before tax), the sale price after tax would be R1100 in the case of the WST.

as are the differing effects of a wholesale sales tax and a turnover
tax.

1.   Turnover tax

A turnover tax, which is occasionally suggested (McRobert, 1985), is a
tax applied at each and every level of production (à la VAT) but
without "credit" for tax paid on inputs as occurs with VAT. It
'cascades', therefore, to the worst possible extent with arbitrary and
potentially very high effective tax rates at late stages in the
production-distribution chain.[53)]

The chief reason for its underlying popularity is that the statutory
as distinct from the effective tax rate can be very low, owing to the
substantial size of the turnover base. Hence, in Table 2.8 the same
10 per cent tax rate as for the VAT, when applied through a turnover
tax, yields almost double the revenue; and this in an example of only
three steps in the supply chain. As a guide to some of the
distortions involved in a turnover tax, observe that if the three
firms merged into one integrated business enterprise, then tax
liability would be reduced to R100, as in the case of the retail sales
tax. Turnover taxation dramatically exaggerates problems found with
wholesale and manufacturer sales taxes; these issues are discussed
below.

2.   Wholesale sales tax (WST)

Pre-retail sales taxes are commonly levied at the wholesale or
manufacturing level. Traditionally, these taxes were adopted because
administration was thought to be simpler, in particular involving
fewer firms than would be the case at the retail level. Historically,
different stages of production were more easily identifiable, as few
enterprises were vertically integrated. Manufacturers sold goods to
wholesalers who on-sold to retailers. In recent times, it has been
recognised that the imposition of pre-retail sales taxes could result
in significant inefficiencies (Canada, 1987d; Tait, 1988, pp.15-17).
Indeed, perhaps the strongest argument for a broad based consumption
tax in Australia is not the lowering of the personal income tax burden
that this might allow, but rather its replacement of the existing
wholesales sales tax.[54)] The current WST in Australia is said to

apply to a base only fractionally over one-fifth of household
expenditure. Moreover, about half of the revenue is derived from
business inputs (Australia, 1985a, p.117). The average effective rate
on this base (including inputs) is about 20 per cent although this
average masks considerable variation. Both statutory and effective
tax rates vary widely and arbitrarily between goods with high rates
on some items, and numerous exemptions. The same amount of revenue
could be raised by about a 6 per cent broad based indirect tax on a
plausible final consumption expenditure base (Bascand, 1988, p.13).
Horler (1986, pp.265-267) provides details on the rates and coverage
of the Australian WST but the design deficiencies accentuate the
inherent problem that a WST has a smaller base and therefore collects
less revenue (for a given rate) than a general sales tax. Hence tax
rates must be higher for a given revenue target. For instance, Table
2.8 illustrates that a 10 per cent WST would collect only R60 in
revenue compared with R100 under the RST or VAT on the same potential
base.

The difficulties with a tax at the pre-retail stage have been recorded
in recent official and other reports (Australia, 1975a, pp.526-527;
Canada, 1987d, pp.9-24; Due, 1984, pp.363-378; NZ, 1982, pp.209-210).
The major ones can be summarised as:

(i)   Price cascading: the effect of taxing inputs is to add to the
        cost of outputs by more than the amount of the tax. No offsets
        for tax on inputs occurs to producers at later production
        stages. If mark-up pricing rules are followed (although these
        may be inconsistent with normal competitive pricing), then the
        increase in price to final consumers may exceed the tax.

(ii)   Products for which a greater share of the value is added after
        wholesale will bear less tax than items with low retail
        margins. Effective tax rates will therefore vary widely among
        goods. In the Canadian White Paper it was reported that amongst
        660 commodities "no two products have the same effective rate of
        tax" despite there being only three legislated rates (of 8 per
        cent, 12 per cent and 15 per cent; some goods are
        exempt)(Canada, 1987d, p.11).

(iii) Distribution channels that avoid some burden of the tax are favoured, in particular vertical integration; manufacturers selling direct at the retail level may escape the tax net, while retailers who buy on large bulk contract at lower price and add value themselves (as in private brands) will be favoured over small retailers.

(iv) Imports are favoured (in the absence of 'corrective' measures) and exports discouraged relative to home production for domestic consumption. Imports are favoured because the imported value to which the tax is applied often excludes some costs typically included in the domestic production tax base. Exporters are 'disadvantaged' (abstracting from exchange rate corrections) as they receive no offset for taxes on inputs, and offsets are inherently difficult to administer for exports by firms downstream.

(v) Avoidance and evasion are significant problems for a wholesale sales tax because of the problems of determining taxable value, of distinguishing wholesalers from manufacturers and retailers, who are exempt from taxable purchases, and in applying the appropriate tax rate to taxable goods.

(vi) Shifting of transportation, packaging and advertising costs, for example, to purchasers, thereby minimising the price upon which the tax is paid.

(vii) The difficulty of taxing services which are almost exclusively conducted at the retail level. A separate sales tax could be applied to services but this may compound double-taxation problems.

While some of the difficulties of the present Australian WST, for example, could be removed by rationalising it in the direction of a broad based retail tax (less services) at a pre-retail stage, the inherent difficulties would remain. Despite attempts to overcome these difficulties in cases where similar taxes have been administered in other countries, adjustments have never worked ideally, and they have seriously complicated the operation of the tax, creating much confusion and uncertainty (Due, 1984, pp.363-373). Moreover, removal

of the difficulties, while avoiding the establishment and operative costs of a new broad based tax, would inevitably face the same sectoral opposition and political difficulties in overcoming pleas for exemptions. More critically, thorough rationalisation would exaggerate the inherent inefficiencies, especially the taxation of business inputs.

3. Retail sales tax (RST)

A RST is only levied, in principle at least, upon final sales to consumers, and hence theoretically involves only retailers (see Table 2.8). The base of a RST is private final consumption expenditure and thus a RST should yield the same revenue as a multi-stage sales tax or VAT which effectively taxes all sales by businesses less all purchases by them, which is equivalent to the value of final sales to consumers. This equivalence is shown in Table 2.8. Tax to be charged on sale is calculated by multiplying the tax-free price of goods for sale by a tax-exclusive rate (say 10 per cent).

A RST is operated on the 'ring system'. In practice, any business making sales to final consumers (outside the ring) has to apply and qualify for exemption of sales tax upon its purchases. The tax is a tax upon sales at retail, not upon retailers. Businesses are registered and provide evidence of an exemption certificate to vendors at time of purchase in order to qualify for exemption from tax. Thus sales of goods which are intended for resale or for incorporation into other goods (i.e. sales within the 'ring') are tax free. However, a trader must be registered in order to make tax-free sales and purchases, and thus in practice under a RST virtually all manufacturers, wholesalers and retailers plus importers will be registered. Contrary to common perception, it is probable that a RST would involve only 10 to 20 per cent fewer businesses than would a VAT (USA, 1984, Vol.3, p.32).

As a supplement to exemption of sales within the ring, some goods and services which are rarely sold at retail are specifically exempted. Final sales of these goods, however, might be taxed indirectly, through taxation of their inputs. For example, a common 'input taxed' good is financial services. Because financial services are exempted, sales of intermediate goods to financial intermediaries are regarded

as sales outside the 'ring'. Another class of goods often termed "restricted goods" is taxable in all circumstances, even on sale amongst registered sellers within the 'ring'. The Australian Draft White Paper, for example, recommended as 'restricted goods' "food and beverages, clothing and footwear, entertainment, short-term accommodation, travel and personal services such as hairdressing, ... motor vehicles, motor vehicle repairs, consumer durables and petroleum products such as petrol and diesel fuel", in addition to building materials (Australia, 1985a, p.134).

Categorical exemptions and restrictions on sale are responses to the difficulty that underlies any indirect tax in distinguishing goods used for business purposes from those used for personal use. In many cases, goods apparently destined for intermediate use could be easily diverted for personal consumption. Unlike VAT,[55] identification of the purchaser and his intended use of the goods or services is imperative to a RST. Because of the difficulty in effecting exemption on each and every transaction, many transactions are regarded as **prima facie** taxable or non-taxable. RSTs tend to apply to goods and services that are presumed to be for final consumption and to exempt goods presumed to be for intermediate use or destined for resale.

Although virtually all final consumption expenditure could be covered under a RST, it would be at the cost of significantly greater production distortions through taxes on business inputs, and/or result in very high compliance costs in order to achieve maximum exemption. While the credit system potentially could be used more widely with a RST (Due, 1986, p.226), the invoice trail is likely to be insufficient for effective auditing and evasion could be exaggerated. That is, credit on inputs could be obtained with much less verification than is required under a VAT.

Private consumption expenditure is the sum, in an accounting sense, of the value of all purchases of goods and services by consumers. These expenditures should represent the base of a RST, but in practice many expenditures are not taxed for both administrative and more subjective reasons. In the context of the United States where retail sales taxes were first adopted, and upon which subsequent national level retail sales taxes were modelled, Due (1986, p.227) writes:

> "When the taxes were first imposed in the 1930s, typically
> they applied to all sales at retail of tangible personal
> property. Thus they did not apply to sales of real
> property, intangibles such as securities or services - but
> the coverage of retail sales on physical commodities was
> universal."

Since that time, the trend has been towards exemption of certain
commodities, especially food, for distributional reasons (a tax on
food is perceived to be regressive), and towards inclusion of some
services. Nonetheless, services are usually exempt; the most frequent
exceptions to this rule are entertainment, restaurant and
accommodation services. Because many sales of goods involve the
bundling of services, at or after-sale, it is frequently necessary to
distinguish taxable and non-taxable components of sale. Cascading is
a serious risk (of extensions to coverage) because many services are
sold for intermediate use in the supply of other goods, for example
transportation, banking, insurance and legal services. While this is
true also of much tangible property, there is a view that case by case
exemption of services is an especially difficult task.

According to Tait (1988, pp.18-19) the main problems of the RST are
the following:

"(i)   The higher the rate, the more collection weight is put upon the
         weakest link in the chain - the retailer, especially numerous
         small retailers.

(ii)   All the revenue is at risk. It has been suggested that this is
         also true of VAT if the retailer successfully claims all his
         credit on purchases, but clearly it is more difficult to do so
         under the accounting requirements of VAT.

(iii)   The audit and invoice trail is poorer than under a VAT,
         especially for services.

(iv)   There have to be troublesome "end-use exemptions."

(v)   Revenue is not secured at the easiest stage, that is, at the time of importation, and this can be crucial for many developing countries."

4.   <u>Value-added tax (VAT)</u>[56]

The VAT is, as the name applies, a tax on the value added at each stage in the production and distribution of goods and services. The value added can either be calculated according to an addition approach or a subtraction approach. The subtraction approach may be applied in two different ways namely the so-called accounting method and the credit or the invoice method. The accounting method uses normal accounting procedures to calculate the tax base by subtracting total purchases from total sales and therefore automatically leads to a consumption type VAT. This happens because investment exemption occurs automatically through the deduction of all purchases received from external firms and persons who are also taxpayers. Under the credit method this result is obtained by simply allowing a credit for the purchases of all VAT paid on investment goods. The additive method of taxing under a VAT system, measures the tax base of value added as business is conducted, and not at the point of sale or the point of rendering a service. Basically this would mean that the taxpayer adds for each accounting period, the amounts paid out to factors of production whose services were used in the production of goods and services and total payments would represent the gross tax base of the particular firm.[57]

Under VAT it is important to distinguish between "tax exempt" and "zero-rated" sales. A "linguistic quirk" of the VAT is that exemption actually means that the exempt trader has to pay VAT on his inputs without being able to claim any credit for his tax paid on his inputs (Tait, 1988, p.49). Thus, if farmers are exempt from VAT, they do not have to deal with the tax man, but they pay VAT on all their inputs. Zero rating, on the other hand, means that a trader is fully compensated for any VAT he pays on inputs and, therefore, is genuinely exempt from VAT. In practice, however, most countries have frowned upon the use of the zero rate.[58]

The treatment of international transactions under a system of VAT characterises the system as either an origin or a destination method

of tax. The origin principle entails that the tax is levied on imports and not rebated on exports. The destination principle implies that the tax is levied on imports while exports would go tax free. Such opposite treatment of exports and imports under different VAT regimes, stems automatically from the choice of a VAT system. The invoice or the credit method facilitates the exemption of exports, because the destination of goods is known through invoicing. Thus tax credits can be fully effected at the border as is done in the EEC. On the other hand, because the additive and the subtractive methods are based on business accounting systems, it is in many cases virtually impossible to identify the destination of goods produced and therefore, difficult to enact exemption.[59] Imports however, would be free from the additive VAT other than the value added, after having crossed the border. Thus VAT would be levied on the value added by the importer and retailer in the case of imported goods.

The subtractive invoice method is mostly used in tax regimes in the well-known indirect form where the tax liability of business firms is calculated mainly through the use of invoices - hence it is sometimes also called the invoice method. In most European countries the tax is effectively instituted on the destination principle as a consumption type VAT, thus exempting investment goods. Exemption of investment goods is achieved mostly by allowing taxpayers a credit for VAT paid on purchases of investment goods.

The collection method used by many countries, particularly those in Europe is the invoice method. Each firm collects VAT on all its sales, unless such goods are exempt, and may claim a tax credit against taxes paid by its suppliers only if such claims are supported by invoices which show the VAT amount paid. Value added is therefore not calculated directly, while tax liability is based on the difference between the tax due on outputs and the tax levied on inputs. The invoice or credit method of collecting is eminently suited to rate differentiation and even zero rating, which was one of the main reasons why the countries of the EC opted for this method.

The invoice method has both advantages and disadvantages. The first advantage normally mentioned in articles and textbooks is the fact that the invoice method of collecting VAT makes liberal provision for exemptions, zero rating and other types of special treatment. As was

mentioned above it also allows for exports to be zero rated and imports to be fully taxed. The invoice VAT is widely used, therefore tax harmonisation is enhanced by its adoption. Countries wishing to join the EEC have to adopt a VAT system in terms of the Rome convention (Bos & Nelson, 1988, pp.27-44). The tax could easily be designed to be internationally compatible with respect to rates, exemptions and special treatment, if so desired. The invoice VAT is comparable to consumer type sales taxes and may very easily be adopted to replace existing sales taxes from a political and a perception point of view. The invoice VAT is reputed to score very highly on the evasion criterion because of its so-called built-in checking system. In several countries this aspect is often overemphasised and many instances of tax evasion have been known to exist (Tait, 1988, pp.304-323).

On the other hand compliance costs, especially to the private sector, is thought to be relatively high, especially in comparison to a retail sales tax and the additive VAT, because this is virtually a transactions tax, and its compliance costs are spread through the distribution chain. Of course, where the VAT replaces a turnover tax, the increase in compliance costs would not be noticeable. Rate differentiation, exemptions and zero rating tend to erode the base of the invoice VAT substantially. The tax is not <u>neutral</u> if rate differentiation is accepted in the tax structure, because it tends to alter relative prices in such an event. Ideally a particular taxation method will be considered to be preferable if it can collect revenue without unduly distorting product demand or consumer behaviour. The invoice VAT is unfortunately wide open to misuse, especially by politicians to gain popularity amongst income groups or other groupings in the community; in the process, markets are distorted and the inefficient allocation of resources may result.

Finally, although the application of VAT to agriculture is not included in this study, it should be noted that the treatment of agriculture has been the object of protracted discussions in several countries because:

-        many sales are for cash

-        records are poorly kept

- farmers frequently produce and sell many products which may be liable to different VAT rates

- their inputs are bought sporadically and can also be liable to different rates of VAT

- farming is often mixed with other taxable activities.

Besides being treated the same as any other business, the small farmer is often exempted under a small business exemption or principal farm inputs are zero rated. Another option is to apply the rough justice of the global credit offset as is done in most EEC countries.[60] If practical considerations dominate, one of the latter two options would probably apply in South Africa.

D.   CONCLUSION

Measurement of the various income, direct consumption and expenditure tax bases is difficult in both theory and practice. In general, any actual base will be considerably less than the potential base, and in both theory and practice the consumption bases will be less than the income base.

At the simplest level, the income tax base differs from the consumption base by saving. Under an income base, all inflows of wages, profits, rent, interest, dividends, imputed income and payments in kind, and accrued capital gains less the cost of earning that income are taxable. Under a direct consumption base, income less saving is taxable. This may be estimated directly as proposed by Aaron and Galper using a system of qualified accounts or by using a prepaid consumption tax system as proposed by Hall and Rabushka. While no country has implemented a direct consumption base system, many existing so-called income base tax systems are more like a consumption system than an income system; for example, the treatment of retirement provisions, mining and farming capital expenditures (Cronje, 1986). Under an indirect consumption tax system, taxation is levied on final outlays by consumers on goods and services as they occur. Examples of indirect tax systems are the retail sales taxes in the USA, South Africa, Norway, Zimbabwe and the VAT systems in Europe and New Zealand. A key difference between the income base and

consumption base systems is a matter of timing of tax payments. Whereas all income is taxed as it accrues under an income base, under a consumption base only consumption outlays are taxed initially with saving exempt, but with the passage of time tax is levied on future consumption outlays financed from saving and income earned on these saving.

Numerous practical difficulties are encountered in implementing the different tax systems. Most problems with the income base refer to the measurement of capital income, inventories, capital gains, depreciation, and allowing for inflation. In fact, the damaged prestige of the income tax can be ascribed to the proliferation of tax concessions, inflation and the promotion of direct consumption taxes (Goode, 1984, pp.18-23). Since the consumption base systems rely on actual outlays, few of these problems arise. Moreover, by definition, consumption tax systems aim to exempt capital income from the tax base. Practical difficulties in implementing a direct consumption tax system are high on the list of reasons for its non-implementation. The actual application of indirect consumption tax systems encounters problems in sorting out final consumption sales from business input sales, and most systems in practice encounter difficulties with agriculture, financial services, housing, second-hand goods, and gifts and bequests. All systems miss the "black" or "underground" economy and encounter difficulties in distinguishing between business and consumption expenses.

Recent tax reform initiatives all represent a major step towards comprehensive income tax reforms. These sweeping reforms, it is argued, can be ascribed to two factors. Firstly, the confidence of people in the tax system has been undermined by tax preferences being enacted and the growing use of tax shelters by the wealthy. Tax systems also became more complicated and tax reforms promised equity, efficiency and simplicity. This message struck a responsive cord. Secondly, many Governments stressed the importance of allocating resources on the basis of economic, rather than tax, considerations from the very beginning. Many found the idea of a "level playing field" appealing and threw their support behind these reform initiatives. Thus it can be concluded that, despite its shortcomings, the income tax needs restructuring; not repeal.

The following chapter examines some of the dissatisfactions which have motivated the restructuring of income tax systems. Only then can one assess the extent to which new income tax reform proposals, as they apply to agriculture in particular, may provide a solution to many of the problems which face this industry.

FOOTNOTES

1. See Australia (1985a), Canada (1987a), New Zealand (1988), United States (1985a) and Zimbabwe (1986).

2. Full replacement has been proposed by, amongst others, Andrews (1974), Bradford (1980), Kay & King (1983), the United Kingdom (1978) and the USA (1977).

3. For example, the Australian Draft White Paper (1985a) makes no mention of the "Blueprints" proposals for a direct consumption tax or New Zealand's (then current) proposals for a value added tax.

4. Though, apparently, they were tried briefly in India and Sri Lanka (Andrews, 1974, p.1117), and at a sub-national level in Michigan, USA (Van Rensburg, 1987, p.12).

5. John Stuart Mill before the Select Committee on Income and Property Tax, June 18, 1861, Minutes of Evidence, cited in Kaldor (1955, p.26).

6. Kaldor writing in 1955 revived the notion of an expenditure tax which took account of taxable capacity and put forward administrative proposals. The practicalities, however, really only were tackled in detail during the 1970s, for instance in studies by the US Treasury (USA, 1977), the Swedish Royal Commission (Sweden, 1978), and Andrews (1974).

7. Schanz was a German economist who wrote extensively on the issue in 1896. The more traditional citation is to Haig and Simons, two American writers on the subject. Other writers such as Fisher, the modern father of consumption taxation, and Hicks, contributed much to the understanding of income as a concept.

8. Strictly, non-wealth receipts other than labour earnings should appear also.

9. But, excepting wealth accumulated before income taxes were established or gained in ways that escaped tax, it would have been taxed when received as income.

10. Of course, much income escape taxation, and thus some form of wealth
     taxation might be, just possibly, a reasonable second bite at the
     cherry.

11. This example is drawn from the Meade Report (UK, 1978, pp.31-32).

12. The value of a bond in perpetuity is given by p/r, where p is the
     yield and r the rate of interest. This may be derived from the
     present discounted value of the stream of interest receipts.

13. It might appear that because the yield will be received in the future,
     the present value of the tax liability will be lower than if the
     capital gain were taxed (and the yield not), but, of course, the
     capital gain is the discounted present value of the stream of
     earnings, not its sum, hence the two would be equivalent. Another
     diversion is posed by Goode (1977, pp.11-12) who argues that the
     aggregate taxable income would be the same in circumstances where the
     capital gain were included and where it is not, because of adjustment
     through depreciation provisions. Unfortunately, Goode failed to
     compare the present values of the incomes in the two regimes which are
     decidedly non-equal.

14. An equivalent proposal is to abolish company taxation but to implement
     a full accrual equivalent capital gains tax which in conjunction with
     the income tax on dividends would effectively tax retained or
     distributed profits at the personal level.

15. Excepting gifts and bequests made in the case of the consumption base.

16. The theoretically proper consumption tax solution to timing issues is
     to postpone taxation of saving until consumed and thereby to make the
     measurement of income for any particular year relatively unimportant.
     Graetz (1984, p.49) concludes that "Under a consumption tax, deferral
     provisions, roundly criticized under the income tax, would simply be
     extended to all investments".

17. Indeed, the troublesome nature of income tax administration is in
     avoiding exactly this tax deferral - under income taxation income
     should be taxed as it accrues, and deferral is regarded as
     concessionary.

18. Calculated as R600 earning 6 per cent per annum (i.e. 10 per cent less 4 per cent due to taxation) for 10 years.

19. Absent taxation R1000 invested at 10 per cent would have grown to R2594 in 10 years' time. His net income under double taxation of R1074 is 41,4 per cent of R2594.

20. That is, the saver can consume R1556 of R2594 in a no-tax world. See footnote 19.

21. This assumption is expanded upon below. While it is a standard assumption, and useful for illustration, in practice the rate of discount may not equal the rate of interest.

22. The Treasury may well not be indifferent if they are constrained to current year revenue neutrality, rather than present value neutrality.

23. Strictly speaking, the equivalence is not exact once allowance is made for risk (Atkinson and Stiglitz, 1980, p.72).

24. That is, the real market rate of interest, the rate at which individuals can lend.

25. An analogy is with the labour-leisure distortion which may yield significant excess burdens (deadweight losses) even if labour supply does not change at all.

26. Strictly, two further conditions are necessary; that tax rates are constant and real interest rates are equal to the rate used for discounting future tax payments.

27. Against this, the taxation of prior wealth, where that wealth has been acquired improperly or "unfairly" (i.e. tax evaders and avoiders), could be argued to have been the major objective of the proposal for a BBCT. It is, perhaps, unfortunate that a sales tax is indifferent between legitimate and illegitimate wealth holdings.

28. Common capital gains tax provisions which provide for rollover at death (Australia, Denmark, Japan, Luxembourg and Sweden) are the antithesis of this notion and serve instead to raise the tax on saved wealth relative to that on inherited wealth.

29. This definition of direct and indirect taxes is given by Atkinson and Stiglitz (1980, p.427).

30. In the case of expenditure taxation, especially, note the incongruity in the distinction between direct and indirect taxes. Those which tax expenditures as made (directly?) are termed indirect taxes. Those which tax expenditure in a round-about way - income less saving - are direct consumption taxes.

31. In practice, the interest costs of such loans are often tax deductible; Aaron and Galper (1985, p.23) state: "As long as the asset continues to appreciate by an amount at least equal to the after-tax interest cost, one can quite literally have one's wine and drink it too".

32 Andrews, a consumption tax proponent, has termed the realisation requirement the "Achilles' heel" of the income tax (cited in Graetz, 1984, p.49).

33. This statement obviously needs qualification because the effective tax rates of companies are often much lower than statutory rates. The discrepancy can be ascribed to the use of tax concessions, such as initial and investment allowances, accelerated depreciation, acceleration of interest charges and corporate loss transfer systems. The penalty of double taxation could therefore be much less than is generally argued.

34. Note that an investment of R10 000 at 10 per cent will yield R16 204 after tax when realised 15 years hence. An interest bearing bond taxed annually would need to yield 13 per cent before tax to achieve the same after-tax rate of return of 6,6 per cent. 6,6 Per cent compounds to 162 per cent after 15 years (i.e. R26 204 on a R10 000 investment). A 13 per cent yield taxed annually at 49 per cent is equivalent to a 6,6 per cent return.

35. Although legislators have often created tax provisions which grant (concessionary) deductions for investments.

36. While the investment can be expensed, borrowings or withdrawals which fund the investment are included in the base, such that the first year's transactions balance out.

37. While uncertainty implies that these transactions will not offset perfectly (in present value terms) for a single individual, across all taxpayers returns greater and lower than expected will balance out discounting at the average rate of return (see below).

38. This discussion follows the Meade Report (UK, 1978, pp.179-180).

39. It is important to distinguish between a rate of tax reckoned on a tax base inclusive of the tax itself and the corresponding higher rate of tax reckoned on a base exclusive of the tax itself. A tax on income, such as the income tax, capital gains tax and corporation tax, is normally reckoned on the tax-inclusive basis, while an expenditure tax is reckoned on the tax-exclusive basis. Suppose that from an income of R100 the taxman takes R40, leaving R60 to be spent on consumption. This represents a rate of income tax of 40 per cent reckoned on a tax-inclusive basis (40% of R100). The corresponding sales tax rate (VAT) reckoned on a tax-exclusive basis is 66,7 per cent, since a tax at this rate must be levied on R60 worth of cost price goods to raise R40 in VAT. The conversion of tax-inclusive rates into tax exclusive rates and vice versa follows the simple formulae

$$t_e = \frac{t_i}{1 - t_i} \quad \text{and} \quad t_1 = \frac{t_e}{1 + t_e}$$

where t_i is the tax-inclusive rate and t_e the tax-exclusive rate.

40. As explained in Section B.IV(3) tax on income (inclusive of investments) in period I, T_1, ($T_1 = tY_1$), with no taxation of interest in period II ($T_2 = 0$) (tax prepayment), has equal present value to tax in period II on period I saving plus interest received in period II: $T_2' = tY_1(1+r)/r + p$ when the saving were exempt (i.e. $t_1' = 0$) (cash-flow treatment), where the rate of return, r, equals the rate of discount, p. Note that where $r > p$, $T_1 < T_2'$ and where $r < p$, $T_1 > T_2'$. In other words, investments granted the

tax-prepayment approach are favoured when their rate of return exceeds the average (when discounting by the average rate of return), and disfavoured when their return falls below average.

On average, investments favoured or disfavoured balance out and the Treasury would appear to be indifferent between tax-prepayment and cash-flow approaches. If all assets were treated as tax prepaid, then in year 1 the government would collect RT of tax, and in year 2, when assets were traded but not taxed, would collect RT(1+r) less in tax revenues than under the cash-flow system (where r is the average rate of growth in the economy). If the government's discount rate is the average rate of growth, the options have the same present value.

41. Blueprints was so enamoured with the **ex ante** quivalence of saving deductions and yield exemption that it proposed taxpayers should be able to elect the treatment they preferred. As Graetz (1980) has demonstrated, voluntary election by taxpayers of saving deduction or tax-prepayment treatment could lead to successful gaming of the tax system (i.e. successful tax minimisation) with not unsubstantial present value revenue losses. But this is not the case where prepayment is compulsory for certain assets and cash-flow treatment mandatory for the remainder. Hence, only the troublesome, **ex post** distributional effects and the progressivity of the tax system cause problems.

42. This section, and the formulation of Table 2.4, draw upon Aaron and Galper (1985, pp.79-84).

43. The net cost to the firm is the R1000 equity investment, but the company can afford an investment of R1667 [i.e. R1667 = R1000 x 1/(1-0.4)].

44. In fact, the Meade Committee demonstrated that another way of portraying this identity was through the flow of funds to and from a company. Thus net cash-flow can also be defined as payments to shareholders less funds received from them, as follows:

$$N = D - E$$

where D is dividend payments and E is equity issued (i.e. sales of shares).

45. Of course, in a hybrid income-consumption tax system, progressivity may be attained through the income tax rate structure.

46. The Margo Commission recommended a comprehensive business tax (CBT) which they regarded as an income tax, but is, however, an origin-based, direct-additive accounts VAT. For this reason it is not included in the discussion.

47. For more detail see Aaron & Galper (1985, pp.66-107).

48. Personal trusts would not be taxable entities, as the distributions to them would have been tax-prepaid. Trading trusts presumably would be business enterprises, however.

49. The non-exclusion of exports, the reaction of GATT-members, the impression that it favours capital above labour and that South Africa would be the first and only country in the world to use a tax of this kind, persuaded the South African Government not to accept the Margo Commission's proposal for a CBT.

50. Of course, in the absence of income tax reform, the distortions to the allocation of capital from the source will remain.

51. Saving in such accounts are accorded special treatment by virtue of deductibility from income in assessing tax liability.

52. It should be acknowledged, however, that Venti and Wise (1986) report finding only limited evidence of such effects in their examination of IRAs in the USA. They suggest that most tax preferred saving were additional.

53. Tax on tax which occurs when a taxed product passes from manufacturer to wholesaler to retailer has become known (see Cnossen, 1987) and have caused most countries using it to switch. According to Tait (1988, p.9) the effective rate of a cascade tax to a retail sales tax is approximately two and half times the nominal rate.

54. The Asprey Committee held different views when they wrote "The Committee sees VAT as doing much more than helping to remedy the defects of the existing taxes on goods and services; its prime role lies in allowing, in turn, a major switch from existing direct taxation and a large-scale simplification of the whole tax system" (Australia, 1975a, p.522).

55. As discussed below, all sales are taxable under a VAT and hence there is no need to distinguish sales within or outside the ring. Tax is freed on business inputs through the credit system. While credits may be obtained for goods entering final consumption (i.e. evasion of tax), business inputs can in most cases be successfully freed of tax.

56. In recent times VAT has attracted considerable attention and most tax reform reports referred to it. For detailed lists of references, see Bascand (1988b) and Tait (1988). The latter source has even been referred to as the "Baedeker" of VAT.

57. For a discussion of additive type VAT's see American Bar Association (1977) and Van Rensburg (1987).

58. Tait (1988, pp.49-68) provides an excellent overview of exemptions and zero rating.

59. See footnote 49.

60. See Tait (1988, pp.141-154) for the problems that agriculture poses for VAT.

CHAPTER 3

TAX REFORM : AN OVERVIEW

A.   INTRODUCTION

There has been a broad interest in tax reform[1] in recent years.
Several countries have undertaken or are considering major reforms,
while most others have made some minor changes to their tax systems.
This attitude reflects concern that the existing tax structure not
only imposes large costs on society by distorting economic decisions,
but also that it is unfair and unnecessarily complex. The increase in
total tax revenues relative to output since 1970 has heightened these
concerns (UK, 1989, pp.107-117). Moreover, a combination of already
large tax burdens and distorting tax systems has made it difficult to
increase taxes where necessary to lower deficits. Finally, tax
systems have been seen as a significant source of structural
rigidities in the economy. Of all of these concerns, those related to
horizontal inequity and complexity have probably been the major forces
pushing governments to undertake tax reform.

Many of the income tax reform initiatives may not have an inordinate
effect on agriculture because, in general, agricultural incomes are
subject to the same taxes as other industries and enjoy the same
relief and allowances. There are, however, some important
differences: cash accounting, the special treatment of livestock and
forestry, different systems of capital allowances and exemptions from
capital taxes. This special tax treatment has received particular
attention in recent reforms and farmers

> "... should not be surprised if standard taxpayers
> increasingly ask just what public benefits are supposed to
> flow from the continued level and distribution of special
> tax treatment - for all farmers, regardless of wealth, and
> without any check on the genuine need for further income
> support, such as there would be for direct income support
> measures" (Sutherland, 1987, p.12).

In fact the main thrust of proposed reforms with respect to farming is to scrap or prevent farmers from using these special reliefs.

The purpose of this chapter consequently is to give an overview of tax reform issues in the light of the literature on the subject and recent experience in several countries. Section B considers the reasons for tax reform. Section C and Appendix 1 review the actual tax reform to date, while the obstacles to reforming tax systems are discussed in Section D.

B.   THE MOTIVES FOR TAX REFORM

It is a truism to say that tax reform has resulted from discontent with the extent to which existing tax systems have missed certain well-established principles of taxation such as equity, efficiency, simplicity and neutrality.[2] The following remarks about tax reform in the United States and Australia largely summarise the main reasons why most countries are engaged in fundamental reappraisals of their own tax systems. The comments particularly apply to the special tax treatment that agriculture enjoys. Aaron and Galper (1985, p.1) stated:

> "The U.S. Tax system has become a swamp of unfairness, complexity, and inefficiency. The accumulation of credits, deductions, and exclusions designed to help particular groups or advance special purposes conflict with one another, are poorly designed, and represent no consistent policy. The tax system causes investors to waste resources on low-yield investments that carry large tax benefits, while high-yield investments without such benefits go unfunded. The result is a shrunken tax base that requires needlessly high rates on wages, salaries and other taxable income. Overall the system undermines the faith of citizens that tax burdens are shared fairly. The time has arrived for basic reform."

In May 1985 when President Reagan unveiled his proposals for tax reform he urged that

> "for the sake of fairness, simplicity and growth, we must radically change the structure of a tax system that still

treats our earnings as the personal property of the Internal
Revenue Service, radically change a system that still treats
people earning similar incomes much differently regarding
the tax they pay and, yes, radically change a system that
still causes some to invest their money, not to make a
better mousetrap, but simply to avoid a tax trap" (cited in
Deloitte Haskins & Sells (USA), 1985, p.1).

The White Paper on Australian tax reform (1985A, P.1) commented:

"The Government shares the community view that the tax
system should be fairer and be seen to be fair.   The
Australian taxation system traditionally has enjoyed broad
taxpayer support but this has obviously waned over the past
decade or so.   The view is now widespread that the system
operates unfairly, impairs economic incentives and is unduly
complex.   The system is particularly unfair to wage and
salary earners at relatively moderate income levels who must
pay tax at high marginal rates.   Even at high income levels
there is unfairness since people with comparable incomes can
pay widely different amounts of tax because some are better
situated to take advantage of generous tax concessions.   The
high rates of taxes and a tax base riddled with concessions
also impairs economic efficiency: it alters people's
behaviour and directs resources from their most productive
use in the economy.   The complexity of the system is
notorious.   The costs that this complexity imposes on
taxpayers and tax collectors alike are vexatious to
individuals and a dead-weight loss to the economy".

Obviously, the relative importance of each principle or canon of
taxation varies across countries considering tax reform. However, in
recent studies and tax reform reports equity, efficiency and
simplicity were of prime importance.[3)]   Generally, it can be stated
that an equitable tax system is critical, not only to the attainment
of economic and social objectives, but also to the maintenance of a
basic respect for the tax system from which a high degree of voluntary
compliance derives. A more efficient tax system is necessary in order
to improve economic performance. With a more efficient tax system,
resources are more likely to move into activities where they generate

the largest economic gains, rather than activities where they simply yield the largest tax gain to investors. Under a simpler tax system less resources are devoted to socially unproductive activities such as tax planning and litigation. A neutral tax system on the other hand is one which minimises as far as possible the impact of the tax structure on economic behaviour, including business behaviour, work effort and saving.

There are a number of additional, and in some instances more specific, factors which have shaped or will shape tax reform. They include socio-political or economic considerations (Swart, 1988, pp.61-70), avoidance, evasion or tax sheltering (Australia, 1985a, pp.36-51; Ireland, 1985, pp.143-163)), distortions created by inflation (Aaron and Galper, 1985, pp.59-63; Australia, 1975b; USA, 1984b, p.17), or administrative considerations (Ireland, 1985; Mansfield, 1988). The focus in the following paragraphs is on six aspects: unfairness, distortions, the non-revenue objectives of taxation, tax sheltering, tax arbitrage and complexity. All of these are relevent - to a major degree - to farming.

I. Unfairness

Pressure for tax reform has arisen from the growing conviction that present tax systems are inequitable or unfair or are perceived to be unfair. Indeed, the concept of equity has perhaps been the predominant consideration in most recent reform proposals (Australia, 1985a, p.1; Canada, 1987b, p.1; Ireland, 1982, pp.83-84; NZ, 1982, p.1; RSA, 1987, pp.3, 5; UK, 1978, p.23 & USA, 1984b, p.11).

Equity is defined with regard to three closely related concepts. Ability to pay is one of the two great traditions in the theory of taxation, the other being the benefit principle. Although almost everyone subscribes to the ideal of taxation in accordance with 'ability to pay', it is a difficult concept to define and has been hotly debated without being resolved. The underlying idea is that tax is a sacrifice levied upon some kind of (personal) economic well-being.[4] However, many of the most difficult questions in tax policy stem from the conventions that must be accepted when making the transition from the notion of 'economic well-being' to the choice and exact definition of the tax base. These include, for example, the

choice between wealth, income and expenditure as appropriate bases for the determination of 'economic well-being' as well as the accounting period over which the "economic well-being" will be measured. Moreover, the choice of the tax unit (such as the family as opposed to the individual, or the group as opposed to the company) can influence the perception of equity significantly (Kay & King, 1985, pp.211-215; RSA, 1987, p.202).

In addressing the question of ability to pay it is customary to distinguish between horizontal and vertical equity. Horizontal equity requires that 'similar individuals be treated similarly', that 'persons in the same situation be treated equally' or that 'individuals and families in similar circumstances bear the same taxes'. Vertical equity, on the other hand, requires that those in different circumstances bear appropriately different tax burdens - those with a higher level of 'economic well-being' shoulder greater tax burdens than those less fortunately placed. Underlying both these notions is the idea of equal sacrifice. Concerns about both horizontal equity and vertical equity have motivated tax reform.

The benefit principle states that those who benefit from the use of particular commodities or services should be required to pay for them.[5] For example, it can be argued that the justification for a value added tax is to be found in the benefits that undertakings enjoy under the aegis of the State and which are in approximate proportion to the economic activity of each. A similar instance is that of user charging, which implies that, where a personal quid pro quo can be identified, fees must be paid for the use of (publicly provided) goods. Many examples of user charging are to be found among semi-public goods, such as the paying of tolls on certain roads, entrance fees to public swimming pools, tuition fees at universities, and fees for any of the public transport services. The advantages of user charging are that the efficient use of the goods is encouraged and the squandering of publicly provided 'free' goods discouraged.

A lack of horizontal equity often reflects the use of the tax system for non-revenue raising purposes. Another horizontal inequity occurs when individuals face different time profiles of equal income and yet pay different amounts of taxes over a lifetime.[6] While most people subscribe to at least the general principle of horizontal equity,

vertical equity stirs perennial and unrelenting controversy. The
basic issue in this instance is whether tax burdens should be the same
percentage of income at all income levels (proportional taxation), or
whether the percentage should rise as income rises (progressive
taxation) or fall as income rises (regressive taxation). Though more
honoured in the breach than the observance, progressive taxation
appears to be the choice in most societies in deference to the ability
to pay principle. Typically, countries use high degrees of
progression to achieve substantial redistribution of wealth. However,
this often entails high marginal rates of tax which themselves lead to
pressure for additional deductions and exemptions and to avoidance.
In Australia and New Zealand, for example, income tax was bearing with
exceptional severity on those of modest earnings: in New Zealand, in
1985, the top marginal rate of income tax, 66 per cent, applied to
workers earning only 2,4 times the average wage (OECD, 1985a, p.24);
whilst in Australia a top marginal rate which became effective at 18
times average earnings in 1954/55 applied to 1,6 times average
earnings in 1983/84 (Australia, 1985a, p.19; OECD, 1988c, p.75). In
Australia this trend has been accompanied by a sharp contraction in
the relative contribution of tax from the upper income ranges
(Australia, 1985a, p.33). A measure of disillusionment has also set
in regarding the practicality of achieving a significant
redistribution of wealth through the income tax system. This results
from the effects of indirect and payroll taxes, flat rates and
ceilings for social security contributions, as well as the extensive
use of tax expenditures (Hagemann, Jones & Montador, 1988, pp.16-17).
However, it should be noted that income redistribution cannot be
assessed by looking at the tax system in isolation from transfers and
direct public spending.

The following issues have been selected to illustrate briefly to which
extent the principle of fairness have been violated: the taxation of
capital gains, fringe benefits and the double taxation of company
dividends.

1.   <u>Capital gains</u>[7]

Tax law in many countries takes a "schizophrenic" view towards the
taxation of capital gains. Some countries subject capital gains to
income tax with no special provisions or exempt them from taxation

altogether. In other countries special provisions have been introduced into the income tax code to take account of certain forms of capital gains. And in other countries the income tax has been made the vehicle for a comprehensive taxation of capital gains (OECD, 1988a, p.123).

To accord special tax treatment to capital gains lies at the core of many avoidance arrangements and conflicts with horizontal and vertical equity (Ireland, 1982, pp.203-204; Tax Shelters, 1983, pp.177-180, 425; Windish, 1987, pp.23-25). The conflict with horizontal equity arises because capital gains provide the same command over resources as other income (Australia, 1985a, p.77). The conflict with vertical equity arises because the probability of reaping a given capital gain increases with wealth and so, even if income tax were strictly proportional, to give tax privileges to capital gains is to give proportionately greater benefits to the wealthy (OECD, 1988a, p.124).

Practical considerations have led virtually all countries with capital gains taxation to adopt a realisation basis (Ireland, 1982, pp.204-206). However, some undesirable consequences follow from the adoption of such a basis. These relate basically to the deferral of taxation on capital gains (Brinner, 1973, pp.565-573; Wetzler, 1977, pp.119-122), the consequent bunching of such income for tax purposes (Byrne, 1978, pp.7-10), the "locking-in" of investors to existing assets (Goode, 1976, pp.197-206; Wetzler, 1977, pp.135-140) and complications regarding the treatment of losses (Ireland, 1982, pp.208-210). These consequences as well as alleviating measures, are regarded as inequitable.

2. Fringe benefits

There is no universally accepted definition of the term "fringe benefits" but it is normally taken as referring to any material benefit, other than salaries and wages derived by an employee from employment (OECD, 1988b, p.8). The benefit usually takes the form of non-money income, such as use of a company car for private use, but sometimes involves cash, such as an expense allowance which remains partly unspent (Australia, 1985a, p.87; Ireland, 1982, p.179; Owens, 1988, p.68).[8]

Available evidence suggests that the use of fringe benefits has increased in recent years (Australia, 1985a, p.95; Ireland, 1982, p.183). In addition, the revenue cost associated with fringe benefits is large and has been increasing (Australia, 1985a, p.87; NZ, 1982, p.156). According to Owens (1988, p.71) the revenue loss as a percentage of income tax receipts averaged 5,4 per cent for six OECD countries during the 1980s.

The failure to tax fringe benefits contributes significantly to the unfairness in the tax system and has been a significant factor in the development of a climate in which taxpayers are increasingly resorting to a variety of avoidance practices and even to outright evasion. Keating (1985, p.555) backs this contention as follows:

> "There has been an accelerating shift in recent years towards the payment by employers of remuneration in the form of fringe benefits. While not readily admitted as such, this shift often has all the hallmarks of outright evasion. High marginal income tax rates have played a major part in providing the incentive for this trend ...... However, the growing shift to fringe benefits has been a major factor in reducing the tax liabilities of predominantly higher income taxpayers. An increasing awareness of these "perks" has highlighted the unfairness of the tax system and has contributed to undermining taxpayer morale".

Similar remarks were made by the Franzsen Commission (RSA, 1970, par. 58-59), Radcliffe Commission (UK, 1955, par. 211) and in Treasury I (USA, 1984b, p.73). The New Zealand Task Force on Tax Reform (NZ, 1982, p.156) concluded:

> "...... unless action is taken to tax these benefits, it may be generally concluded that government is implicitly accepting the propriety of this form of tax avoidance. The result will be an acceleration of existing widespread moves towards the provision of remuneration in a non taxable form, with increasingly serious implications for equity and for the ability of the remaining tax base to yield sufficient revenue at acceptable rates of tax".

3. <u>Double taxation of dividends</u>

Income originating within corporations is often taxed twice - once at the business entity level and a second time when the income is realized by shareholders. This is what is referred to as "economic double taxation" (OECD, 1987a, p.29). Economic double taxation is today generally acknowledged as a structural and equity problem of direct taxation, but existing tax systems and recent tax reforms differ widely on this issue. There seems, however, to have emerged during the last decade a clear trend towards regimes mitigating or avoiding economic double taxation (Evans, 1988, pp.24-26; NZ, 1988).

Economic literature reveals that economic double taxation has various effects:

(i)   Firms tend to use more debt than they otherwise would;

(ii)   Low-tax shareholders (individuals and tax exempt institutions) hold less equity than otherwise;

(iii) Capital tends to be shifted to non-corporate forms of enterprise and, by implication, to industries in which the corporate form is less important as a system of organising production;

(iv)   Because wealth-holders require the same return on all forms of wealth, any extra tax on corporate capital must have the effect of raising the rate of tax on capital generally, implying whatever consequences may follow from heavier taxation of capital (McLure, 1975, pp.532-582; 1979; McLure & Surrey, 1977, pp.169-181; Norr, 1982; Parmenter & Seyfort, 1987, pp.3-8; Sunley, 1979, pp.292-297).

In addition to these influences of economic double taxation on the allocation of resources and the financial structure of the economy, many people see it as giving rise to a form of inequity, in that shareholders appear to bear heavier tax than owners of similar assets in non-corporate form.

Many countries have introduced rules to offset the economic double taxation of dividends. These rules are primarily of two types: those

that modify the corporate-level tax; those that modify the individual-level tax. At the corporate-level, some countries apply a reduced rate of corporation income tax on distributed profits ("split rate"). Other provide a partial or full deduction of dividends from the corporation income tax base. At the individual level, the main alternatives are to permit the exclusion of some or all of dividends from the individual income tax or to provide a credit against individual tax as a percentage of dividends received. A country that has recently introduced a full imputation system of company taxation is Australia (Evans, 1988, pp.24-26).

II. Distortions

Almost all taxes distort economic decisions. Some distortions arise from explicit efforts to influence economic and social behaviour while others arise from the interaction of tax systems with inflation.

1. Inflation

If a tax system is based on values unadjusted for inflation, it will mismeasure real economic depreciation, inventory costs, capital gains and interest income and expense. This mismeasurement of taxable income produces inequity, but also causes inefficiency by distorting economic decisions and adds to complexity by promoting transactions either to escape, or to capitalize on, the effects of inflation.

There are three ways in which unexpected and fluctuating rates of inflation seriously affect the income tax. Two of these are well recognised: "bracket creep" (or "fiscal drag" or "tax drift") and the distorted measurement of income from capital. The third is the increased importance of timing (Graetz, 1984, p.45).

Bracket creep or fiscal drag refers to the effect of inflation on average tax rates under a progressive tax rate structure. Given a progressive scale applying to nominal incomes, average rates will rise under inflationary conditions without there necessarily being any real increase in taxpayers' incomes (Australia, 1985a, p.113). Citizens have come to question the fairness of the tax after repeatedly paying higher taxes on the same level of real income. Bracket creep may indeed be regarded as a major cause of the declining reputation of the

income tax (Goode, 1984, p.24; Graetz, 1984, p.45). Calculations for South Africa by the Central Economic Advisory Services (1986) indicate that over the period 1972 to 1985 the average ratio between the rate of growth in personal income tax and personal income was approximately 1,87. This implies that on average a 10 per cent increase in personal income was accompanied by an 18,7 per cent increase in direct personal tax.

The second way inflation distorts the income tax is through its widespread mismeasurement of net income. The mismeasurement occurs by offsetting the amounts spent or incurred in earlier years against income received or earned in subsequent years. These well known distortions in measuring income from capital principally affect depreciation allowances, capital gains and losses, accounting for inventories and the tax treatment of debt. In this regard the US Treasury (USA, 1984b, p.17) reported:

> "Inflation currently causes income to be overstated in at least four ways. First, depreciation allowances based on historical cost are generally not adequate to allow tax-free recovery of investment in a time of inflation. Second, deductions for the cost of goods sold from inventories are inadequate if based on historical costs. Third, capital gains include nominal appreciation that merely reflects the general rise in prices, rather than an increase in the real value of assets. Fourth, nominal interest receipts include an inflation premium that should not be taxed. By the same token full deduction for nominal interest expenses during inflationary times result in the understatement of real economic income".

In the case of investment in depreciable property, the measurement of real economic income requires an allowance for the property's economic depreciation. If the allowance for depreciation is understated, income from the investment will be overtaxed; and, if the allowance for depreciation is overstated, income from the investment is undertaxed. Either of these mismeasurements can create an artificial incentive favouring investment in one kind of asset over another. Moreover, the overall level of investment can be affected. In times of high inflation, a schedule of cost recovery allowances that is

based on the original cost of an asset rather than on its replacement cost will underestimate the economic depreciation and overtax the income from the asset.

The measurement of business income from the sale of goods depends, in part, upon the cost of goods sold. These costs, in turn, depend upon the valuation of inventories. During times of inflation, inventories valued at their original cost may greatly understate the cost of goods sold and consequently overstate the income from the sale of goods. How great this distortion will be depends upon the accounting method employed. Only with an accounting method that values inventories according to their original cost indexed for inflation can these distortions be removed.

Economists would argue that the gain (or loss) from the sale of a capital asset should be included in income subject to tax only so far as the gain or loss is real. Any purely inflationary gain should not be taxed. The real gain can be established by indexing the original cost basis of an asset before subtracting it from the proceeds from the sale of the asset. Partial taxation schemes and the complete exemption of capital gains from income tax may be justified on the grounds that inflationary gains should not be taxed. However, these **ad hoc** arrangements often very poorly approximate the proper adjustment for inflation, especially when the rate of inflation changes greatly over the period the asset is held.

A theoretically correct definition of income would include interest income only to the extent that it represents a real return on loaned funds. The inflationary element of nominal interest income would not be taxed. Similarly, any deduction of interest expenses that is permitted from income subject to tax would be allowed only for the real portion of the expense. Because the inflation component of nominal interest paid is, in effect, a repayment of principal, income tax structures which provide that interest is fully deductible by debtors and fully taxable to creditors, mismeasure the income of each. This mismeasurement distorts the allocation of investment funds between debt and equity financing and between long-term and short-term financing. Furthermore, in times of high inflation and corresponding high interest rates, progressive income tax rate structures encourage high-rate taxpayers to be net borrowers and low-rate taxpayers to be

net lenders, because the tax savings of the high-rate borrowers will be greater than the increased tax liabilities of the low-rate lenders.

Generally a systematic response to these problems has been eschewed while tinkering has produced incentives for the inefficient alloca- tion of resources by imposing widely divergent tax rates across industries. Meanwhile problems of inflation with respect to debt have largely been ignored on the theory that under-taxation of debtors will somehow in the aggregate be compensated for by over-taxation of creditors. Income tax rules have thus been characterised as imposing zero and even negative rates of tax on the income from particular categories of assets. Galper and Steuerle (1983, pp.19-20) have estimated that as much as 80 per cent of the $10,5 trillion of assets held by US individuals qualifies for such favoured treatment. The failure of governments to revise the taxation of debt to account for inflation, together with their capriciousness in revising the taxation of assets, have resulted in an income tax that is incapable of measuring the income of asset owners, debtors or creditors and produces wide and inconsistent variations in tax burdens. An income tax which fails to adjust for inflation is readily subject to criticism on grounds of equity as well as economic efficiency and growth and significantly contributes to the proliferation of tax shelters and arbitrage. These issues are are discussed in Section IV below.

2. Investment distortions

Tax systems also distort investment. According to a recent study, the effective rates of tax on different classes of investments in four countries vary from 105,1 per cent to (-)100,8 per cent depending upon the type of asset, industry, source of finance, inflation and the tax status of the owner (King and Fullerton, 1984, pp.74, 134, 185, 244). In the UK for example the effective tax rates on machinery and inventories, assuming an inflation rate of 10 per cent, were (-)33 per cent and 43 per cent respectively. There is also a marked difference in the tax rates on the different sources of finance, with debt finance receiving a substantial subsidy (82 per cent) and positive tax rates existing only for retained earnings (29 per cent). The US Treasury reported that, in 1984, effective rates of corporation tax on equity-financed investments ranged from (-)8 per cent on equipment

eligible for 3-year depreciation to 40 per cent on structures eligible for 18-year depreciation (USA, 1984b, p.106).

Such variations in effective tax rates arise because of the interactions of several features of the tax system:

(i)   Tax depreciation bears little relation to true economic depreciation.

(ii)   Investment credits are often available only on certain assets.

(iii)   Effective tax rates are sensitive to the method of finance and to the tax status of the owner of the financing instrument or the capital asset. If there is a difference, income within a company group can be directed to the low-bracket taxpayer and expenses to the high-bracket taxpayer, resulting in very low or even negative effective tax rates.

(iv)   Both personal and corporate taxes must be paid on corporate-source income but only personal taxes on business income from non-corporate sources.

The failure of tax systems to adjust the measurement of capital incomes for inflation increases all these distortions.

The variations in effective tax rates are causing investment decisions to be based on tax considerations instead of economic productivity (Aaron & Galper, 1985, p.2; UK, 1984, p.296). The costs of such tax-related distortions can be enormous. They divert resources from their most productive uses - those with highest rates of return before taxes - into uses that are less productive but yield higher after-tax returns. In agriculture this has manifested particularly in the livestock industry, as is shown in Chapter 5.

The aforementioned can also be illustrated by an example. Suppose that investment A is taxed at 80 per cent (that is, 80 per cent of the yield is paid in taxes), investment B is taxed at 40 per cent and investment C is free of tax. If the investment risks of each are the same, investors will put their money where they earn the most after taxes. If investment C yields 6 per cent before and after tax,

investment B will have to earn 10 per cent before tax and investment A will have to earn 30 per cent to attract investors. It means that investment A that yields 29 per cent before tax will lose out to investment C that yields only 6 per cent. When tax rules cause investors to act in this way, the economy as a whole sacrifices 23 per cent of the potential returns.

It is even possible to make unprofitable investments profitable. A R10 000 investment with a negative before-tax return of R1 000 obviously is unacceptable. However the tax system can make such a project very profitable. This financial alchemy occurs if the cost of the investment is deductible from ordinary income and the return is treated as a capital gain, only 50 per cent (say) of which is taxed. For a taxpayer in a 50 per cent tax bracket, the cost of the investment is R5 000 because the R10 000 deduction saves the taxpayer R5 000 in taxes. The investment returns R6 750, calculated as follows: 50 per cent of R9 000 capital gain, or R4 500 is taxable at 50 per cent, for a tax of R2 250; so the return is R9 000 less tax of R2 250, or R6 750. Thus, after taxes, the investment returns R2 250 more than the original R4 500 - a gain of 50 per cent. Quaint and curious income tax rules convert an investment with a negative before-tax return of 10 per cent into one paying a 50 per cent after-tax return. Many tax shelters result from such combinations of tax concessions.

3.   Consumption and saving

Wide variation in the taxation of asset income distorts saving. Some asset income is either fully taxable, partially taxable or never subject to income tax at all. This variation in the taxation of asset income distorts saving decisions in two ways. First, the taxation of capital income at any positive rate reduces the spending opportunities of people who wish to consume in the future by a larger fraction than it does with regard to the spending opportunities of people who wish to consume income as it is earned. A tax on capital income thus affects personal decisions about when to consume. The following example illustrates the problem. Two people each have an income of R1000. They can consume the income now or invest it and earn 12 per cent per annum. One person consumes R1 000 immediately. The other buys an asset yielding 12 per cent per annum and holds it for 35

years; at that point the saver would have R52 800 in the absence of
tax. If a 50 per cent annual income tax is imposed, both will pay
half of the R1 000 income in the current year and the saver will pay
half of the 12 per cent annual return as it accrues. The person who
consumes immediately pays half the R1 000 income in taxes and will
have half to consume, a 50 per cent reduction in consumption
possibilities. The person who saves will pay R48 957 in taxes and
will be able to consume only R3 843 after 35 years, a 93 per cent
reduction in consumption possibilities. The large extra burden on the
person who chooses to postpone consumption arises because the tax not
only falls on the R1 000 earned but also reduces the net rate of
return from 12 per cent to 6 per cent.

The variation in tax rates among assets as regards the "degree of
fiscal privilége"[9)] also distorts household decisions about which
assets to hold. In the pursuit of tax advantages, individuals may
favour assets that are less productive, riskier, or less liquid than
would otherwise be desirable. For example, suppose a saver is able to
invest in either a tax-exempt investment yielding 10 per cent or a
fully taxable savings instrument yielding 15 per cent. In the absence
of tax considerations, the saver would normally choose the latter. In
the presence of taxes, however, it makes sense for any taxpayer
subject to a marginal tax rate of more than 33-1/3 per cent to invest
in the tax-exempt instrument. Even a taxpayer who does no additional
saving but borrows the money to buy a tax-exempt instrument
contributes to resource misallocation by mobilising the saving of
others. Suppose that a taxpayer in the 45 per cent marginal tax
bracket is able to borrow at 15 per cent to buy a tax-exempt security
yielding 10 per cent; the net cost of the loan is 8,25 per cent
leaving an after-tax profit of 1,75 per cent on the investment. The
upper-bracket taxpayer is doing no net saving but is merely borrowing
and lending.

Discrimination between different forms of saving has been accom-
panied by enormous changes in the way in which savings have been
accumulated (Hill, 1984, pp.63-72) and the advantages of the fiscal
privilege of certain forms of saving have tended to accrue to rela-
tively sophisticated savers (Saunders and Webb, 1988, pp.63-69). A
further consequence of fiscal privilege is that savers become "locked
in" to particular forms of saving (Hill, 1984, pp.99-100). Some of

these difficulties results from the tax system itself and some from the ability of institutions within a protected tax regime to avoid the kind of competition that would improve terms offered to those who might at some later date want to move their savings elsewhere.

III. <u>Non-revenue objectives of taxation: tax expenditures</u>

Modern governments of mixed economies have increasingly intervened through the tax system to achieve particular economic or social policy goals.[10)] However, under this interventionist interpretation of the role of taxation policy, the three traditional criteria of fairness, neutrality and simplicity have been turned on their heads. For fairness, there has been substituted a highly subjective criterion of equity, which requires the tax system to be used as a blunt instrument of social reform. For <u>neutrality</u>, there has been substituted a concept of economic intervention, which results in the tax system being used to discriminate arbitrarily in favour of some forms of economic activity and organisation to the detriment of others. For <u>simplicity</u> there has been substituted a complex maze of tax laws, regulations and administrative procedures, which are invoked to support an interventionist social and economic tax role, but which could be largely dispensed within a system geared solely to revenue raising. According to Mathews (1985, p.24) there have been several perverse consequences of the conversion of the tax system into an instrument of social reform and economic intervention. The first is that fairness has been lost in the process of giving discriminatory tax treatment to different income classes and economic groups. The second is that neutrality has been lost in the process of developing taxation arrangements which discriminate between different forms of economic activity and organisation. The third is that simplicity has been lost in the process of linking the tax system to social and economic objectives that are divorced from the task of revenue raising.

The favourable tax treatment of particular types of activities or groups of taxpayers, such as farmers are frequently referred to as selective tax measures, tax aids, tax subsidies, tax preferences or tax incentives.[11)] Surrey (1968, 1973) developed the concept of tax expenditures to emphasise to which extent spending programmes have

been imbedded in the tax code.   The concept of tax expenditures has expanded rapidly in scope and uses and has been defined as:

(i)   ".... a government revenue loss attributable to special provisions of the tax law which is not part of the essential structure of the particular tax, but has been introduced for non-tax purposes" (Heyns, 1984, p.5);

(ii)   as "..... revenue losses attributable to provisions of the Federal tax laws which allow a special exclusion, exemption or deduction from gross income or which provide a special credit, a preferential rate of tax, or a deferral of tax liability" (Greene, 1982, p.2); or

(iii)   as "government income forgone due to exceptions from the general tax norm to the advantage of other agents with a view to their private activities performed in the interest of the general public" (OECD, 1984, p.17).

The common features of these definitions are that tax expenditures are defined in terms of departures from a "normal", "benchmark", "basic" or "generally accepted" tax structure implying that tax systems contain two components which are conceptually and functionally distinct, though interwoven, in the tax law: those provisions necessary to implement the normative tax structure, and tax expenditure provisions whose function and effect are to implement government spending programmes.[12]

Why have tax expenditures been used? A report by the Australian House of Representatives Standing Committee on Expenditures (Australia, 1982a, p.5) listed the following reasons:

"Firstly, they are undoubtedly popular with individuals and industry. Secondly, they are a convenient way of helping governments stay within their expenditure limits because they are recorded as revenue losses rather than as expenditure increases. Thirdly, lack of visibility of taxation expenditures has also been given as a principal reason for their use. Another reason is that of stability, for taxation expenditures may be less likely to be changed,

because of a lack of scrutiny at budget time. For all these
reasons, taxation expenditures are a politically attractive
alternative to direct expenditure".

It should also be noted that the tax system provides a government with
a very handy device to effect both the apportionment and disbursement
of government assistance programmes, in a largely impersonal manner.
By comparison, the replacement of major tax expenditures with direct
subsidy programmes would almost certainly require the setting up of an
expensive and complicated administrative apparatus. Because of its
visibility, the administration of direct programmes is likely to be
subjected to much closer public scrutiny than the largely automatic
working of a system of tax expenditures.

The introduction and proliferation of tax expenditures have put
increasing pressure on equity, efficiency and revenue stability and
because of high deficits and the need to control the size of the
public sector, governments have been forced to examine more closely
the indirect spending which does not show up in normal budgetary
accounts. This has happened through the introduction by many
countries of tax expenditure budgeting i.e. the listing and
quantification of tax expenditures as part of their regular budget
presentation for purposes of internal fiscal management and public
information (McDaniel & Surrey, 1984; OECD, 1984).[13]

The subject of tax expenditures has also received attention from a
number of international organisations and commissions on tax reform.
Recent commissions generally endorsed the scrutiny of tax expenditures
by means of tax expenditure budgets as well as the cutting of tax
expenditures as a source of new revenues or to lower tax rates.[14]
Following recommendations by the Treasury (USA, 1984b, pp.93-95) and
President Reagan (USA, 1985a, p.1, 18) the United States cut personal
income tax rates drastically, partly by reducing tax expenditures
within the personal and corporate income taxes and partly by
transferring tax from the personal to the corporate sector. When the
Canadian Minister of Finance announced changes to the Canadian tax
system he stated that ".... we will reduce or eliminate many special
tax breaks. Those high-income individuals and profitable
corporations who currently pay little tax will carry a greater share
of the burden" (Canada, 1987a, p.2). The Task Force on tax reform in

New Zealand recommended that ".... there be more explicit accounting of tax expenditures for management purposes and preferably also for public information" and that the Government "should undertake without delay a rigorous assessment of major tax incentives to ascertain whether or not their continued (and uncertain) cost can be justified relative to the benefits (NZ, 1982, p.65). Similar recommendations were made by the O'Brien Commission (Ireland, 1982, p.88) and the Margo Commission (RSA, 1987, p.65).

The elimination or curtailment of tax expenditures have been advocated for the following reasons:

(i)   they reduce government revenues, in some cases by substantial amounts. According to Surrey and McDaniel (1985, p.6) "tax spending" in the United States amounted to $259 billion in fiscal 1984. This amount was equal to 29 per cent of the estimated direct expenditures listed in the 1984 budget. Between 1974 and 1981 the amount of government spending through tax expenditures increased by 179 per cent, compared with an increase of 145 per cent in direct outlays. The Australian Treasury estimated that the revenue forgone through tax expenditures amounted to $7 352 million in 1984/85 (Australia, 1986a, p.16) The cost of direct outlays amounted to $63 712 million. In New Zealand the Task Force on tax reform estimated that in 1980/81 the revenue forgone due to tax expenditures amounted to $1 239 million (NZ, 1982, p.68) In South Africa tax expenditures in 1983/84 in respect of companies amounted to R1 736 million or 38,2 per cent of total company tax (RSA, 1987, p.30).

(ii)   they interfere with markets, change the allocation of resources and lead to inefficiencies (Surrey, 1973, p.138).[15] By reducing the after-tax cost or increasing the after-tax return from particular activities tax expenditures shift demand toward these goods or services. In turn, more resources are devoted to these endeavours, sometimes creating undesirable consequences. The housing market provides a striking example of how tax expenditures can effect resource allocation. One study concluded that housing consumption was 20 per cent larger in aggregate in the United States through more individuals owning

homes than they would in the absence of tax subsidies (cited in Surrey, 1973, p.233). The case of home-ownership also reveals another "extra-budgetary" consequence of tax expenditures: higher prices for the affected activities. Because tax expenditures increase the demand for these items, they also tend to increase their before-tax prices - what is sometimes called a "capitalisation effect" in the public finance literature (Kay & King, 1983, pp.11-13, 58-59, 167-169; Saunders & Webb, 1988, p.63).[16] Tax expenditures for home-ownership tend to increase the price of owner-occupied homes relative both to rental housing and non-housing goods. During periods of inflation, the price-increasing effects of tax expenditures can become a continuing phenomenon under a progressive unindexed income tax. The reason is that inflation pushes taxpayers into higher marginal tax brackets, thus raising the rate of subsidy given by tax expenditures that come in the form of deductions or exclusions from taxable income. Tax capitalisation is also prevalent in the market for agricultural land. According to Kay and King (1983, p.13) estate duty relief for <u>agricultural assets</u> raised land prices ".... to levels which were nonsensical in terms of any likely agricultural returns from the land and at which working farmers were squeezed out of the market by those avoiding estate duty". When the withdrawal of such concessions were proposed as part of the shift to capital transfer tax, land prices fell by a third or more.

(iii) tax expenditures generally decrease the progressivity of the income tax. Many of the income and expenditure items that tax expenditures benefit accrue disproportionately to higher- income families, so that a smaller percentage of the income is actually taxed at the statutory marginal rates as income rises. Many of the tax expenditures, in addition, are designed so that the rate of subsidy provided increases with taxable income. Deductions, exemptions and exclusions from taxable income all provide savings equal to the taxpayer's marginal tax rate for each unit of income on expenditure involved. Since marginal tax rates rise with taxable income, the same is true for the rates of subsidy from these provisions. Together, these two factors cause the effective tax rate schedule to rise less steeply than official tax rates would suggest, thereby reducing the

progressivity of the income tax. Surrey and McDaniel, for
example, reported that in 1977 less than 13 per cent of all tax
expenditures in the United States reflected a progressive
distribution pattern (1985, p.72). In addition to this
so-called "upside-down effect",[17] the use of tax expenditures
to provide assistance automatically excludes non-taxpayers even
in cases in which the upside-down effect is alleviated by the
use of tax credits.

(iv)   Tax expenditures also complicate the tax system, increasing the
cost of administering and complying with the law and diverting
more resources to tax-related activities. Surrey and McDaniel
(1985, p.26) state that "Any tax saddled with carrying this huge
load of government assistance through so many diverse measures
involves enormous complexities". The growth of tax expenditures
leads to more complex tax forms and encourages taxpayers to
engage more extensively in tax planning. Tax expenditures also
increase the government's responsibilities for tax administra-
tion particularly if a plethora of rules are introduced to
contain tax avoidance, evasion and sheltering - activities which
particularly are associated with tax expenditures in
agriculture.

(v)   because of their impact on progressivity and complexity, tax
expenditures also weaken public acceptance of the tax system.
Tax provisions that allow wealthy individuals or corporations to
pay little or no income tax undermine confidence in the tax
system and lead many to view it as unfair. Goode (1984, p.19)
goes so far as to contribute the declining prestige of the
income tax to the existence of tax preferences that benefit
mainly the rich.

Historically, the typical development of systems of taxation has been
to start off with fairly broad-based taxes with relatively few
reliefs. Then over the years reliefs or tax expenditures have been
built in mainly in response to complaints of some groups that they
were being treated unfairly in comparison with others. There has also
been a tendency to compensate for inequities by extending benefits
rather than restricting them (Ireland, 1982, p.87). The end result
has been the evolution of complex tax systems which combine relatively

high tax rates with substantial tax expenditures. The justification
for this is now being increasingly questioned. Underlying all the
developments is a feeling that it may be better to have a more neutral
tax system with lower tax rates - what Tanzi (1988, p.54) refers to as
a "levelling of the playing field".

IV   Tax sheltering[18]

Substantial interest in tax sheltering, particularly by high income
earners[19], as well as the associated costs and effects have
compelled several countries to reform their tax systems to either
counter or reduce the costs associated with such activities. Break
and Pechman summarize the interest in tax shelters as follows:

> "Tax shelters have been much in the public eye of late,
> sometimes basking in the warm glow of the favourable
> publicity created by promoters and successful practitioners,
> sometimes shivering in the cold, critical blasts emanating
> from tax reformers intent on eliminating them" (1975, p.72).

The Australian White Paper argues that there is no generally accepted
definition of the term "tax shelter", but admits that it is usually
applied to a narrower range of tax concessions than those covered by
the term "tax expenditures" (Australia, 1985a, p.41). Arthur Anderson
& Co (1985, p.5) regards a tax shelter investment as "an outlay of
funds at risk to acquire something of value, with the expectation that
its holding will produce income and reduce or defer taxes and its
ultimate disposition will result in the realization of gain". The
Joint Committee on Taxation (1985a, p.2) referred to tax shelters as
follows:

> "In general, a tax shelter is an investment in which a
> significant portion of the investor's return is derived from
> the realization of tax savings with respect to other income,
> as well as the receipt of tax-favored (or, potentially,
> tax-exempt) income from the investment itself. Generally,
> tax shelters are passive investments in the sense that the
> investor is not involved in actively managing a business."
> (emphasis added).

Windish (1987, p.13) defines a tax advantaged investment as one which "permits the avoidance of taxes, either on income from the investment or other income; converts highly taxed income into more favourably taxed income; and/or creates artificial tax losses to shelter income from the investment or other sources". The Margo Commission (RSA, 1987, p.412) referred to tax shelters as "arrangements whereby the claiming of tax deductions is accelerated, while the related income is deferred, or converted into capital gains".

A distinction is often made between non-abusive and abusive tax shelters. Tax shelters are typically characterised as abusive if they claim to give the investor larger tax benefits than may be warranted under present law, or if they are structured to take advantage of uncertainties in the law primarily to obtain tax benefits, without regard to the economic viability of the investment (Joint Committee on Taxation, 1985a, p.2). According to Arthur Anderson & Co. (1985, p.30) the US Internal Revenue Service informally makes a distinction between tax shelters that are abusive and those that are not. Abusive tax shelters are regarded as transactions with little or no "economic reality", inflated appraisals, and unrealistic allocations, where the claimed tax benefits are disproportionate to the economic benefits. Such shelters typically seek to evade taxes. Non-abusive tax shelters on the other hand, involve transactions with legitimate "economic reality", where the economic benefits outweigh the tax benefits. Such shelters seek to defer or minimize taxes.

There are common threads that run through the fabric of tax shelters. Firstly, most tax shelter investments are structured as limited partnerships (Joint Committee on Taxation, 1985a, pp.28-50; Sweibel, 1986, p.47:18; Windish, 1987, pp.83-111). Treasury I, for example, reported that between 1963 and 1982 the number of US taxpayers claiming partnership losses increased almost five-fold to 2,1 million. By comparison, the total number of tax returns filed during the same period increased by only 50 per cent (USA, 1984b, p.138). Secondly, the tax losses generated by many tax shelter investments are attributable principally to deductions for interest and depreciation, investment credits, initial and investment allowances and depletion (Windish, 1987, pp.21-37). Thirdly, tax shelters are concentrated in three broad areas: farming, mining and other extractive industries, and real estate (USA, 1984b, p.138).[20]

Some authors argue that if a tax shelter investment is to achieve the tax objective for which it was created, it must provide one or more of the following: avoidance, conversion and/or deferral (Windish, 1987, p.13). Others refer to tax deferral, the capital gains tax advantage and heavy reliance on borrowing or leverage (Break & Pechman, 1975, p.72; Graetz, 1984, p.51; Surrey, 1973, pp.117-118). The discussion below follows the first approach. Leverage or tax arbitrage is considered in the next section.

1.   Avoidance[21)]

The term "tax avoidance" can be applied in a very general sense to all of the tax minimisation practices which the law allows (Australia, 1985a, p.36; Ireland, 1982, p.156; Silke, Divaris & Stein, 1982, p.1249). "Tax evasion" in contrast refers to practices that are contrary to the law.[22)] Although the margin between avoidance and evasion in many cases is no more than hairline (Mutén, 1984, pp.1 - 3), the growth in the capacity of certain people to avoid and evade tax is behind much of the increasing concern at the unfairness of tax systems. The Irish Minister of Finance in his 1981 Budget Speech (cited in Ireland, 1985, p.157) stated in this regard that:

> "Whatever merit the distinction between evasion and evoidance may carry in law, it carries none for the general body of taxpayers who must bear, in addition to their own share of the total tax burden, that part of the tax load of which the evader and the avoider have divested themselves".

Estimates of tax revenue lost through tax avoidance are difficult to prepare but can be substantial. The Australian Treasury (Australia, 1985a, p.37) nevertheless estimated the following losses for various avoidance practices: income splitting (A$ 500 million); allowance of rental property losses against income from any source (A$ 175 million); allowance of farming losses against income from any source (A$ 155 million); non-taxation of capital gains (A$ 350 million) and entertainment expenses (A$300 million).

2. <u>Conversion</u>

Conversion refers to an investment that "converts" highly taxed income into more favourably taxed income (Windish, 1987, p.14). In most cases the term refers to the conversion of ordinary income to tax preferred capital gain, but it can also refer to any movement of income from a higher to a lower marginal tax bracket, for example, by timing the receipt of income. The conversion of ordinary income to capital gain usually requires an investment that produces deductions that offset ordinary income and that produces capital gain on its eventual sale. <u>Real estate, livestock, orchards and timber provide investors with excellent conversion shelters</u>. The expenses of maintaining trees and land provide current tax deduction as natural growth increases the value of timber. This increase in value, enhanced by expenses associated with good forestry, is often returned to investors in a later year as capital gain. Tax law in the United States, for example, allows a timber owner to treat the difference between the cost depletion or what was paid for the timber and the value of the standing timber at the beginning of the year in which it is cut as capital gain. Any further gain on the sale of the cut timber is ordinary income. The capital gain is added to the original cost of the timber, which total is subtracted from the gross revenue from timber to determine the amount of ordinary income.

To illustrate the tax advantage of the special election to treat profit from growth as capital gain, assume that a US investor purchases a tract of timberland for $200 000. Of the purchase price, $50 000 is allocated to the land, which is a non-depletable and non-depreciable asset, and $150 000 is allocated to the 2 million board feet (2 000 MBF) of timber standing on the land. Mother Nature increases his wealth until there are 5 000 MBF with a fair market value of $450 000. All expenses of maintaining the timberland were deducted as incurred. The investor plans to cut 20 per cent of the standing timber.

The capital gain is calculated as follows:

Fair market value of timber on the first day of the year ($450 000 x 20%)	$ 90 000
Less cost ($150 000 x 20%)	- $ 30 000
Capital gain	$ 60 000

If the timber is sold for $300 per MBF and the cost associated with the cutting and sale are $190 per MBF the timber owner's ordinary income of $20 000 is calculated as follows:

Sale price (1 000 x $300)		$300 000
Expense (1 000 x $190)		- $190 000
		$110 000
Less Original cost	$30 000	
Capital gain	+ $60 000	- $ 90 000
Ordinary income		$ 20 000

Without the special election for cost depletion, the entire $80 000 ($110 000 - $30 000) would be ordinary income. With the election, $60 000 is capital gain. To the extent that the deductions for the expenses of maintaining the timberland reduced ordinary income over the years of growth, the taxpayer has converted this ordinary income into capital gain.

3.   Deferral

Tax deferral is usually accomplished by accelarating deductions in the early years of an investment thus deferring taxable receipts. This mismatching of receipts and expenses effectively provides the taxpayer with an interest-free loan equal to the deferred tax liability. For example, if at the end of year one, a taxpayer wishes to have an additional R1 000 loan for use in year two, he can obtain a one-year bank loan. If the prevailing rate of interest is 15 per cent (compounded annually), he would repay R1 150 at the end of year two. If he is in the 50 per cent bracket, the benefit of the interest deduction will reduce his after tax cost to R1 075. Alternatively, the taxpayer could invest in a tax shelter that deferred tax on R2 000 of income until the following year. The taxpayer then would have a R1 000 tax savings for year one (at the 50-per cent maximum rate of tax), and at the end of year two, instead of repaying a lender R1 150 at an after tax cost of R1 075 (after duducting the R150 of interest payments), the taxpayer would incur an income tax of R1 000 on the R2 000 of income generated by the investment. Thus, the taxpayer would have in effect borrowed R1 000 for the one-year period without

an interest cost. The longer the deferral period, the greater the
benefit obtained by the taxpayer. In addition, the taxpayer could
invest in another tax shelter to provide a "rollover" or further
deferral of the tax. A lengthy deferral of tax approaches an
exemption.

Table 3.1 indicates by how much tax deferral reduces effective tax
rates. For example, at a 10 per cent after-tax interest rate, a
10-year tax deferral effectively reduces a 45 per cent marginal tax
rate to only 17,3 per cent.

For a very simple example of the use of farming as a deferral shelter,
assume that a farmer, using a cash method of accounting, has R10 000

TABLE 3.1 EFFECTIVE TAX RATE PER UNIT OF INCOME DEFERRED BY A 45 PER
          CENT TAXPAYER FOR DIFFERENT DEFERRAL PERIODS AND INTEREST
          RATES

After-tax interest rate	Deferral period (in years)				
	1	5	10	15	20
4	43,3	37,0	30,4	25,0	20,5
6	42,5	33,6	25,1	18,8	14,0
8	41,7	30,6	20,8	14,2	9,7
10	40,9	27,9	17,3	10,8	6,7

of income from his 1987 harvest. Before the year-end, this farmer
purchases at a cost of R10 000 the seed, fertilizer, and other
supplies necessary to produce his 1988 crop. Although the expenses
incurred for the 1988 crop would not produce income until that
year, the farmer can deduct these costs in 1987. The result is that
this farmer pays no taxes for 1987.

In 1988, the farmer can repeat the process. Suppose the 1988 crop
income is R20 000. To expand his planting and improve his soil, the
farmer expends R20 000 in 1988 to prepare for the 1989 crop. Again
the farmer pays no tax in 1988. The 1989 crop produces R40 000 of
income. Obviously, this process cannot go on forever, but even if the

amount of deferred income from one year to the next is the same, the
original deferral continues. In other words, the farmer is obtaining
an open-ended interest-free loan from the government. Here is the
example in numbers:

Year	1987	1988	1989
Income	R10 000	R20 000	R40 000
Less deductions	-10 000	-20 000	
Taxable income	R 0	R 0	R40 000

Note that if there is no offsetting deduction in 1989, the entire
R40 000 is taxable income in that year. If the farmer had not prepaid
his costs, he would have had income in each of the three years. Here
are the figures when the cost of a crop is matched with the income
from that crop:

Year	1987	1988	1989
Income	R10 000	R20 000	R40 000
Less deductions	- 0	-10 000	-20 000
Taxable income	R10 000	R10 000	R20 000

Notice that the deferral has simply moved the taxable income of the
farmer from 1987 and 1988 into 1989. On the other hand, prepaying
1990 costs in 1989 can reduce the 1989 income. If each crop now costs
R20 000 to produce, the R10 000 of deferred taxable income from 1987
and the R10 000 from 1988 will continue to be deferred as long as the
farmer continues to prepay the costs for each succeeding crop.

Assume now that before the 1989 crop is harvested, the farmer sells
his land along with the unharvested crops. If the R40 000 the farmer
receives for the unharvested crops is entitled to capital-gain
treatment along with the proceeds from the sale of the land itself the
farmer would not only have deferred taxable income from 1987 and 1988,
but converted what would be ordinary crop income into capital gain.

4.   Effects

The flourishing of tax shelters in recent years has affected the administration of tax laws in at least three ways. First, the limited audit resources of Revenue Services have increasingly been diverted to focus on tax shelters. Second, the judicial process becomes burdened by an increase in the number of pending cases. Third, the rise of the tax shelter industry may have contributed to a deterioration in compliance by undermining taxpayer confidence in the fairness and effectiveness of the tax laws.

The proliferation of tax shelters has had an important impact on revenues and on the efficiency and equity of the income tax system. The growth of shelters feeds on itself: as the tax base is eroded, rates must be raised if revenues are to be maintained, which in turn increases the demand for tax shelters. This vicious circle threatens the integrity and fairness of the tax system as the tax burden falls increasisngly on taxpayers who do not, or cannot, take advantage of tax shelters. The growth of tax shelters affects the fairness of the tax system in other important respects, including shifts in the ownership of certain assets from low-bracket to high-bracket taxpayers. For example, farms are being sold to limited partnerships who can pay more than others due to their superior ability to utilise tax write-offs or in some cases their willingness to take more aggressive positions on their tax returns. This may bid up the price of farmland and may encourage sole proprietors to abandon agriculture.

Studies of the effects of tax shelters on the farm sector agreed that:

(i)   Tax sheltering exerted an upward pressure on land prices, increasing already high barriers of entry into a business activity that has such low returns that the purchase of productive assets cannot be financed from their yield (Harl, 1984, p.200). Since the study by Davenport, Boehlje and Martin (1982) it has been argued that disenchantment with the farm tax shelter increased the severity of the decline in land prices (Lambert & Myer, 1988, pp.425-432). In economic terms, the decrease in demand for tax shelters accentuated decreases in demand for farm land based on farm product prices. The farm tax

shelter thus has caused a greater fluctuation in price through
the boom-and-bust cycle than would have been the case without
it.

(ii)   Tax sheltering has encouraged the growth and continuation of
farm firms. Unless, contrary to the trend of the last few
years, there is an increase in resources devoted to farming,
this means that the total number of farms will decrease. This
result may be economically sound where it encourages economies
of scale, but it runs counter to the frequently reiterated goal
of farm lobbies of encouraging multiple family-sized farm
producers. In short, tax policy supports, encourages, and
coincides with the trend to fewer and bigger farms.

(iii) Tax sheltering has produced an influx of capital into
agriculture, and this influx has in turn stimulated the
production of tax sheltered crops. This has lowered prices for
some products to the benefit of consumers, but the extent of the
benefit is unknown.

(iv)   Tax sheltering allows the creation of financial reserves -
either as crops on which taxes have not been paid or as deducted
prepaid expenses - that sometimes mitigates financial
difficulty. This reserve can be realised only by squaring with
the tax collector, an event that may perhaps be put off until
the tax burden will be low. But the economic utility of this
reserve might not be so great as the utility of an equal
investment in other assets, because the reserve will grow only
if crop prices or the value of prepaid expenses increase.

The reserves have frequently been considered something of an
economic stabiliser, because they can be accumulated in times of
large crops and liquidated when crops are smaller. But the role
of such reserves as stabilisers changed during the last few very
difficult years on the farm, when some tax-motivated reserves
were liquidated at a time when the markets would have been
better served by a continued holding of them. This out-of-phase
liquidation has, in the view of some observers, led to even
lower prices.

(v)   Tax sheltering inevitably alters management practices. The
        financial returns from a tax shelter are comprised of the market
        price or commercial return for the product and the tax shelter
        benefit. A farmer who does not understand the tax law and thus
        does not operate the farm to garner the tax shelter benefit may
        obtain only the commercial return and have a lower overall
        return from farming than will the sheltered operation which
        gains both the commercial return and the tax benefit. The
        unsheltered farmer ultimately will be unable to compete with the
        sheltered operation.

(vi) Finally, once the shelter operation has begun, it is difficult to
        stop. The tax shelterer is in a "squirrel cage". Liquidation of
        the prior years' crops may telescope several years' income into a
        single year and produce a very large tax bill unless there are
        current deductions to shelter the income, but current deductions
        depend on a continuation of the farm operation. The need for
        these current deductions frequently encourages farmers to
        maintain ownership of farm assets until death because that event
        often entails favourable tax treatment in the hands of
        descendants. The report of Davenport, Boehlje & Martin (1982)
        argues strongly that innumerable farmers have been caught in this
        bind. They argue (1982, p.30) that:

        "There is a high degree of uncertainty and potential
        pitfalls associated with managing the tax shelter.
        Continual expansion of operations will ease some of the
        difficulties because growing deferrals and anticipa-
        tions are more easily reconciled with expanding
        operations. The potential liability associated with
        the cessation of sheltering activity, however, is an
        inducement to continue it. Once on the treadmill, the
        ways to get off are few".

V   Tax arbitrage

When taxation of income from an asset can be deferred or converted
into tax-preferred income, investors will often have a strong
incentive to finance the acquisition of the asset by means of

borrowing, as this allows the investor to engage in interest-related tax arbitrage. Two types of tax arbitrage can be distinguished, namely normal tax arbitrage and pure tax arbitrage (Steuerle, 1985, pp.59-60).

Under the first type, a taxpayer borrows and then purchases a tax-preferred asset such as equipment that receives generous depreciation allowances. Because interest is entirely deductible, while the nominal income from a preferred asset is not or only partially included in income subject to tax, the taxpayer will often find that total tax payments are less than zero on an investment purchased entirely with borrowed funds. While there may be before-tax gains or losses from borrowing and purchasing preferred assets, the negative taxes will increase any gains and may more than offset any losses. As long as the after-tax rate of return on the preferred asset is greater than the after-tax rate of payment on the borrowing, the taxpayer will find this arbitrage profitable.

The second type of tax arbitrage is similar to the first, only in this case the taxpayer essentially buys and sells the same asset, for example, he borrows and buys an interest-bearing asset. Acquiring a second mortgage while depositing funds in a retirement annuity would be a typical example. This type of activity is termed pure tax arbitrage because all gains from these transactions are induced by pure manipulation of the tax system. Pure tax arbitrage usually takes place by channeling assets or receipts of interest through a tax-favoured entity.

While both normal and pure tax arbitrage increase the aggregate amount of tax savings achieved through borrowing, there are important distinctions between the two. With normal tax arbitrage, there generally must be an exchange of assets and liabilities between two different tax entities with different marginal tax rates. With pure tax arbitrage, there is no need for a second taxpayer to hold onto the interest-bearing asset because the preferred income is from the same type of asset as the income that is deducted. Normal tax arbitrage may become unprofitable for some or all taxpayers if the price of the preferred assets rises or correspondingly, if interest rates rise too high relative to the returns on preferred assets. Pure tax arbitrage, on the other hand, is profitable at all positive interest rates and

all positive tax rates regardless of the returns on other assets. Normal tax arbitrage also lowers the taxes on returns to capital, as the net tax paid on the net interest income is negative.

If the investment and saving takes place regardless, the tax savings from normal tax arbitrage may merely have financed comsumption. Nonetheless, at least initially, normal tax arbitrage lowers the taxes that would be paid on a leveraged investment. These lower rates may create an inducement for a higher relative interest rate and a net increase in savings by some households.

Investment may therefore increase if this surplus is not used to finance increased consumption of other households. This is an extra-ordinarily complicated, inefficient, and inequitable way of accomplishing these goals, but it still differs from pure arbitrage. With the latter, there is no incentive for more saving, but simply for a society to hold greater amounts of debt.

The following example in Table 3.2 clarifies the process of tax arbitrage. There are three assumptions: an interest rate of 10 per cent; an asset with a non-taxable nominal return of 7 per cent; and the 1989 South African tax schedule for married persons. In Case I a taxpayer with a taxable income of R50 000 would pay R14 360 in taxes. If a taxpayer borrows R300 000 he can deduct R30 000 in interest payments and is compensated only by an increase of R21 000 in income from the preferred asset. This R9 000 loss in before-tax income, however, is more than offset by a decrease in taxes of R11 000. If a taxpayer obtains an additional R2 000 in cash income and R20 000 in borrowings (Case II) he will receive an additional R1 400 in income from the preferred asset.

In both cases the taxpayer does not pay the government any tax on income in excess of R20 000 but does pay an implicit tax rate of 30 per cent on that income.

Often tax arbitrage is regarded as having a limited application in the real world. Steuerle (1985, p.70) contradicts this perception and argues that:

TABLE 3.2:   AN EXAMPLE OF NORMAL TAX ARBITRAGE

Item	Case I	Case II
Before arbitrage		
Taxable income	R50 000	R52 000
Taxes	R14 360	R15 200
After-tax income	R35 640	R36 800
After arbitrage		
Interest deduction	R30 000	R32 000
Taxable income	R20 000	R20 000
Taxes	R 3 360	R 3 360
Other non-taxable income	R21 000	R22 499
After tax income	R37 640	R39 040
Case II versus Case I		
Addition to income	-	R 2 000
Addition to after-tax income	-	R 1 400
Implicit tax rate on additional income		30%

"Tax arbitrage is pervasive throughout the economy, and it affects almost every investment decision made by individuals, businesses, and governments. Hundreds of billions of dollars of tax base are lost annually because of tax arbitrage, and the threat always exists that the loss will increase from year to year as new mechanisms and means are found to take advantage of differential tax rates on interest and income from various assets. Literally hundreds of pages of tax laws and regulations attempt, often unsuccessfully, to cope with tax arbitrage of all types".

In addition, many common examples of tax arbitrage illustrate that taxpayers do not even have to plan to engage in tax arbitrage for it to occur (Steuerle, 1985, pp.70-71). The first pervasive example of tax arbitrage is performed routinely by US taxpayers when they borrow to purchase housing and consumer durables. The non-taxation of the income flows from these assets, combined with the deduction of the interest payment, results in a substantially negative rate of tax on these investments. Arbitrage is also commonly obtained when taxpayers borrow at the same time that they invest in a pension asset or a deferred savings account such as an income equalisation deposit available to farmers in Australia (see Chapter 6). A related type of arbitrage is accomplished by those who borrow directly from pension plan assets or the savings component of their life insurance

policies. Many firms borrow to purchase equipment and other assets. This combination results in a negative rate of tax for investments financed with sufficient debt (Johnson, 1983, pp.1013-1055; King & Fullerton, 1984, pp.242-250). Finally tax arbitrage can also be achieved through so-called "cash and carry" transactions in respect of inventories. Increases in the value of inventories are usually not subject to taxation until sold, while the interest on money borrowed to purchase the asset will be deductible. The income receipt is therefore deferred from taxation and may even be allowed favourable capital gains treatment.

VI   Complexity

Another charge against the existing tax system is that it is appallingly complex. Some complexity is the unavoidable side-effect of trying to pursue fairness. More complexity arises from special incentives for particular activities. Still more arises from an effort to prevent these incentives from unduly reducing tax burdens of high income taxpayers. The result is a maze of rules and provisions that makes tax forms all but incomprehensible. An entire industry has arisen to sell advice on how to shelter income legally and another to help people fill out their returns. "In the business world, success increasingly rests not on innovating, cutting costs, or marketing effectively but on minimizing taxes" (Aaron & Galper, 1985, p.6). Tax rules cause investors to search for tax provisions they can manipulate instead of investments that are socially and economically productive.

C.   TAX REFORM IN PRACTICE

Usually tax reform has been approached on a piecemeal or incremental basis considering individual parts of the tax system and particular problems sequentially, and even in isolation from changes that might be forthcoming in other areas. Recently, however, several countries, such as Australia, Canada, Japan, New Zealand and the United States have taken a more comprehensive or "package" approach to tax reform, with base broadening and rate reduction as a major theme.[23)] In some countries fundamental changes have been adopted, such as shifting (at least in part) their tax base towards consumption.

Increasing criticism of tax systems have led to a proliferation of tax reform commissions and proposals. The Financial Times (June 12, 1987, p.15), for example, reported that "If monetarism was the economic fashion of the late 1970s, tax-cutting has become the vogue in the last half of the 1980s". Tables 3.3 and 3.4 show that during the 1980s reform of both direct and indirect taxes has been on the political agenda in most countries, particularly in the OECD area. Although the focus in this study is on tax reform in developed countries (DCs), developing (and semi-industrial) countries (LDCs) have also contemplated tax reform as a means to revitalise their economies, stimulate supply response and increase the efficiency of resource use (Leechor, 1985, p.1)

Some of the more important issues motivating tax reform in LDCs are briefly contrasted with those in DCs (Musgrave, 1987, pp.242-278; Virmani, 1988, pp.19-38). First, the most important motivation for LDC tax reform is the need to raise more revenue. The DCs in contrast are motivated most strongly by perceived inefficiency of the tax system. The second major difference between LDC and DC tax reform is the "luxury good" issue which does not have in DCs the central role that is has in LDC tax reform. Dependence on indirect taxes is higher in LDCs. In addition, merit good taxes, commonly excise duties on tobacco and alcohol based products, are a major source of revenue in LDCs. The saving-investment issue is also viewed from somewhat different perspectives. The DC discussion is overwhelmingly motivated by the corporate income tax, with the focus on the unexpected effects of taxes on investment allocation. Though the corporate income tax is an important source of revenue in many LDCs, the base often consists largely of foreign firms. Finally, the more subtle issue of the double taxation of savings inherent in the income tax as well as the inefficiency of selective indirect taxes is not raised with equal force in LDCs.

The repertoire of reform measures is undoubtedly extensive, but Table 3.5 to some extent summarizes the range of issues arising from various policy objectives as well as the variety of policy actions available when the overall tax system is taken into account. As is evident from the table, there are several measures for resolving any given issue. Conversely, any given measure may be used to address several issues.

TABLE 3.3   TAX REFORM IN THE 1980's - TAXES ON INCOME AND PROFITS

Country	Date(s)	Review body, document or Act
Australia	1985	Draft White Paper[1]
Austria	1989	Income Tax Law[2]
Belgium	1988	Belgium Tax Reform Law[3]
Canada	1987	White Paper[4]
Denmark	1987	Tax Bills[5]
Germany	1987	Governments Reform Proposals[6]
Iceland	1988	Tax Bill[7]
Ireland	1982	Tax Reform Commission[8]
Japan	1986/7	National Tax Commission[9]
Netherlands	1986	A Step Towards Simplicity[10]
New Zealand	1982	Task Force on Tax Reform[11]
Portugal	1987	Commission on Tax Reform[12]
Sweden	1987	Tax Reform in Sweden: A Proposal[13]
United Kingdom	1986	Green Paper[14]
United States	1986	Tax Reform Act[15]

Sources: (1) Australia (1985a)   (8) Ireland (1982)
          (2) Schwank (1989)   (9) Aoki (1987a; 1987b)
          (3) Bentley (1989)   (10) OECD (1987f)
          (4) Canada (1987b)   (11) NZ (1982)
          (5) OECD (1988e)   (12) Cunningham (1988)
          (6) Tax Reform in major   (13) Tanzi (1988)
               industrial countries   (14) OECD (1987); and
               (1987);   (15) USA (1987g; 1987h)
          (7) OECD (1988f)

TABLE 3.4   TAX REFORM IN THE 1980's - GENERAL CONSUMPTION TAXES

Country	Date	Review body, document or Act
Australia	1985	Draft White Paper[1]
Canada	1987	White Paper[2]
Greece	1987	Government Review[3]
Iceland	1988	Tax Bill[4]
India	1985	Five-year Tax Reform Plan[5]
Japan	1986	National Tax Commission[6]
New Zealand	1986	Report of Advisory Panel[7]
South Africa	1987	Tax Commission[8]
United States	1985	Treasury Report[9]

Sources: (1) Australia (1985a)   (5) Sury (1988)
           (2) Akin & Pel (1988)   (6) Aoki (1987a; 1987b)
           (3) Greece: VAT (1987)   (7) NZ (1985)
           (4) OECD (1988f)   (8) RSA (1987)
                                       (9) USA (1985)

The challenge for policy-makers is to determine the combination that adequately addresses all the pressing concerns.

Appendix 1 gives a brief overview of major tax reform issues in some parts of the world as well as reform specifics in respect of personal, corporate and indirect taxation.

TABLE 3.5   TAX REFORM MEASURES FOR SELECTED POLICY ISSUES

Policy Issues	Reform Measures							
	Tax Base				Tax Rate			
	Broadening[1]	Rationalisation[2]	Loophole Closing[3]	Shift Toward Consumption[4]	Lowering	Narrowing of Dispersion[5]	Indexation	Tax Rebates and Duty Drawbacks
I Efficiency								
A. Direct Effects								
1. Relative Price Distortion						X		X
2. Intersectoral factor Returns		X	X					
3. Intertemporal Consumption	X			X	X			
4. Work Efforts					X		X	
B. Side Effects								
1. Exchange Rate Overvaluation					X			X
2. Competitiveness		X		X				X
3. Credit Demand			X				X	X
4. Financial Savings				X	X		X	
II Equity	X	X	X				X	
III Revenue	X		X					

Notes:
1. Extension of coverage to sources not covered by current taxes, such as gifts, bequests, fringe benefits and capital gains.
2. Avoidance of cascading which occurs under turnover taxes.
3. Removal of tax concession.
4. Savings exemption and the cashflow corporate tax.
5. For indirect taxes.

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D.   IMPLEMENTING TAX REFORM

Major tax reforms require careful packaging. Political support has to
be built up for change, and pressure groups overcome. Politicians
have to be convinced that tax reform is a minimum vote losing issue.
The implications of reforms have to be explained to households and the
business community.

Several approaches for implementing tax reform may be distinguished.
Under a "high-profile" approach a government announces a throughgoing
reform to be carried out in a short space of time. An overall
solution for rapid application is then found. With a "low-profile"
(incrementalist) approach a government will decide firstly, on the
direction in which tax reform should go. Measures are then put into
effect over a relatively long period of time. The third approach is
one of "concensus". Everything possible is done to arrive at a
political agreement on a series of reforms before they are announced.
Implementation goes ahead gradually.

Some of the constraints that have to be overcome in implementing major
reforms are:

    .   A good tax is an old tax. Besides the natural reluctance of
         taxpayers to accept a changing tax structure, there are good
         economic reasons in support of this adage. Existing tax
         incentives tend to get capitalised into asset values and, as
         such, no longer produce marginal resource misallocations.
         Therefore the implementation of major reforms may produce
         substantial windfall gains or losses for certain groups of
         taxpayers. This, in turn, may require complicated transitional
         rules, which increase the administrative costs of reforms.

    .   Reforms may create uncertainty. Changes in tax structures may
         disrupt business planning, and undermine business confidence.
         This may adversely affect investment behaviour.

    .   The policy goals set for tax reform may conflict. Changes which
         promote saving, for example, may distort investment patterns or
         changes which provide a more equitable treatment for one and

two-earner families may discriminate between single and married taxpayers.

. There may be ambiguities in the policy goals. Most reforms emphasise the need for a more neutral tax system. Yet in practice it is difficult to establish the benchmark against which a tax system should be judged. Also some countries may interpret neutrality as requiring an interventionalist approach to offset non-neutralities that already exist in the economic system, whereas other governments may interpret it as requiring a 'hands-off' policy.

. Tax systems are complex and to change them drastically and quickly inevitably arouses opposition from many groups concerned that their own special tax advantages may be withdrawn. Widening the tax base by the removal of tax expenditures tends to alienate well-organised groups of taxpayers (for example, farmers and insurance companies), whilst the majority of taxpayers who would benefit from such reforms tend to be less vocal.

. Under federal systems and in unitary countries which are committed to decentralisation, the need to consult with lower levels of government may limit the reform options open to central government. Similarly, all countries have to take into account the international implications of proposed tax reforms and ensure that proposals are consistent with their existing international tax treaty obligations.

. There are practical and administrative constraints on tax reforms. New taxes must be designed so that they work in practice. This may require a large increase in staff (for example, when a VAT is introduced), comprehensive re-training programmes and a high degree of computerisation.

Despite these constraints, there is now a major impetus for tax reform and the chances for implementing major structural changes to tax systems are perhaps greater today than they have been for some years.

E.   CONCLUSION

There is no question that the tax reform movement in the United States
that started in 1981 and culminated in the Tax Reform Act of 1986 (TRA
'86) has sent shock waves to other countries. Because that movement
represented in part the political expression of a powerful Government,
and, perhaps equally important, because it appeared to be built on a
foundation of discontent with various aspects of existing tax systems,
it provided the officials of other countries with a bold challenge and
an opportunity to introduce changes in their own tax systems. Tanzi
(1988, p.51) contends that:

> "One does not exaggerate in stating that very rarely has the
> world seen so much interest in tax reform as in the past
> couple of years; and very rarely has there been such a
> convergence of views on at least some of the aspects of the
> tax systems that needed to be modified".

Despite tax reform being country specific, there are many common
trends. Among these the following have been identified:

(i)   The increasing dissatisfaction with the high marginal tax rates
       of the personal income tax. Many countries have reduced or are
       in the process of reducing those rates. This reduction is
       often facilitated by the fact that the revenue loss associated
       with the rate reduction is much less at the high rate than at
       the low rate. Lower tax rates also reduce the incentive
       effects of concessionary tax provisions.

(ii)   Many countries have tried to restructure the tax base. One
       finds a wide agreement on the need to increase the standard
       deductions and/or the personal exemptions but this increase is
       accompanied in many, but not all cases, by the elimination of
       many other "tax expenditures".

(iii) There is a fairly broad concern about problems created by the
       deductibility of interest payments.[24] In several countries,
       including Japan, Denmark, Norway, the United States and a few
       others, the deductibility of interest payments has been
       challenged and this challenge has resulted in some countries in

what is **de facto** a schedular personal income tax system since interest incomes are taxed separately with a flat rate (Tanzi, 1988, p.62). A schedular system often is more acceptable when tax rates are not very progressive.

(iv)   Many of these reforms have tried to reduce the tax arbitrage related to (i) present and future income, (ii) different types of income, and (iii) different forms of business organisations. Countries have become keenly aware that when tax rates are high and progressive, taxpayers will try to shift income from periods when they would be subject to high rates to period when they would be subject to low rates. They will try to channel income toward activities that are taxed at lower rates and they will try to carry out their business through tax entities which provide the greatest tax benefits. A lowering of the progressivity, combined with a schedular taxation of interest income (as in Denmark) and a top personal income that is close to the corporate income tax rate reduces these possibilities. In many countries the highest personal income tax rate and the basic corporate rate are now much closer than they used to be.

(v)   There is a lot of concern about abuses connected with fringe benefits and there is also a movement toward the elimination of the distinction between capital gains and other forms of income. Again the lowering of the marginal tax rates facilitates the integration of capital gains with other incomes. However, the problems created by gains connected with inflation have not been universally dealt with.

(vi)   For the corporate income tax, there is a trend toward lowering the basic rate and broadening the base. However, this trend is less universal than for the personal income tax. This trend is also more controversial among tax experts, especially in the United States. Governments seem to be losing their enthusiasm for the possibility of influencing investment decisions in ways that they consider beneficial to society. Thus, investment credits have been abolished in a variety of countries and depreciation allowances are being redefined to bring them closer in line with economic depreciation.

(vii)   There is a movement toward a greater reliance on indirect
        taxes. This movement was perhaps started by the United Kingdom
        but it is spreading to other countries, including the United
        States, where some increases in excise taxes have already
        occurred.

(viii) Finally, many of these reforms seem to be revenue-neutral in
        intentions if not in results.

Even though tax systems have undergone dramatic and unprecedented
change in the past decade, it is entirely possible to overstate the
direct effects of these changes upon the structure of the agricultural
sector, the nature of firms within that sector and the economic
fortunes of those involved in farming. If the indirect effect of
taxation were considered as well, the combined impact would, according
to Harl (1984, p.199) rank among the most significant variables
affecting agriculture even in these economically troubled times. For
many farmers the recent tax reform proposals represent a mixture of
"good news" and "bad news". Among the good news provisions are the
reduction in individual and corporate tax rates and the retention of
specific favourable provisions. The bad news provisions include the
elimination of various concessions and the introduction of
restrictions to counter tax shelter opportunities. Tax reform may
hurt agriculture in the short run. However, the farm economy may be
improved over the long run as investors move out of farm-related tax
shelters. This movement of capital out of agriculture may have an
initial detrimental effect on asset values, but could help reduce
over-production in the long run. This could eventually result in
higher prices for commodities. It would probably be a sound move in
the long run to have tax shelter advantage decisions replaced by
economic advantage decisions. The next Part discusses these issues in
more detail.

FOOTNOTES

1. Tax reform has been defined as ".... a set of proposals which entail either a major change in the yield of government revenue raised in the form of taxes in relation to the Gross Domestic Product or a major change in the prevailing methods of raising taxes, i.e. a major change in the tax structure" or that it ".... consists of proposals for the adaptation of the existing tax system so that the system moves towards whatever is regarded as the optimal tax structure" (Peacock, 1981, p.11). According to Tullock (1988, p.38) the meaning of tax reform is ".... rearranging the tax code so as to meet some criterion - frequently a rather vague one - of efficiency". He adds that most ordinary citizens view tax reform as having two other characteristics: firstly, that taxes go down, and secondly - rather paradoxically - that taxes on the very wealthy go up. Optimal tax theorists often also refer to tax design which specifies the composition and yield of taxes as they would be derived from fundamental tax principles. See, for example, Atkinson (1987) and Deaton (1987).

2. The following principles or criteria have crystallised out of the more conventional tax literature: equity, efficiency, productivity, market conformity, clarity and specificity, minimisation of the tax burden, adjustability, minimisation of avoidance and evasion and political acceptability. Break and Pechman, for example, argue that equity and economic efficiency are fundamental means of achieving the main goals of tax reform while other principles such as fiscal efficiencies, simplicity and certainty are essential characteristics of any good tax (1975, pp.4-5).

3. See, inter alia, Australia (1985a, pp.14-15), Canada (1987b, p.3), Ireland (1982, pp.83-86), RSA (1987, pp.50-51) and USA (1984b, pp.13-20).

4. In discussing equity the "burden of taxation" is frequently used. The Irish Commission regarded the implication in this phrase that all taxes constitute a diminution of welfare for which the citizen receives nothing in return as incorrect and misleading (Ireland, 1982, p.84).

5.   The Carter Commission, for example, viewed the benefit principle as having serious practical and theoretical deficiencies (1966, Vol. 3, pp.3-4).

6.   It is for this reason that averaging schemes are often introduced (see Chapter 6).

7.   For a comprehensive overview of taxes on capital see OECD (1988a).

8.   See OECD (1988b) for an overview of the types of fringe benefits being offered in OECD countries.

9.   The degree of fiscal privilege reflects the difference between an individual's marginal income tax rate and the effective rate of tax levied on the pre-tax real return on the asset concerned. If it is positive, the asset is more favourably treated than it would be under simple taxation of its real return; if it is negative, it is less favourably treated. The size of the degree of fiscal privilege gives a measure of the privilege or penalty attached to a particular form of saving in terms of the underlying real return. See Hills (1984) for a comprehensive analysis of savings and fiscal privilege.

10. For the kinds of intervention see OECD (1984, pp.24-83), McDaniel and Surrey (1984) and Van der Walt (1985).

11. These terms convey a notion that selective tax measures are only to the benefit of taxpayers. Some selective tax measures, however, are designed to discourage rather than encourage certain activities. Such provisions give rise to tax penalties. See, for example, McDaniel and Surrey (1985, pp.11-13).

12. For a discussion of the guidelines for the identification of tax expenditures see Heyns (1984, pp.21-32) and McDaniel and Surrey (1984, pp.21-114).

13. Enthusiasm for tax expenditure budgeting is often dampened by problems of identification and measurement. However, the implications of not listing tax expenditures should not be lightly dismissed. Surrey and McDaniel have put it as follows: "(A) moment's thought should indicate how serious are the consequences of asserting that taxation

expenditures cannot be identified or, if identified, that their costs cannot be ascertained. At bottom, this would be an assertion that the fiscal experts of a country do not know what is contained in their income tax or how much particular programs cost the government ....(T)he assertion would be an admission that the country has lost control of both its tax policy and its budget policy" (1979, p.242).

14. Kay (1987, p.3) calls this approach the "Garden of Eden" theory of tax reform because a variety of alluring political lobbyists managed to introduce all kinds of concessions for special interest groups so that a simple and efficiently functioning tax system became very complicated and required much higher rates to raise the same revenue.

15. According to Surrey and McDaniel (1985, pp.82-83) inefficiencies arise because tax expenditures simply pay individuals for continuing to engage in their activities, the tax savings greatly exceed the value of the activity induced and provide tax savings to middlemen who deliver the government assistance to the targeted beneficiaries.

16. Capitalisation generally means that all people who really benefit from the tax privileges of tradable assets are those who invested in the assets before the tax concession was introduced. Surrey and McDaniel (1985, p.86) argue that ".... although the capitalisation issue is of interest for some purposes, it cannot be permitted to obscure the real point of tax expenditure analysis - the identification and quantification of government spending through the tax system."

17. Consult Surrey and McDaniel (1985, pp.71-82) for a discussion of the upside-down effect.

18. In recent times tax shelters have attracted considerable attention. See, for example, Arthur Anderson & Co (1985), Davenport (1985, pp.70-105), Harl (1985, pp.1-32), Joint Committee on Taxation (1985a), Surrey (1973, pp.92-125, 248-254), Sweibel (1986), Tax Shelters (1983), Walsh (1986) and Windish (1987). Most of the tax reform reports have also referred to tax sheltering.

19. Davenport, Boehlje & Martin (1982, p.15) stressed the fact that the advantages of tax shelters depend on having high income rather than on the source of income. They stated that "The competitive advantage

flows to the high-bracket taxpayer whether the high bracket is built by bulls on Wall Street or by bulls on the barnyard. This point is not well understood. Even some very experienced and able practitioners appear to believe that the shelter's advantage does not exist where only farmers are involved. It does, of course, because the benefit is based on high-bracket income, not on its source".

20. In respect of agriculture, see Cordes & Sheffrin (1981), Galper & Zimmerman (1977) and Windish (1987).

21. Tax avoidance has been widely researched and reported on. See, inter alia, Australia (1985a, pp.36-40), Canada (1987b, pp.129-132, 137-149), Ireland (1985, pp.143-163), RSA (1987, pp.405-413), Richupan (1984) and Wallschutsky (1985).

22. According to Hall & Rabushka (1985, p.28) tax evasion is "a polite word for cheating". They report that tax evasion cost the United States Treasury Department $29 billion in 1973, $87 billion in 1981 and $120 billion in 1985.

23. The view that lower tax rates levied on broader bases would lead to a fairer tax system has gained wide acceptance. The covers of the recently released reports on the Canadian tax proposals show arrows with the indications "lower rates" (for the arrow pointing downwards), and "fairer system" (for the arrows pointing sideways). See Canada (1987a, 1987b and 1987d).

24. For studies dealing with this issue, see Steuerle (1985) and Taxation, Inflation and Interest Rates (1984).

PART III

FARM INCOME TAX CONCESSIONS:

CHARACTERISTICS AND IMPLICATIONS

CHAPTER 4

INCOME TAX TREATMENT OF CAPITAL AND/OR
DEVELOPMENT EXPENDITURE IN AGRICULTURE

A. INTRODUCTION

Business expenditures that are made to acquire or develop assets that
will contribute to the production or sale of goods over a long period
of time and generally are depreciated over the period of time used are
known as capital or development expenditures (USA, 1984a, p.16).[1]
Some of the usual items, the cost of which is capital expenditures,
are land, buildings, vehicles, equipment, machinery, fencing,
livestock, water wells and certain land development costs. Certain
capital expenditures may be deducted as land-clearing, soil or water
conservation expenses or as special first year deductions. However,
others often have to be capitalised or included in inventory costs.

This chapter is divided broadly into six sections. Section B contains
a catalogue of concessions for capital expenditures. The various
taxation provisions in respect of capital expenditures in agriculture
in selected countries are reviewed in Section C. Some of the recent
though significant changes to the concessions to counter their
negative effects or the tax losses associated with them are also
referred to. Section D discusses the implications of some of these
overseas provisions. Section E provides information on the revenue
costs associated with most important concessions. Section F then
considers the tax concessions for and implications of capital
expenditures in South Africa. An alternative scheme is suggested.
Conclusions are presented in Section G.

B. CATALOGUE OF CONCESSIONS

The major tax concessions applying to expenditures of a capital nature
in farming are threefold, namely:

(i) Accelerated depreciation or special write-offs for otherwise
     non-depreciable items;

(ii)   Investment allowances; and

(iii) Investment tax credits (ITCs).

Many of the provisions have varied in scope, in some cases applying only to certain assets. Some of the concessions have been amalgamated, scrapped or modified with the express aim of harmonising the taxation regime for agricultural sectors with the regime applicable to other types of business enterprises (Mapp, 1986, p.325). Before those concessions with a significant effect on farm income taxation are described, a broad overview of the concessions and an explanation of how different depreciation methods affect tax rates are given in the following paragraphs.

I.   Accelerated and economic depreciation

Bracewill-Milnes and Huiskamp (1977, p.27) define accelerated depreciation as "any method of depreciation permitting the taxpayer to write-down the business assets concerned in advance of writing-down-allowances that represent true economic depreciation (or capital consumption) based on normal wear and tear and other economic causes such as technological obsolescence" (original emphasis). The O'Brien Commission (Ireland, 1984, p.27) offered the following definition: "Writing off the cost of assets before the normal useful life of the assets, that is at higher depreciation rates than normal", while the Australian Draft White Paper (1985a, p.X) defined it as "Allowing the cost of a capital asset to be written off against tax liability more quickly than would be indicated by the actual year-by-year fall in the assets' value during its working life".

In an ideal system, depreciation allowed for tax purposes would be actual economic depreciation experienced by the taxpayer.[2] Depreciation allowances would not be based on arbitrary allowances for capital recovery but would reflect the actual reduction in the value of productive capital due to physical deterioration, shifting product markets or technical obsolescence. In practice, however, it is virtually impossible to estimate the true economic depreciation of every asset; instead general accounting formulae are used.

A major reason for instituting economic depreciation is to make the tax neutral across different types of assets. Unless the depreciation schedule reflects the fact that some assets last much longer and decline in value much more slowly than others, effective tax rates will vary substantially; investment decisions will be distorted in favour of some assets and against others (Congressional Budget Office, 1985, pp.77-95).

Several different methods of determining depreciation for taxation purposes have been sanctioned by different countries:

(i)   The straight-line method. This formula allocates deductions in equal amounts over the life of an asset. It is the predominant method of depreciation for financial (as opposed to tax) accounting purposes.

(ii) The declining-balance formula. This method entitles taxpayers a depreciation deduction equal to a uniform rate applied to the "book" or unrecovered basis of an asset. Since the depreciable basis is reduced by prior depreciation, the rate is applied to a continually declining base, resulting in declining deductions. When the declining-balance deduction falls below depreciation based on straight-line deduction, taxpayers are often allowed to switch to the straight-line method. A "double-declining balance" method (200 per cent of the straight-line rate) is usually the most accelerated of the declining-balance rates and allows taxpayers to write off approximately 40 per cent of the cost of an asset in the first quarter of its service life and two-thirds of the cost of the first half of its life.

(iii) The sum of the years' digits (SYD) schedule. This method permits the write-off of a fraction of the asset's cost equal to the number of years remaining in the asset's tax life divided by the sum of the years in its statutory life. For example, the sum of the years for an asset with a life of five years would be 15 (5+4+3+2+1). In the first year, the depreciation fraction would be 5/15; in the second year it would be 4/15, and so on. SYD is less generous than double declining balance in the first two year of an asset's life, but more generous in subsequent years.

(iv)   <u>Immediate (100 per cent) write-off</u>: This method permits the taxpayer to deduct the full cost of an asset in the year of acquisition.

Technically, economic depreciation is the difference between the present value of an asset's output at the beginning of a period and its present value at the end of the period. Consider, for example, a machine that produces products at a rate of 100 per year. Assume that the machine wears down so that increased operation costs reduce the profit per unit by 10 per cent each year, and that by the eleventh year the machine is obsolete and has no scrap value. Initially, assume that the profit per unit is R30 and that there is no inflation. Also assume that the interest rate used to discount future cash flows is 4 per cent.

Table 4.1 presents the calculation of economic depreciation for the machine. The first three columns present the output and profit flows for the machine in each year. The fourth column shows the current market value, equal to the present value of revenue - which is the sum of future net revenue discounted by 4 per cent for each year (revenues are assumed to be received at the end of each year). Thus, at the beginning of the first year, the present value of the future profit generated by the machine is equal to R16 381. This is the machine's current market value and is equal to the amount that an investor would pay for the new machine in order to receive an annual real return of 4 per cent. At the beginning of the second year, the machine's future output has a present value of R14 036. This is the amount that an investor would pay for a one-year-old machine in order to receive a 4 per cent return. Thus, the decline in value between the first and second years is R2 345 (R16 381 less R14 036), the machine's economic depreciation. In the absence of inflation, the amount of economic depreciation is equal to the change in an asset's market value over time. During inflationary periods, an asset's change in market value is composed of a gain due to inflation and a loss due to economic depreciation. Economic depreciation for an asset N years old can be measured by the difference between its current market value and its value at the start of the year, restated in terms of the current price level.

TABLE 4.1 CALCULATION OF ECONOMIC DEPRECIATION (In rands)

Year	Output (units/ year)	Profit per unit[1]	Net Revenue	Current Market Value of Machine[2]	Economic Depreciation[3]
1	100	30	3 000	16 381	2 345
2	100	27	2 700	14 036	3 139
3	100	24	2 430	11 898	1 954
4	100	22	2 187	9 944	1 789
5	100	20	1 968	8 154	1 642
6	100	18	1 771	6 511	1 510
7	100	16	1 594	5 001	1 394
8	100	14	1 435	3 607	1 291
9	100	13	1 291	2 316	1 199
10	100	12	1 162	1 118	1 118

1. Profit is sales revenue per unit less production costs.

2. Current market value is equal to the present value of future cash flows. The discount rate is 4 per cent.

3. Economic depreciation is the difference between the market value of a machine at the beginning of a given year and at the beginning of the subsequent year.

If used assets were commonly traded in markets, there would be little difficulty in calculating true economic depreciation. Many assets, however, are only rarely traded, and governments employ rule-of-thumb depreciation formulae for tax purposes. The depreciation allowance for tax purposes can be greater or less than an asset's actual economic depreciation, depending on the relationship between the asset's "true life" and that allowed for taxation. Thus, by changing the rules governing tax depreciation, effective tax rates can be raised or lowered without changing the statutory rate applicable to corporate income. If the tax allowance exceeds economic depreciation for a given asset, its economic income will be understated for tax purposes; conversely, if the tax allowance is less than economic depreciation, an asset's income will be overstated. If income is understated, the effective tax rate will be less than the statutory tax rate, and **vice versa**. By altering the system of tax depreciation allowances, the effective tax rates borne by various classes of assets can be reduced (or increased).

Traditionally, tax depreciation formulae have used the historical cost of an asset as the depreciable base and have allocated this amount over the asset's life. Thus, the sum of depreciation allowances has always equaled the original cost of the asset in question. The differences between the formulae are in the timing and size of deductions over the asset's tax life. Table 4.2 compares the allowances that would be accorded a machine under four of the basic techniques for calculating tax depreciation. For reference, the amount of actual economic depreciation the machine experiences is also shown. The more accelerated methods clearly provide a much faster write-off than would be permitted under straight-line depreciation. The value of this acceleration, however, depends critically on how firms discount future deductions relative to the present.

One method of comparing tax depreciation allowances is in terms of their present value. In the machine example in Table 4.2 the present value of economic depreciation deductions equals R13 642. This is more than the present value of both the straight-line depreciation and the 150 per cent declining-balance (switching to straight-line) methods. The straight-line method yields a stream of deductions with a present value of R13 286, or R356 less than the present value of economic depreciation; in the case of 150 per cent declining balance, the difference is R94. Conversely, the three other methods of tax depreciation - double declining balance (switching to straight-line), sum of the years' digits, and 100 per cent write-off - all have present values greater than that of economic depreciation. The 100 per cent write-off method yields the highest value (R15 751), which is R2109 greater than economic depreciation. Clearly, how any method of tax depreciation compares with economic depreciation will depend on the rate of economic depreciation. Under some conditions, all of the systems presented here could have present values less than that of economic depreciation. Because of the time value of money, however, depreciation allowances are more heavily valued the sooner they can be deducted, and therefore the more accelerated methods of tax depreciation will always have a greater present value for an asset of a given tax life.

The effect that the method of depreciation can have on the stream of

TABLE 4.2   ECONOMIC DEPRECIATION COMPARED WITH FIVE OTHER METHODS OF TAX DEPRECIATION (In rands)

Year	Economic depreciation	Straight-line	Declining balance 150%[1]	200%[1]	Sum of the years' digits	100% first year write-off
1	2345	1638	2457	3276	2978	16381
2	2139	1638	2089	2621	2681	0
3	1954	1638	1775	2097	2383	0
4	1789	1638	1509	1677	2085	0
5	1642	1638	1425	1342	1787	0
6	1511	1638	1425	1074	1489	0
7	1394	1638	1425	1074	1191	0
8	1291	1638	1425	1074	894	0
9	1199	1638	1425	1074	596	0
10	1118	1638	1425	1074	298	0
Present value	13642	13286	13548	13902	14066	15751

1. Switching to straight-line whenever the latter gives a higher write-off.

tax payments over time is shown in Table 4.3. Revenue from the machine is the same as before. The statutory tax rate is assumed to be 45 per cent. Economic income is measured by the difference between revenues and economic depreciation, as calculated in Table 4.1. This is the net income of the machine and yields a rate of return equal to 4 per cent of the market value of the property in each year. The effective tax rate for each year is measured by the ratio of tax payments to economic income. The total effective tax rate is measured by the ratio of the present value of tax payments to the present value of economic income.

In the case where the tax deductions equal economic depreciation, taxable income equals economic income. Consequently, the effective tax rate for each year and the total tax rate equal the statutory rate of 45 per cent. This is a general result and does not depend on the

TABLE 4.3: EFFECTIVE TAX RATES BASED ON ECONOMIC, STRAIGHT-LINE, DOUBLE-DECLINING-BALANCE
AND 100 PER CENT WRITE-OFF METHODS OF DEPRECIATION (In rands)

Year	Net Revenue	Economic Income	Economic Depreciation		Straight-Line Depreciation		Double-Declining-Balance		100% write off	
			Tax Pay-ments	Tax Rate[1] (per cent)	Tax Pay-ments	Tax Rate[1] (per cent)	Tax Pay-ments	Tax Rate[1] (per cent)	Tax Pay-ments	Tax Rate[1] (per cent)
1	3 000	655	295	45	613	94	-124	-19	-6021	-919
2	2 700	561	252	45	478	85	36	6	1215	217
3	2 430	476	214	45	356	75	150	32	1094	230
4	2 187	398	179	45	247	62	230	58	984	247
5	1 968	326	147	45	149	46	282	87	886	272
6	1 771	260	117	45	60	23	314	121	797	307
7	1 594	200	90	45	-20	-10	234	117	717	359
8	1 435	144	65	45	-91	-63	162	113	646	449
9	1 291	93	41	45	-156	-168	98	105	581	625
10	1 162	45	20	45	-214	-476	40	89	523	1162
Total	19 538	3 158	1 420		1 421		1 420		1422	
Present value[2]	16 381	2 739	1 231	45	1 393	51	1 116	41	284	10

Note: Totals may not add due to rounding

1) The effective tax rate is equal to the ratio of tax payments to economic income.
2) Present value is calculated using a 4 per cent discount rate.

specific numbers chosen in this example. A tax system that allows depreciation in the amount equal to the economic decline of the property will always yield an effective tax rate equal to the statutory tax rate, all else being the same.

When depreciation allowances accrue at a slower rate than economic depreciation, as in the straight-line case, the total effective tax rate will be greater than the statutory rate. In the example in Table 4.3, the total effective tax rate for straight-line depreciation is 51 per cent, or 6 percentage points higher than the statutory rate. Notice that the annual effective tax rate varies widely from a low of (-)476 per cent to a high of 94 per cent. The negative rate arises because in the later years of the asset's life the depreciation deductions exceed revenues, and the taxpayer is presumably able to offset other income with the excess deductions. The reason why the total effective rate is greater than 45 per cent is that the relatively high effective rates in the early years of the asset more than offset the lower rates in the later years, taking account of the time value of money.

In the double-declining-balance case, the total effective tax rate is lower than the statutory rate because allowances accrue at a faster rate than those based on economic depreciation. In this example, the total rate is 41 per cent, and varies from (-)19 per cent in the first year to 89 per cent in the last year. In contrast to straight-line depreciation, the relatively low tax rates in the early years more than offset the sharply rising tax rates in later periods. Although declining-balance methods of depreciation will always result in effective tax rates that are less than those based on straight-line depreciation, they do not necessarily result in rates below the statutory rate. That depends on whether they yield tax allowances that accrue more or less rapidly than the true economic decline of the property.

A reduction in tax lives can be used to lower tax rates even if accelerated methods of depreciation are not utilised. The use of accelerated methods would reinforce the tax rate reductions resulting from shorter tax lives. By reducing the life over which straight-line depreciation is taken to four years, for example, the tax rate can be lowered by 26 percentage points (51 less 25). The use of double-

declining-balance over a four-year life would reduce the rate to 19 per cent by providing deductions in excess of revenues in the early years. In contrast, increasing tax lives would have an opposite effect and would raise tax rates. Both the method of depreciation and the time span over which deductions are taken can have significant effects on the rate at which capital investments are taxed.

Inflation seriously affects tax rates on capital investment by reducing the present value of depreciation allowances. Because tax allowances are based on the historical cost of a property, they are significantly eroded in times of inflation. In general, inflation will lead to the overstatement of taxable income. Higher rates of inflation will lead to even higher taxable incomes and effective tax rates.

The impact that a 5 per cent annual inflation rate can have on effective tax rates is shown in Table 4.4. The 5 per cent inflation rate is assumed to increase the revenues of the machine by an equal percentage. A 5 per cent inflation adjustment is made to the interest rate so that present values are determined by annually discounting future values by 9,2 per cent. Based on these assumptions, the real economic income of the machine does not change because of inflation.

Real tax payments are significantly affected by inflation for the depreciation systems based on historical cost. This is because revenues are growing at 5 per cent due to inflation while depreciation allowances remain static. Thus, taxable income increases by more than 5 per cent, increasing taxes by more than 5 per cent. When economic depreciation (unindexed) is used to compute tax liabilities, the present value of tax payments is 118 per cent higher than in the case with no inflation. Persistent levels of moderate inflation can significantly increase capital tax burdens because the effect is compounded over time.

The straight-line and declining-balance methods are similarly affected by inflation. The effective tax rate based on straight-line allowances rises from 58 per cent to 98 per cent; the declining-balance tax rate increased from 42 per cent to 80 per cent. Note that the declining-balance method yields an effective tax rate below the statutory rate of 45 per cent in the case of no inflation, and well

TABLE 4.4   EFFECT OF 5 PER CENT INFLATION ON TAX PAYMENTS UNDER
            ALTERNATIVE DEPRECIATION SYSTEMS (In rands)

| | | | Tax Payments Under | | | | |
Year	Revenue	Income	Unin-dexed Eco-nomic Depre-ciation	Straight Line Depre-ciation	Double-Declin-ing Balance Depre-ciation	Indexed Eco-nomic Depre-ciation	100% First Year Write off
1	3 150	688	362	680	-57	310	-5954
2	2 977	619	377	603	160	279	1340
3	2 813	551	387	529	322	248	1266
4	2 658	483	391	459	441	217	1196
5	2 512	416	392	393	527	187	1130
6	2 374	349	863	331	585	157	1068
7	2 243	281	382	272	526	127	1009
8	2 120	213	373	217	471	96	954
9	2 003	144	362	164	418	64	901
10	1 893	73	349	115	369	32	852
Total	24 744	3 818	4 238	3 763	3 762	1 717	3762
Present Value[1]	16 381	2 739	2 681	2 682	2 183	1 232	620
Tax Rate[2]	-	-	98	98	80	45	23

1)   Present-value calculations use a discount rate of 9,2 per cent.
2)   Tax rate is the present value of tax payments divided by the
     present value of economic income.

above the statutory rate in the presence of inflation.   Had the
assumed rate of inflation been higher, the increases in tax rates
would have been even greater.

One method of neutralising the effect of inflation and equalising
effective and statutory tax rates is to index economic depreciation
allowances for inflation. As shown in Table 4.3, tax allowances equal
to economic depreciation will yield an effective tax rate equal to 45
per cent.   When economic depreciation is adjusted for inflation, the
effect of inflation on tax rates is neutralised and the statutory rate
is the effective tax rate.   Indexing would yield the same effective
tax rate regardless of whether the inflation rate rose or fell over
the life of the asset.

Alternatively, shortening tax lives and allowing accelerated depreciation methods can offset the undesirable effects of inflation. This is illustrated by the 100 per cent first year write-off. In this example the taxpayer continues to enjoy an effective tax rate which is 22 points below the tax rate associated with economic depreciation.

II. Investment allowances

Investment allowances are tax allowances additional to 100 per cent depreciation (Ireland, 1984, p.29). Whereas under all methods of normal and accelerated depreciation writing down allowances sum to 100 per cent immediately or over a period of time, an investment allowance brings this total to more than 100 per cent. The value of an investment allowance varies according to the marginal tax rate of the taxpayer. This is because the allowance reduces the amount of taxable income subject to the marginal tax rate. In a progressive rate structure the allowance is therefore worth more to a high income than a low income taxpayer. Were one to include an example (in Table 4.3) which combines straight-line depreciation with a 10 per cent investment allowance, the effective tax rate would be the lowest, namely 25 per cent.

Investment allowances represent concessions which deviate from tax neutrality for the purpose of stimulating investment. The impact of the allowance depends on the extent to which it alters the user cost of capital, and in turn the relative importance of the cost of capital in determining investment (Bureau of Agricultural Economics, 1985b, p.67). The pre-tax user cost of capital (c) depends on the rate of interest (r), the mix of debt and equity capital, and the rate of economic depreciation (d):

$$c = q(r+d)$$

where q is the market price of the capital item which is completely debt-financed. The introduction of depreciation and the tax deductibility of interest reduces the cost according to the marginal tax rate (m):

$$c = q(r+d)(1-m)$$

The investment allowance further reduces the cost, depending on the rate of the allowance (i), and the marginal rate. However, as the allowance applies only to the first year, its value to the taxpayer depends on the life of the asset to which it applies, and should thus be amortised as follows:

$$c = q(1-im)(r-d)(1-m)$$

If $m = 0,45$ and $i = 0,10$, the value of the concession is 4,5 per cent of the purchase price. This acrues in the first year only. Marginal tax rates for many farmers are less than 45 per cent, so the effect of the allowance may be quite small. The Bureau of Agricultural Economics (BAE) (1985b, p.67) argues that the predominant influence of the allowance on farmers' behaviour is through the timing of investment.

III. Investment tax credit(ITC)

An ITC is an investment allowance at a rate other than the taxpayer's full rate of tax. It resembles an investment allowance in being a definitive reduction of tax, not merely a tax deferral; it differs from an investment allowance and accelerated depreciation in that it provides an absolute level of benefit which is generally independent of the marginal tax rate. The following example illustrates that the net cost of an investment under tax credits and a concessionary tax deduction, respectively, remains constant or changes with the marginal tax rate.

	A	B	C
Marginal tax rate(%)	20	30	40
Tax credit(%)	30	30	30
Investment (R)	1000	1000	1000
Net cost after tax deduction (R)	800	700	600
Net cost after tax credit (R)	700	700	700

The author estimated how the net cost of an investment with both tax credits and concessionary deductions varies between groups of farmer taxpayers. For comparability, it was assumed that the investment is

fully deductible in the first year and a tax credit of 30 per cent applies. The marginal tax rates used were based on the taxable income distribution of South African farmers in 1986. For just under 15 per cent of the farmers both measures have equal value. About 40 per cent would have lower net costs with rebates, while farmers with marginal tax rates in excess of about 35 per cent would face higher net costs.[3]

C.   COUNTRY EXPERIENCES

I.   Investment allowances

1.   Australia

An investment allowance, allowing a deduction of between 18 and 40 per cent of capital expenditure of more than $500 on eligible plant, was available in Australia between 1962 and 1987 (apart from a short gap in 1974/75). When the allowance was extended to agriculture in 1963, the Government (Australia, 1963, p.942) judged that

> "... it is vital, if rural industry is to continue to be the mainstay of our export earnings, that it maintain the rate of improvement in productivity which it has achieved over recent years. We now propose a further incentive for primary producers to keep their plant and equipment up to date and continue the search for further cost savings through the acquisition of new plant and equipment with the object of stimulating further advances in productivity".

During 1971/72 the investment allowance applied to agriculture only (Industries Assistance Commission, 1982, p.238). The Government withdrew the allowance from manufacturing in an attempt to cope with the effects of inflation. (Australia, 1971, vol. 71, p.21). The then Treasurer stated that "private investment in non-farm plant and equipment is rising at an annual rate in excess of 20 per cent and, at a time like this, when one of our pressing economic needs is the restraint of inflation, the Government does not feel justified in continuing the investment allowance on manufacturing plant and equipment" (cited in Downer, 1976, p.13). As a result of recommendations of the Coombs Task Force (Australia, 1973a, p.320),

the investment allowance was withdrawn in August 1973 (Australia, 1973b, vol. 86, p.2703). In 1974 double depreciation was introduced, but was supplanted in 1976 by a "new" investment allowance. At the time of its introduction the rate of the allowance was set at 40 per cent, whereafter it was gradually reduced to 18 per cent in 1981. It remained at this level until its withdrawal in June 1987. The investment allowance has been reviewed by a number of committees of inquiry since 1973.[4] These bodies have had various charters and so have discussed the allowance from different viewpoints. It has, amongst other things, been reviewed from the point of view of an instrument for improving the efficiency of resource allocation, as a tool for counter-cyclical intervention and as a form of assistance to industries (Industries Assistance Commission, 1982, pp.101-187). The committees' diverse responses to the investment allowance are set out in Table 4.5

Prior to its withdrawal the following structural improvements on agricultural land qualified for the allowance: farm storage facilities; facilities for conserving or conveying water; and fences which (i) excluded livestock from soil eroded areas; (ii) enclosed areas affected by naturally occurring deposits of mineral salt; or (iii) sub-divided land (Mannix & Mannix, 1987, p.232). The deduction was, however, disallowed if property was disposed of within 12 months after it was first used or installed (Mannix & Mannix, 1987, p.242).

2.   New Zealand

Recent government policy in New Zealand has been to eliminate from the taxation system virtually all incentives to ensure that investment decisions will be made on the basis of economic factors, rather than being tax-driven as is allegedly the case under the tax regime that prevailed until 31 March 1986 (NZ, 1986, p.7). As a result, investment allowances are no longer available to taxpayers. They were initially introduced in 1963 but were withdrawn and later re-introduced on a selective basis for assets acquired on or after 30 July 1976 after which they were modified from time to time and finally withdrawn again. The purpose of the investment allowances has been to direct investment towards selected regions, industries or projects.[5] However, the Ross Committee (NZ, 1967, p.236) in October 1967 commented that the concession which is available to

taxpayers may bear little relation to any real contribution the taxpayer has made in terms of economic objectives sought by allowing

TABLE 4.5:   AUSTRALIAN COMMITTEES OF INQUIRY AND THEIR RESPONSES TO THE INVESTMENT ALLOWANCE

COMMITTEES	RESPONSE
Coombs Task Force (1973)	"The allowance may be thought of as little more than a means of reducing the general level of company taxation, but one which spreads the tax load unevenly between capital-intensive companies and others".[1]
Matthews Committee (1975)	"Investment allowances cannot compensate for the effects of rapid inflation".[2]
Jackson Committee (1975)	"Investment allowances do have a place but should be used selectively".[3]
Crawford Study Group (1979)	"In a rapidly growing economy, the investment allowance should not be necessary".[4]
Commonwealth/State Joint Study Group (1981)	"An investment allowance will influence the timing rather than the level of investment".[5]
Industries Assistance Commission (1982)	"The investment allowance ...(is) making a sufficiently effective contribution to industry policy objectives".[6]

Sources : 1) Australia (1973b, p.320)
          2) Australia (1975b, p.462)
          3) Australia (1975c,vol.1 p.189)
          4) Australia (1979b, vol.1, p.7.43)
          5) Australia (1981a, p.12)
          6) Industries Assistance Commission (1982, p.185)

the concession. In 1982, the McCaw Task Force (NZ, 1982, pp.62-63) found that there was no measurement available to compare adequately the cost-benefits of allowing the concessions.

Expenditure on qualifying new plant and machinery valued at not less than $500, qualified for the farming allowance of 20 per cent of the cost price. Plant and machinery qualified if it was used primarily, principally and directly in farming or agricultural businesses by taxpayers for themselves or others, in the cartage of livestock, produce, goods, agricultural aviation fuel, fertiliser or lime.

Taxpayers who benefitted included farmers, agriculturalists, agricultural contractors, and rural transport operators. Capital expenditure for which deductions and/or spreading forward provisions were allowable as development expenditure could not qualify for an investment allowance as well. This allowance terminated on 31 March 1985.

II   Investment tax credits (ITCs)

1.   Canada

An ITC was introduced in 1975 at a rate of 5 per cent as a temporary measure to stimulate investment in the manufacturing, resource, farming and fishing industries (Canada, 1987a, p.109). Although a slightly higher basic rate of 7 per cent now applies to most capital assets, the credit has been extended to and adjusted for investments in selected activities and regions (Canada, 1985c, p.124).[6] Prior to 1983 the first $15 000 of ITC was claimable in full with further claims limited to 50 per cent of a taxpayer's federal tax payable above $15 000. Any unused credits could be carried forward up to five years. For credits generated after 1983 the $15 000-limit was abolished, and unused credits could be carried back three years and forward seven years. Some credits were also made refundable (Canada, 1985c, p.125).

As part of the reduction in tax preferences and to ensure that more profitable corporations pay tax, the White Paper (Canada, 1987b, pp.111-112) in 1987 proposed:

(i)   to allow only 50 per cent of a taxpayer's federal tax payable in
        a taxation year to be offset by the ITC[7];

(ii)   a ten-year carry-forward of unused credits;

(iii)   that the rule that requires the capital cost of depreciable
        property to be reduced where a related ITC is claimed be
        modified to limit the reduction to the related ITC claimed in
        preceding taxation years; and

(iv)   that the refundability of ITC be ended for property acquired
        after 1987.

Since 1988 the utilisation of ITCs has been curtailed by applying an
annual limit to the amount of ITC that can be claimed. Private
corporations may use the ITC to offset all federal tax on income
eligible for a small business deduction. For other corporations the
limit is 75 per cent of federal tax payable. The limit for
individuals is $24 000 plus 75 per cent of federal tax payable over
$24 000. Most farming capital expenditures qualify for the investment
allowance. It should be noted that an ITC claim reduces the
undepreciated balance of depreciable property (Commerce Clearing
House, 1989a, p.446).

2.   United States

In the United States an ITC was originally introduced in 1962 and has
been periodically modified to serve two principal purposes - to
prevent depreciation allowances based on historical cost from being
eroded by inflation and to stimulate increased levels of investment
(Downer, 1976, pp.24-26; O'Byrne & Davenport, 1984, p.565; USA, 1985a,
pp.160-163).

Subject to a long list of exceptions, the following classes of
property qualified for the ITC: machinery, equipment, fences, water
wells, orchards, vineyards, storage facilities, single purpose
livestock and horticultural structures (USA, 1984a, p.28).[8] The
credit was equal to ten per cent of qualifying investment, but for
three-year property the applicable credit was generally six per
cent.[9] The credit was limited to $25 000 plus 75 per cent of the

tax liability in excess of $25 000. The used property limit was $150 000. The unused ITC could also be carried back three years or carried forward 15 years. The investment credit was subject to recapture if the asset was disposed of prior to the end of its useful life (USA, 1988a, pp.37-38)

Treasury II recommended the repeal of the ITC as it was excessively front-loaded and led to numerous tax shelters, provided little incentive to start-up, fast-growing or currently unprofitable businesses and entailed exceedingly complex statutory provisions (USA, 1985a, p.161).[10] The Tax Reform Act of 1986 (TRA '86) repealed the ITC except for transition property [11] and property placed in service before 1986 (Schmidt & Garrison, 1987, pp.567-568; Terry, 1987, pp.138-140). TRA'86 did not change the rule permitting a three-year carry-back and a 15-year carry-over of unused investment tax credits. For tax years ending after 1 July 1987 unused investment tax credits must be reduced by 35 per cent before they are used to offset tax liability. TRA'86 also provided that qualified farmers [12] may elect to treat a portion of their investment credit carry-overs as a 15-year carry-back instead (USA, 1987, p.20). Under this provision the carry-back amount is limited to the smallest of (i) $750, (ii) one-half of the existing carry-overs, or (iii) the taxpayer's net tax liability for the carry-back period.

III Depreciation

1. Australia

Under past and present Australian write-off provisions, annual depreciation deductions are determined by applying either straight line or declining balance rates to the historical cost of the associated capital asset (Australia, 1985a, p.220). Under the pre-July 1982 depreciation arrangements for plant and equipment, each category of plant attracted its own specific depreciation rate. The Commissioner of Taxation determined the "effective life" for each type of plant which translated into a rate for straight line depreciation allowances, and 1,5 times that rate was the declining balance rate (Australia, 1985a, p.220).

Under the accelerated 5/3 depreciation system introduced in July 1982, all plant and equipment may be written off over 5 or 3 years, depending on the effective life of the category of plant as determined by the Commissioner. Write-off over 5 years applies if the effective-life system (plus an 18 per cent loading[13] on scheduled rates) would have provided straight line write-offs over this or a longer period; otherwise write-off over 3 years applies (CCH, 1986a, p.540).

Since 1924, however, a range of special write-off provisions have applied to various investment expenditures by farmers. Between 1924 and 1952 farmers were allowed to immediately write-off the cost of fencing to exclude animal pests from agricultural land, land clearance, pest and weed destruction, drainage, prevention of soil erosion, fencing and irrigation works (Downer, 1976, p.14). In 1952 the Liberal Government introduced accelerated depreciation for plant, equipment and structural improvements used in agricultural or pastoral pursuits to increase the productivity of land, stimulate agricultural production, and assist farmers in the purchase of necessary farm machinery and in the construction of necessary farm buildings and other structural improvements (Australia, 1952, vol. 217, p.784).[14]

In 1973 the Coombs Task Force questioned the benefit to the nation from increased investment on a subsidised basis; criticised the misallocation of resources caused by favouring one particular form of economic activity over another; drew attention to the fact that the concessions were of relatively little value to the struggling farmer, but of considerably greater value to his more well-to-do (in some cases "Pitt Street") counterpart; remarked upon the then comparative prosperity of the rural sector; and implied that the provisions, being little more than pure concessions which reduced the general level of taxation paid by the farmers, should be repealed (Australia, 1973a, pp.285-6, 291-2, 299-300, 303-4). Following the report all the concessionary allowances for farmers were repealed and replaced with ordinary depreciation except for the immediate write-off of expenditure incurred in relation to land which was replaced with a deduction over a period of ten years.

Over the period 1974 to 1978 farmers continued to enjoy a concession inasmuch as the word "plant", which either qualified for double

depreciation (up to 1976) or an investment allowance (after 1976), included structural improvements on land used for agricultural or pastoral pursuits. As a result of submissions to and recommendations of the Asprey Committee (Australia, 1975a, p.286) the ten year write-off was extended to the capital cost of telephone lines[15]. During 1979-80 faster rates of depreciation than were allowable for non-farm businesses were introduced for farm storage facilities, plant and equipment (Industries Assistance Commission, 1982, pp.261, 263). In respect of farm storage facilities the Treasurer stated that "In the light of recent heavy grain harvests and the consequent pressures on bulk grain facilities, and in order to encourage the holding of hay and fodder reserves against the requirements of poor seasons, a special rate of depreciation will be allowed ..." (Australia, 1979a, p.20). In July 1982 the Government maintained the favoured position of farmers in having faster rates of depreciation when they introduced a three-year depreciation provision for new plant and equipment and new farm structures, notably storage facilities (Australia, 1982b, p.59; Bureau of Agricultural Economics, 1985b, p.21).

As a result of the changes referred to above the write off of capital expenditures (excluding those for soil and water conservation) are as follows:

(i)   5-year write-off for farm storage facilities;

(ii)   5-year write-off for new agricultural plant; and

(iii) 10-year write-off for the capital cost of telephone lines.

A "balancing adjustment" or "charge" is usually made when depreciated property is disposed of to ensure that "... the full change in value of an asset over its period of use (except for any excess of the sale price over the purchase price) is allowed as a deduction for income tax purposes" (Australia, 1985a, p.219, 224). If "consideration receivable" is less than the then written-down value of the property, the excess is deductible in the year of disposal. However, if the consideration receivable exceeds the written-down value, the excess, up to the amount of the total depreciation allowable, is assessable in the year of disposal. In other words, any nominal capital gain on the

sale of the property (that is, the excess of the consideration receivable over the original cost) is not assessable.

2.   Canada

The Capital Cost Allowance (CCA) system, introduced in 1949, is the statutory method for writing off depreciable assets in determining a Canadian taxpayer's income (Butterworths, 1974, p.24.9). Individual assets are now assigned to one of 37 classes, with specified rates varying from 4 per cent to 100 per cent (Commerce Clearing House, 1989a, pp.208-213). Generally, CCA deductions begin when an asset is acquired, with half the normal write-off allowed in the year of acquisition. Assets are pooled in a class and taxpayers are allowed to claim up to the maximum CCA specified by the tax rules. Most CCA rates are established on a declining balance basis, which means that the allowed percentage write-off for each class of property is calculated for any year by reference to the remaining unclaimed balance (or undepreciated capital cost) in the class at the end of that year.

The CCA system generally provides a somewhat accelerated tax write-off compared to the actual depreciation in the value of an asset over time due to wear and tear, obsolescence and declining productivity. Under the current system, the degree of accelerated write-off varies significantly among assets, creating incentives that can distort the investment decisions of taxpayers (Brown, 1985, p.5.7).

When the general change from the straight-line (Part XVII) to the declining balance (Part XI) method of depreciation was made in 1949, farmers were permitted to continue on the straight-line method under which there was neither taxable recapture nor deductible terminal losses[16] (Butterworths, 1974, p.24.9). Between 1949 and 1974 farmers not only enjoyed the benefit of partially taxable capital gains on the disposal of farm assets, but also accelerated CCA for certain types of farm buildings. The Carter Commission (Canada, 1966, vol.4, p.449) regarded the exception in respect of straight-line depreciation as unacceptable

"....because there appear to be no special circumstances which make the straight-line depreciation method more

suitable to farming than the diminishing balance method. In fact, the reverse would seem to be true, for the diminishing balance method is simple to operate, and usually provides a better measure of the loss in value of depreciable assets on the farm. In addition, the exemption from tax of recaptured depreciation on the disposal of depreciable assets under the straight-line system is an inequity and has led to abuse. Accordingly, we recommend that this exception to the application of the diminishing balance method should be removed".

With the introduction of capital gains tax in 1972, the recommendation of the Carter Commission was implemented in that the straight-line method of depreciation could only apply to farming assets acquired before 1972 (Commerce Clearing House, 1989a, p.248). Table 4.6 reflects the maximum depreciation rates allowable to farmers under the straight-line and declining balance bases. Due to the phase-out over the last 16 years the former basis will apply only to farming assets in classes 1, 3 and 6.

As an important step in broadening the tax base to increase revenues and finance tax rate cuts, a reduction and elimination of the fast write-offs for certain classes of depreciable property through the CCA were proposed in the White Paper (Canada, 1987a, p.102). A "put-in-use" rule was also proposed for the purposes of determining the year in which CCA may first be claimed (Canada, 1987a, p.107-108).[17] However, the Department of Finance has indicated that the proposed "put-in-use" rule will be altered, at least with respect to machinery and equipment purchased by farmers (Blatt, 1987, p.16). If an asset is purchased and available for use by the taxpayer, he may claim CCA in the year of purchase, even if it has not been used. In effect, it becomes a "ready-for-use" test. The put-in-use rule explained in the White Paper will apply to buildings and other structures.

Prior to 1972, the sale or purchase of agricultural marketing quotas had no tax effect since they fell into the broad classification of "nothings" (they were non-depreciable capital expenditures). After 1972, the purchase of a quota was classified as an eligible capital expenditure (Canada, 1985a, p.62). Starting in 1988 three quarters,

instead of one-half of quota purchases have to be added to the depreciation pool which is depreciated at a rate of 7 per cent instead of the previous 10 per cent[18]. According to Barichello and Glenday (1985, p.282) the beneficiaries of the CCA for quotas are ".... quota purchasers, and from British Columbia and Ontario experience, they tend to be the wealthier and higher income farmers. Furthermore, to the extent it raises quota prices, this has an intergenerational effect falling unfavourably on young farmers." A portion of the amounts deducted is recaptured when the farmer sells the quota.[19]

TABLE 4.6   CAPITAL COST ALLOWANCE RATES FOR CANADIAN FARMERS (per cent)

Part XI Class No.	Depreciable property	Part XI rate	Part XVII rate
1	Dams - cement, stone or earth - wood	4 4	2 5
2	Permanent piping	6	10
3	Farm and grain storage buildings (other than wood or galvanised steel)	5	2
6	Buildings (wood or galvanised steel); fences; greenhouses; irrigation ponds; and water towers	10	5
8	Machinery and equipment	20	10
10	Cars[1]; self-propelled combines, harvesters and balers; trailers; trucks; and wagons	30	15
12	Tools (under $200)	100	100
16	Aeroplanes	40	15
17	Roads	8	2

1)   Only the first C$20 000 of the cost of a new car can be written off.

Source: CCH (1989a, pp.208-213)

Revenue Canada allows full-time farmers to deduct 25 per cent of all farm home expenses, including a CCA on 25 per cent of the capital cost of the farm home. This concession is given for administrative reasons (Canada, 1985a, p.63). However, the Carter Commission, for example,

was of the view that this practice was unduly favourable and should be brought into line with that accorded other taxpayers who use part of their home for business purposes. The Commission went on to recommend: "If the determination of a reasonable portion in each case is too difficult to administer, a small percentage of all farm home expenses might be universally allowed, additional amounts being only permitted where supporting evidence was given to justify it" (Canada, 1966, vol. 4, p.446).

Recapture applies only to CCA previously claimed, not to a realisation of an amount in excess of the original cost of the property.[20] Such an excess is treated as a capital gain. The converse of the recapture principle is the terminal loss provision[21] which recognises a case where the capital cost allowance claimed on a property has been less than its actual decline in value. For example, if an asset costing $10 000 is sold for $4 000, but only $5 000 of capital cost allowance has been claimed, the other $1 000 may be deductible. The following examples illustrate recapturing when an asset disposed of is the only asset of its class (example 1), and where the assets disposed of are part of the property in a particular class (example 2). In example 1 taxpayer A has a terminal loss of $1 000 ($3 500 - $2 500). In taxpayer B's case $500 ($4 000 - $3 000) is recaptured while for taxpayer C only $1 500 of the total gain of $3 500 is recaptured, the remaining $1 000 being a capital gain. In example 2 taxpayer A has no gain to be recaptured. The deduction of $15 000 reduces the undepreciated capital cost of assets to $5 000. In taxpayer B's instance the amount deducted exceeds the undepreciated capital by $5 000 which is recaptured. Taxpayer C's proceeds of $35 000 is $15 000 more than the undepreciated capital cost. $5 000 ($35 000 - $30 000) is capital gain and the remaining $10 000 is recaptured. Taxpayer D is in a similar situation as taxpayer A except that the difference between the proceeds ($25 000) and the original cost ($10 000) is a capital gain.

Example 1

	A	B	C
Capital cost of asset	$5000	$5000	$5000
CCA taken	1500	1500	1500
Undepreciated capital cost	$3500	$3500	$3500
Amount realised	2500	4000	6000

Recapture	-	500	1500
Terminal loss	1000	-	-
Capital gain	-	-	1000

Example 2	A	B	C	D
Capital cost (total assets of class)	$100 000	$100 000	$100 000	$100 000
Accumulated CCAs	80 000	80 000	80 000	50 000
Undepreciated capital cost	20 000	20 000	20 000	50 000
Dispositions of property in group:				
Capital cost	30 000	30 000	30 000	10 000
Proceeds	15 000	25 000	35 000	25 000
Amount deducted from undepreciated capital cost of property of class	15 000	25 000	30 000	10 000
Capital gain	Nil	Nil	5 000	15 000
Amount recaptured	Nil	5 000	10 000	Nil
Undepreciated capital cost of assets remaining in class	5 000	Nil	Nil	40 000

3. New Zealand[22)]

In New Zealand depreciation allowances for taxation purposes represent no more than a deduction against the profit of the year for the capital invested in the assets which has been consumed in the production of that profit.   The rates fixed recognize fair wear and tear which cannot be made good by repair and the factor of obsolescence or the risk that an asset will become useless before its physical life has ended.   The depreciation allowance is generally at the discretion of the Commissioner.   To cover the appropriate diminution in value during the expected productive life of various classes of assets, schedule rates of depreciation have been drawn up by the Commissioner.   These schedule rates are based either on cost price (CP) or diminishing value (DV), depending on the class of asset.   Depreciation on all assets except buildings other than temporary buildings is usually recovered when depreciated assets are sold at a price higher than tax book value.   Recovery is limited to

the smaller of actual depreciation claimed or profit on sale (i.e. difference between sale price and tax book value). Depreciation recovered on the sale of an asset, other than a building, may be offset against the cost of the replacement asset for depreciation purposes.

In New Zealand, depreciation for taxation purposes have fallen into three categories: ordinary depreciation; special, initial and supplementary depreciation; and first year depreciation. Since April 1988 only the former applies.

(a)   Ordinary depreciation

The principle underlying the setting of ordinary depreciation rates has been that general plant and machinery, used under normal conditions, attract a basic rate of 10 per cent on a diminishing value (DV) basis. This basic rate attracts a further 5 to 10 per cent on the diminishing value if certain inhibiting factors are present.[23] Generally speaking, the cost price basis of depreciation applies only to buildings.

(b)   Special, initial and supplementary depreciation

Special depreciation could be claimed not only on a farmer's plant and equipment, but also on farm buildings and buildings, new and used, for employee accommodation (NZ, 1967, p.249). In the first four or five years and extra 20 per cent of the cost could be written off. With farm buildings the period was reduced to one year.[24] Farmers were also allowed a 20 per cent initial depreciation allowance as an alternative to the special depreciation allowance on certain buildings (NZ, 1967, pp.249-250). The initial depreciation allowance was a single deduction of 20 per cent of the cost price of the building or of the cost of the extension to an existing building and was allowed in the year the building or extension was first used. In addition, supplementary depreciation at a maximum of 6 per cent but reduced where necessary so as to prevent an overall depreciation (supplementary plus ordinary) exceeding 10 per cent , could be claimed on new farm buildings but only where used directly for farming (Downer, 1976, p.30).

The Ross Committee in 1967 was of the opinion that the deductions for ordinary depreciation were adequate and regarded the additional allowances, which, in practice applied to the same range of assets, as an unnecessary complication, discriminatory, and open to criticism on the grounds of equity (NZ, 1967, pp.250-251). The Committee consequently recommended the amalgamation of the special and initial depreciation allowances (NZ, 1967, p.252).

(c) First year depreciation

In 1975 the above concessions were replaced by a first year depreciation allowance of 60 per cent on plant and machinery and of 40 per cent on new farm buildings. For used equipment the depreciation allowance was 50 per cent. Subsequently depreciation rates were approximately halved and in the 1986 Budget the government announced its intention to terminate first year depreciation allowances (Butterworths, 1985, p.430). Two of these were immediately terminated whilst the others continued to apply until 31 March 1988. Prior to that date the allowance for farming plant and machinery was 25 per cent while employee accommodation and new farm buildings attracted or qualified for an allowance of 20 per cent .

4. United States

Tangible, untangible, real or personal property is depreciable if it meets three requirements simultaneously: it is used in business or held for the production of income; it has a determinable life longer than one year; and it is something that wears out, decays, gets used up, becomes obsolete or loses value from natural causes (USA, 1987b, p.1).

Prior to 1954 Internal Revenue Service (IRS) regulations required that depreciation for tax purposes conforms to detailed estimates of useful lives for about 5000 asset classes. Deductions were generally based on the straight-line method of depreciation, although the IRS had sanctioned the optional use of the 150 per cent declining balance method in 1946 (USA, 1971, p.14). To stimulate investment and economic activity, two other accelerated depreciation methods were sanctioned in 1954, viz. "double declining balance" and "sum-of-the-years'-digits" (SYD) methods (USA, 1985b, p.19). The use

of accelerated methods quickly became widespread; between 1954 and 1961 the percentage of all corporate assets subject to straight-line depreciation had fallen from 89 to 50 per cent (USA, 1985b, p.19).

In 1962 the Treasury introduced the asset guideline (or class) life system which reduced the tax lives by 30 to 40 per cent (Ture, 1963, pp. 334-353). All depreciable assets were classified in about 100 categories and a class life was prescribed for each category. Assets used in any particular industry were grouped into several classes, and the class life was applied to all assets in the particular class.

Tax lives were again altered when the Asset Depreciation Range (ADR) was introduced in 1971. The class life notion was retained, but guideline lives could be raised or lowered by 20 per cent (USA, 1985b, p.22). The ADR system was adopted for two reasons: to ease the administrative burden of the guideline system, and to reduce the tax lives accorded machinery and equipment so as to take into account changes in economic conditions (USA, 1971, pp.54, 59-68). Guideline lives for agricultural assets ranged from 3 years for breeding hogs to 25 years for farm buildings.

The Economic Recovery Tax Act of 1981 (ERTA) introduced a completely new system of depreciation, namely the accelerated cost recovery system (ACRS) in an effort to simplify depreciation and provide a stimulus for investment (Carman & Hardesty, 1985, p.45; Musser, Tew & White, 1986, p.980; Terry, 1987, p.134). ERTA grouped assets into six asset-life classes and in particular, decreased the depreciation period for most farm machinery from ten years to five years. The types of agricultural recovery property in the different classes were as follows:

3-year property   : cars, truck-tractors, light duty trucks, race horses (over 2 years old) and breeding pigs

5-year property   : most equipment, single purpose livestock and horticultural structures, and storage facilities

10-year property   : Manufactured homes

15, 18 and 19-year :	farm buildings and most land improvements
real property	(depending on when property was placed in
	service)

Between 1982 and 1986 various suggestions for changes in respect of depreciation were made. A comparison of Treasury proposals with Congressional tax reform bills and the Tax Reform Act of 1985 (TRA'85) or House Bill are shown in Table 4.7.

The Tax Reform Act of 1986 (TRA'86) retained a modified ACRS (MACRS) but increased the number of ACRS recovery classes, lengthened the recovery period for most real estate and equipment, and made certain changes in the cost recovery computation methods (USA, 1988a, pp.31-33; Wakefield, 1987, p.23). Autos, light trucks and most livestock are depreciable over a 5-year period. Most farm equipment is depreciable over a 7-year period. Deductions for most farm assets can be computed using a 200-per cent declining balance method. Multi-purpose farm structures can be written-off over a 20-year period using a 150-per cent declining balance method with a switch over to straight-line depreciation. All gain on the disposal of property depreciated under MACRS is recaptured as ordinary income to the extent of previously allowed depreciation deductions.

A farmer may in addition deduct immediately up to $10 000 of an investment in qualifying property[25] each year if the investment is less than $200 000 (the so-called section 179-deduction)(USA, 1987b, pp.3-5). If more than $200 000 is invested the expense deduction is reduced dollar-for-dollar by the cost of the property in excess of $200 000. If qualifying property is disposed of the section 179 deductions are recaptured as ordinary income.

Although the US agricultural sector has not been singled out for preferential treatment in respect of depreciation, the depreciation system has nevertheless contributed to the rise in agricultural tax shelters.

TABLE 4.7: DEPRECIATION OR COST RECOVERY - COMPARISON OF TREASURY PROPOSALS WITH CONGRESSIONAL TAX REFORM BILLS AND THE TAX REFORM ACT OF 1985 (TRA'85)

Treasury I	Treasury II	Bradley-Gephardt	Kemp Kasten	TRA'85 (House Bill)
Eliminate ACRS and replace with Real Cost Recovery System (RCRS). Seven classes of property with fixed recovery rates. Tax basis adjusted annually for inflation. Tighten interest limitation rules.	New Capital Cost Recovery System (CCRS). Same as Treasury I except six classes of property. Depreciation rates range from 55 per cent to 4 per cent. Write-off periods as follows: . farm machinery:4,5 yrs . farm tractors: 7 years . long-lived equipment: 8 years . crop storage structures: 8 years . livestock facilities: 8 years . structures: 29 years	Simplified Cost Recovery System (SCRS) designed to approximate economic depreciation of nominal cost in present value terms. Six classes of property with write-off periods ranging from 4 to 40 years. Most type of farm machinery and equipment written-off over 10 years	Replace ACRS with Neutral Cost Recovery System (NCRS). Five classes of property with write-off periods ranging from 4 years to 25 years. Most farm machinery and equipment written off over a 6-year period	Eliminate ACRS and replace with Incentive Depreciation System (IDS). Ten classes of property depreciated over period of 3 to 30 years. The 200 per cent declining method, switching to straight-line for classes 1-9; straight-line for class 10. Most farm assets written off over a 10-year period Unitary livestock facilities and multi-purpose agricultural structures written-off over 13 years and 25 years respectively

Sources: Conway, Durst, Hrubovcak and LeBlanc (1988, pp.8-12)
          Deloitte, Haskins & Sells (1985, pp.23-26)
          Hall and Rabuschka (1985, pp.93-104)
          Joint Committee on Taxation (1985b, p.5)
          Nixon and Richardson (1986, pp.7-8)
          USA (1984b, p.174)
          USA (1985a, p.145)

IV   Land development expenditures

1.   Australia

As noted in Section III(1) Australian farmers were allowed to deduct
immediately most development expenditures up to 1973 whereafter the
immediate write-off was replaced with a deduction over ten years.

During 1979/80 further concessions were extended to farmers. They
included immediate deductibility of expenditure on soil conservation,
water conservation and irrigation development and fencing for specific
disease control.   The stated reason for introducing immediate
deductibility for expenditure on water conservation and conveyance
systems was "By providing for a much more rapid write-off for tax
purposes, the Government is seeking to encourage primary producers to
increase their capacity to withstand drought" (Australia, 1980, vol.
188, p.2511).

In June 1985 the Government (Australia, 1985a, p.45) stated that the
immediate deductibility for expenditures on soil conservation and on
conserving or conveying water

> "... go well beyond the level of preferential treatment
> generally accorded capital expenditures, whether in primary
> production or other industries. Taking into account the
> term over which benefits from these investments accrue to
> the farmer, immediate deductibility reduces the after-tax
> cost of the investment relative to other types of
> investment. The Government is disposed to replace these
> measures by deductibility over 5 years (the rate which
> generally applies to primary producer plant)".

However, in September 1985 the Government extended the outright
deduction for soil conservation measures to cover land degradation
generally and replaced the outright deduction on water storage and
conveyance systems with a 3-year write-off (Australia, 1985b, p.39;
CCH, 1986a, p.8).

2. <u>Canada</u>

Amounts paid for clearing land, levelling land, or laying tile drainage for the purposes of carrying on a farming business, although all are capital expenditures (indeed, in most cases non-depreciable capital expenditures), are deductible as a current expense (CCH, 1989a, p.194). A specific provision which allows these capital outlays to be expensed was added to the Act in 1965 (Canada, 1985a, p.61). Prior to that year, tile drainage, for example, could only be depreciated at a rate of 4 per cent per annum. As a matter of administrative practice, Revenue Canada allows some other capital expenditures to be expensed: for example, the cost of drilling or digging water wells, including the casing and crib work. The effect of allowing these expenses to be deducted as current expenses instead of depreciated at a rate of 10 per cent is that, even though they add to the value of the land, when the land is sold that value is not recaptured as ordinary income but is generally taxed as a capital gain.

3. <u>New Zealand</u>

For more than 20 years New Zealand farmers could deduct land development expenditure in full in the year it was incurred or defer the deduction in whole or in part for a period of up to nine (previously five) years from the year of expenditure.[26] The purpose of the concession was to ".... encourage farmers to bring marginal and unproductive land into full production and to increase the productive capacity of existing farms" (NZ, 1967, p.234).

Commenting on the allowance, the Ross Committee (NZ, 1967, p.234) in 1967 concluded that the concession suffered from four main defects, viz. it leads to wasteful expenditure; it is inequitable in its effect on taxpayers; there is no way in which the national benefit derived from the concession can be measured; and it can lead to tax avoidance. In this respect the Committee (NZ, 1967, p.234) made the following important observation: "An instance of where this can occur in the case of a city business man who can take advantage of the concession to develop a block of land, possibly incurring losses in the process which he can set off against other income. After a period he sells the farm and gains a capital (tax-free) profit". Despite

this observation the Committee's recommendation that the concession should be replaced by tax rebates or direct grants was not accepted.

The present Labour Government has a stated intention of reducing government intervention in the economy to reduce the budget deficit and to ensure that economic action and choices are not misdirected (Spence, 1986, p.5). To this end it has examined tax policies to ensure that these do not conflict with its stated aims. As part of this move the Minister of Finance issued an economic statement on 12 December 1985 proposing changes in the tax regime applying to farming (NZ, 1986, p.3). The initial announcement was followed by a Consultative Document on primary sector taxation (NZ, 1986). The Document criticised the then existing provisions as diverting resources into what would otherwise have been unprofitable areas, giving most benefit to those on the highest marginal tax rates, and making entry to the primary sector more difficult (NZ, 1986, pp.3-4). The general proposal was for initial capital expenditure to be non-deductible but for ongoing repairs, maintenance and replacement to be deductible (NZ, 1986, p.75). This was the case irrespective of whether the original capital work makes a permanent alteration to the land as with clearing scrub and bush or draining swamps or whether the works are in the nature of plant and equipment which deteriorate over time, irrespective of whether repairs are made to them. The objective of these proposals was to treat the expenditure in the same manner as for other businesses. However the inability to depreciate various of the assets was regarded as a major defect in the proposals (Mapp, 1986, p.334).

During March 1986 a Committee known as the Brash Committee was appointed to hear submissions on the Consultative Document and to report to Government (Russell, 1987a, p.8). The major change to the original proposals was the Brash Committee's recommendation which was accepted by the Minister that depreciation be allowed for various types of development expenditure. The Committee did not distinguish between plant and building "look-alikes" but simply made a determination of the reasonable economic life of the improvements.[27] On this basis it prepared a schedule of depreciation ranging from 5 per cent (DV) to 20 per cent (DV) for various capital improvements (Mapp, 1986, p.337).

Some authors were of the opinion that the proposals as modified by the Brash Committee achieved their objective of treating the primary sector in the same manner as other businesses and broadly distinguished between capital and current expenditure and allowed depreciation in appropriate cases where repairs and maintenance were an insufficient substitute (Mapp, 1986, p.338).

In 1986 the Income Tax Act was amended to provide for a five-year phase-out of the immediate deduction to be replaced by depreciation regime in which development expenditure is depreciated at specified rates (NZ, 1987, p.87). The current-year deduction is phased-out on the following basis:

Income year ending 31 March	Percentage of capital expenditure eligible for immediate write-off (%)
1987	100
1988	90
1989	75
1990	55
1991	30
1992	0

In each year of the transition, the proportion of land development expenditure not eligible for immediate write-off will be capitalised and depreciated under the provisions of the new regime. The proportion eligible for immediate write-off may be spread forward for up to nine years or written off in full against other income in the year it incurred. Depreciation rates for various type of development expenditure are: vines and trees (excluding trees for timber production),[28] fences, power lines, feeding platforms, self-feeding silage pits, support frames, shelter structures, all 10 per cent per annum (on DV basis). Other development expenditure, land clearance, drainage, tracks, dams, ponds, bores, wells, air strips, and flood damage, all 5 per cent per annum.

The introduction of new rules in respect of development expenditure has led to the removal of other anti-sheltering provisions. In 1982 legislation was introduced to restrict to a $10 000 per annum maximum loss available to be off-set from farming against income derived from

other sources (Bird, 1987, p.43). This has now been repealed but, any accumulated losses to the end of the income year 31 March 1986 remain subject to the maximum claim of $10 000 against other income in future years. A claw-back provision requiring the recovery of interest and development expenditure deducted by the taxpayer on any property disposed within ten years of its purchase has also been repealed for sales of farming land made after 12 December 1985 (Bird, 1987, p.43).

4.   United States

Section 175 of the Internal Revenue Code allows farmers to treat expenditures for soil or water conservation or to prevent erosion as current deductions rather than adding these costs to the basis of their land (Anderson & Bills, 1986, pp.225-228; Collins, 1982a; 1982b, pp.319-322; Hasselbrook & Lanner, 1985, p.477; O'Byrne and Davenport, 1984, pp.399-407). The expenditures are deductible only if they relate to improvements which are consistent with a conservation plan[29] approved by the USDA or a comparable state agency and include amounts paid for grading, terracing, contour furrowing, the construction of drainage ditches, irrigation ditches, dams and ponds and the planting of windbreaks (USA, 1988a, p.23). The deduction is limited to 25 per cent of gross income from farming but excess expenditures may be carried forward to succeeding taxable years (USA, 1984a, p.19). Prior to 1986 a farmer could deduct immediately expenditures incurred to clear land and make the land suitable for farming. The deduction was limited in any taxable year to the lesser of $5 000 or 25 per cent of the taxable income from farming (USA, 1984a, p.19). Any gain on the disposition of farmland is treated as ordinary income up to the amount of the abovementioned deductions previously taken if the land was held 5 years or less. The gain is partly ordinary income to the extent of a specified percentage of the previous deductions if it was held less than ten years but more than five years. If it was held for ten years or more the gain is treated as a capital gain (USA, 1988a, p.46).

It was, however, argued in Treasury II (USA, 1985a, p.187) that:

   "... as with many other tax-based subsidies, the special
   expensing rules for farmers are of full value only to those
   with significant income. This effectively denies the

benefits of the subsidy to small, new, or unprofitable
farmer, who is thus given a relative disincentive for farm
improvements. As a result, such farmers operate at a
competitive disadvantage, since market prices for farm
products will tend to reflect the tax advantages from which
such farmers do not benefit".

Although the Treasury recommended the repeal of the expensing
provision, the Tax Reform Act of 1986 repealed only the deduction for
land clearing expenditures.

V   Pre-production expenses

In all the countries selected for this study income tax rules do not
always match taxable receipts and deductions relating to production
activities (Canada, 1985a, p.15; O'Byrne & Davenport, 1984,
pp.396-399). This failure to match is of particular concern in the
case of production that extends beyond one tax year ("multiperiod
production" according to Treasury I (USA, 1984b, p.126)), and becomes
more significant with longer production periods. This mismatching of
receipts and expenses permits deductions from these activities to
offset income from other activities unless they are "quarantined" or
"ring-fenced". A large number of tax shelters involve the so-called
"natural deferral" industries in agriculture, such as timber, orchards
and vineyards. It is this mismatching that has made timber and
orchard farming such popular tax shelters in the USA and Canada
(Canada, 1985a, p.63; Windish, 1987, p.227). Virtually all the costs
incurred prior to production are deducted and create losses which may
be offset against income from other endeavours subject, of course, to
restricted farm loss rules and capitalisation provisions (Canada,
1985a, pp.29-30; Willingham & Bravenec, 1987, p.108).[30)] When the
commercial bearing stage is reached, a taxpayer may often sell out,
and his gain will ordinarily be taxed as capital gain. Thus, not only
may a tax deferral be obtained, but the deductions are offset against
income taxed at full rates, while only a portion of the gain is taxed.

Matching of receipts and expenses is achieved if the costs of
producing long-lived assets are capitalized, that is, included in the
basis (cost) of the asset, and recovered when the asset is sold or
depreciated (USA, 1985a, p.206). As a result of recommendations in

Treasury II, the United States has introduced uniform capitalization rules (USA, 1988a, pp.24-26). Generally, farmers are required to capitalize direct costs and an allocable portion of most indirect costs of property produced that has a preproductive period of more than two years.

Farmers produce property if they construct, build, install, manufacture, develop, create, raise or grow the property. Direct costs include material and labour costs. The former include the cost of those materials that become an integral part of the asset plus the cost of materials that are used in the ordinary course of the production of the property. Direct labour costs include the cost of labour that can be identified or associated with a particular activity. Indirect costs which may directly benefit or be incurred because of a particular activity are allocated to such an activity even though the same costs also benefit other activities. Such costs include repairs and maintenance, rent, insurance, storage and warehousing costs, purchasing costs, handling, processing, and administrative costs.

All entities in the USA that are required to use accrual accounting must use the uniform capitalisation rules regardless of the preproductive period. The preproductive period of a plant begins when the plant or seed is first planted or acquired and ends when the plant becomes productive in marketable quantities or when the plant is reasonably expected to be sold or otherwise disposed of. The preproductive period of an animal begins at the time of acquisition, breeding or embryo implantation and ends at the time the animal is ready to perform the intended primary function. Finally it was argued that these uniform capitalisation rules "... would ensure neutrality across types of businesses, reduce tax shelters, and improve equity" (USA, 1984b, p.128).

D.   IMPLICATIONS OF ALLOWANCES

A few years ago some writers commented upon the lack of both empirical and theoretical treatment of tax concessions and their effects in agriculture. Krause and Shapiro (1974, p.19), for example, stated that "In our search of literature we found an almost bare cupboard of statistical treatments of the effects of the current income tax code

and regulations on the cost of agricultural inputs, product prices, income, the structure of agriculture, and consumer prices". Gardner (1978, p.839) reaffirmed this "bare cupboard" assessment of the tax literature in agriculture: "In sum, neither the theoretical basis nor the empirical evidence to estimate the structural consequences of our tax laws exists at present." Although there are any number of articles that indicate how farmers can use specific tax provisions to their advantage, Barry (1977, p.29) was of the opinion that empirical evidence of tax management strategies that have actually been adopted by farmers was, at best, scarce.

The assessment above does apply to some countries, but studies in Australia and the United States in particular have shown that the level of taxation, as well as specific tax provisions or a combination thereof, can influence significantly economic activity or behaviour (Bureau of Agricultural Economics, 1985b; Hall & Jorgenson, 1967, pp.391-414; Hardesty & Carman, 1986, pp.49-54; LeBlanc & Hrubovcak, 1986, pp.767-777). The form of the tax and the way in which it is imposed affect the distribution of income and wealth. People are believed to alter their behaviour in response to tax law. They will weigh the benefits and burdens of avoiding or reducing taxes. Those who find it attractive will modify their activity. When a significant part of those involved in similar economic pursuits do so, their collective response will change that sector of the economy. Such a change may include the patterns of ownership, the control of assets, the distribution of income and wealth, the form of organisation, prices and supply of products and the allocation of resources (Davenport, Boehlje & Martin, 1982, p.17).

A research survey suggests that tax preferences, particularly those for capital expenditures, broadly influence agriculture in the following ways: resource allocation, production methods, quantity produced, income distribution and the size and number of farms. According to Hanson (1982, p.14) livestock tax concessions have been found to have pronounced effects upon production methods, quantity produced and income distribution patterns, while non-livestock studies tend to particularly emphasize resource allocation, income distribution and farm size and growth. Many studies have analysed the effects of income tax allowances instituted by particular tax reform acts on farm firm decision making (Carman & Hardesty, 1986,

pp.114-122; Conway, Durst, Hrubovcak & LeBlanc, 1988; Davenport, 1985, pp.70-105; and Richardson, Nixon & Smith, 1982, pp.71-76). Most analysts have considered the effects of investment tax credits, interest deductibility, accelerated depreciation and capital gains collectively. Because of the interaction between these provisions, results often have been unexpected.

The following paragraphs report the results of various studies on the effects of allowances for capital expenditures in agriculture. The focus is on the following: investment, growth and continuity of the farming unit, production and price responses, financial stress and conservation practices.

I.   Investment

A number of studies have measured the effects of income tax concessions on investment utilising various models and simulations based on neo-classical investment theories. Many researchers have applied linear programming, farm/ranch models, profit and logit analysis or simulation models to ascertain the effects of tax concessions on agriculture. However, modelling agriculture, as compared to non-agricultural sectors of the economy, is complicated not only by a lack of tax information but by unique tax provisions applicable only to agriculture, the peculiar nature of the land asset, the fundamental influence of government support programmes, uncontrollable aspects of biological growth processes and the entry-exit life cycle of the typical farming operation. A major effect of these problems in modelling the behavioural characteristics of farmers has been to limit tax agricultural analyses to relatively modest farming undertakings. It is only recently that the effects of tax policy on aggregate agricultural investment have been examined on a similar basis to those in the industrial sector.

In the early 1960's Smith (1963, pp.80-91) used dynamic modelling to determine the effect of tax depreciation rules on capital replacement decisions. He concluded that to introduce administrative simplicity the only feasible depreciation rule which would not distort investment decisions was immediate expensing of capital expenditures. The only qualification mentioned was that provision should be made for the loss carry-over or carry back of tax credits so that an otherwise rational

managerial decision to incur heavy investment outlays in a year of low
sales would not be artificially prejudiced by tax considerations.[31]
Chisholm (1974, pp.776-783) compared the optimum replacement intervals
for farm tractors in Australia and the United States. He found that
replacement periods were noticeably shorter in Australia and concluded
that the stringent recapture provisions in the United States on
"investment credit property" made more frequent replacement too
costly. He also found that the removal of the 20 per cent investment
allowance in Australia substantially increased the optimal replacement
age of tractors for high tax-bracket taxpayers. Kay and Rister (1976,
pp.355-358) and Reid and Bradford (1983, pp.326-331) modified
Chisholm's cost minimisation approach. Reid and Bradford's results
indicate that the tax rate reductions provided in the 1981 Economic
Recovery Tax Act (ERTA) more than offset the gains of the more rapid
depreciation write-offs and yield higher after-tax tractor ownership
costs than before the tax changes. The 1981 ERTA thus results in less
incentive for investment in large machinery.

As noted above many analysts have in recent years utilised
neo-classical models or variations thereof as a framework in which to
evaluate tax policy and its impact upon investment spending. A
central feature of these models is the estimation of the
user-cost-of-capital as an important determinant of investment. Much
of the neo-classical theory of optimal capital accumulation has been
extensively redeveloped and revitalized by Jorgenson and his
colleagues (Hall & Jorgenson, 1967, pp.391-414; Jorgenson, 1963,
pp.247-259; 1967; Jorgenson, Hunter & Nadiri, 1970, pp.187-212;
Jorgenson & Siebert, 1968, pp.681-712) and is now the dominant mode of
examination of investment behaviour. Appendix 2 contains a condensed
version of the cost of capital model.

In 1981 Penson, Romain and Hughes (1981, pp.629-635) applied this
approach to determine the impact of tax policy on net investment in
farm tractors. They specified four different depreciation patterns
and found that the geometric decay pattern (which was Jorgenson's
assumption) did the poorest job of explaining aggregate annual real
net investment in farm tractors. Hughes & Adair (1983, pp.1-8), using
a general equilibrium model which incorporates the cost of capital,
found that farmers had less incentive to invest after the 1981 ERTA
than they would have without the tax cuts.

Analyses of the effect of tax law changes in the 1981 ERTA on agricultural investment behaviour of California row crop farmers demonstrate that income tax rules can affect farm investment significantly (Hardesty, 1984; Hardesty, Carman & Moore, 1987, pp.358-368). Between 1972 and 1981, the US agricultural output as measured by gross farm income rose 127 per cent while the farm sector's machinery stock expanded by 177 per cent (Hardesty, Carman & Moore, 1987, p.359). It is unlikely that the disproportionate increase in the machinery stock is solely attributable to the continued substitution of machinery for labour. The existence of excess machinery capacity (sub-optimal utilization of machinery) in the farm sector suggests that factors other than the need for production capacity can motivate machinery investment. An investment model developed by Hardesty (1984) to analise the impact of the 1981 Tax Act and which incorporated Jorgenson's capital cost measure demonstrates that excess machinery capacity can be optimal, given US income tax provisions; in the model, idle machinery can generate returns to the firm in the form of investment credits and deductions. The pattern of machinery purchases by farm size indicates that over-investment due to tax rules intensifies as farm size and marginal tax rates increase; as marginal tax rates rise, so does the value of the flow of depreciation deductions (Hardesty, Carman & Moore, 1987, p.366). This is especially evident in the pre-ERTA tax scenarios. This result supports the hypothesis that part of the rapid expansion of the farm sector's machinery stock during the 1970's was attributable to efforts to reduce rising income tax liabilities.

ERTA has the unexpected effect of reducing investment in machinery and land. Although ERTA increased the attractiveness of investment by accelerating depreciation schedules, this effect was offset by the diminution in the value of depreciation and interest deductions because of the decrease in tax rates (Carman & Hardesty, 1986, p.117; Hardesty, 1984, p.iii; Hardesty, Carman & Moore, 1987, p.367).

Quantification of investment tax preferences in agriculture has benefited from several recent studies. Earlier research with a sample of southern Minnesota farms had suggested that tax preferences were large and pervasive among all farm sizes and had experienced remarkable growth during the early and mid-1970s (Hanson, 1982; Hanson & Eidman, 1985, pp.271-278). The updating of that research by Hanson

& Eidman (1986, pp.69-83) confirms that tax preferences continued to be of comparable importance (in real terms) to the sample during the more financially depressed period of 1979 to 1982 (See Table 4.8). A shift from investment to interest (financial leverage) dominance of tax saving provisions (that is from the utilization of ITC's and accelerated depreciation to interest deductions and cash accounting) contributed to the level of the tax preferences remaining fairly stable. To the extent that high nominal interest rates are associated with a period of farm income stress, the situation suggests that tax expenditures may be "downwardly sticky" during periods of agricultural recession (Hanson & Eidman, 1986, p.76).

Neo-classical investment theory also provided a framework for LeBlanc and Hrubovcak (1986, pp.767-777) to examine aggregate investment effects of tax policy. They estimated that 20 per cent of net investment in agricultural equipment since 1956 was due to tax policy, especially the investment tax credit (ITC). Over the period 1962 to 1978, the ITC contributed to over $3 billion in net equipment investment. Interest deductibility resulted in a net investment increase of nearly $5,6 billion throughout the period 1955 to 1978. Their results correlate with the work of Hall and Jorgenson (1967, pp.391-414). First, both studies concur that tax policy is highly effective in changing the level of timing of investment expenditures. Second, the most dramatic change in net investment occurs in the first period and then diminishes over time. Third, the investment tax credit has had a dramatic effect on investment. Hall and Jorgenson found that in the peak response year, the investment tax credit stimulated net investment by 40,9 per cent and 48,6 per cent in manufacturing and non-farm manufacturing equipment, respectively. LeBlanc and Hrubovcak's results indicate that in the peak response year 63 per cent of net investment in total farm equipment was attributed to the original investment tax credit. Fourth, while liberalised depreciation allowances have had an important effect on investment behaviour, the effects were not as significant as that of the investment tax credit. Finally, both studies agree that tax policy has affected the composition of the capital stock with the investment tax credit biasing investment in favour of equipment rather than structures.

TABLE 4.8: <u>UNITED STATES - PERCENTAGE DISTRIBUTION OF ANNUAL AVERAGE TAX EXPENDITURES BY TAX PROVISIONS AND FARM SIZE IN MINNESOTA (1967-1982)</u>

	All farms			Small farms			Medium farms			Large farms		
	1967 -72	1973 -78	1979 -82	1967 -72	1973 -78	1979 -82	1967 -72	1973 -78	1979 -82	1967 -71	1973 -78	1979 -82
1. Capital gains on livestock	12,5	10,4	5,5	12,1	7,2	7,5	18,4	15,0	9,7	9,7	9,0	2,9
2. Accelerated depreciation	25,0	27,5	24,0	30,0	31,8	30,5	25,1	28,5	27,5	23,6	25,9	20,9
3. Cash basis tax accounting	14,1	15,1	22,2	10,1	14,4	16,7	19,7	14,3	14,5	12,5	15,7	27,2
4. Interest expense deduction	37,2	25,6	32,5	32,9	26,1	28,6	25,5	19,3	33,2	43,9	28,6	32,9
5. Investment credit	11,2	21,3	15,9	15,0	20,5	16,7	11,2	22,8	15,1	10,2	20,8	16,1
TOTAL	100	100	100	100	100	100	100	100	100	100	100	100

<u>Note</u>:   Totals may not add due to rounding.

<u>Source</u> : Hanson and Eidman (1986, p.75)

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Recently, Conway, Durst, Hrubovcak and LeBlanc (1988) examined how each of five tax proposals (Kemp-Kasten, Bradley-Gephardt, administration, House Ways and Means Committee and Senate Finance Committee) and the Tax Reform Act of 1986 (TRA'86) might alter agricultural investment in long-lived capital equipment.[32] The authors combined the cost of capital associated with each proposal and a stochastic coefficient approach (to take account of structural change in the investment function) to forecast capital investment and rental rates. The most outstanding feature evident in all the simulations is that net investment is negative in every year of the forecast period, 1986-91.[33] Net investment under prior law (the 1985 Act) is forecasted at (-)$2,5 billion in 1986, decreasing to (-)$3,1 billion in 1991. All the tax proposals decrease net investment by additional amounts ranging from $200 million to $400 million, depending on the proposal.

According to Conway, Durst, Hrubovcak and LeBlanc (1988, p.34) the modest relative effects of the tax proposals when compared with the large decreases in investment under prior law are a reflection of the fact that the most important determinant of net investment is the expectation of future profits and not the cost of capital. The alternative tax proposals decrease capital accumulation, but do not alter the direction of net investment. All the tax proposals, including the TRA '86, amplify current decreases in capital accumulation and reinforce the adjustment of agriculture to a new economic environment. A liberalisation of tax law leading to a decrease in the implicit rental of capital would put upward pressure on investment demand but do little to alter the direction of net investment (Conway, Durst, Hrubovcak & LeBlanc, 1988, p.34).

The most controversial provision of the TRA'86 was the repeal of the ITC. The repeal increases the rental rate on farm machinery (tractors and long-lived equipment) by 10 per cent over prior law and, as shown in Table 4.9 accounts for 98 per cent of the estimated decline in investment resulting from the imposition of the 1986 Act (Conway, Durst, Hrubovcak & LeBlanc, 1988, p.37). The tax credit is most prominent because it is a dollar-for-dollar reduction in tax liability. Removing the investment tax credit accounts for $267 million of the $307 million difference between investment under the

Tax Reform Act and prior law in 1987. An additional decrease in net investment of $3,64 million results from adopting the new depreciation

TABLE 4.9 CHANGES TO NET INVESTMENT RESULTING FROM SPECIFIC
PROVISIONS OF THE TAX REFORM ACT OF 1986

Year	Prior + law	Elimination + of the investment tax credit	Change in + depreciation system[1]	Change in + marginal tax rates	=	Tax Reform Act of 1986
			Million dollars (1972 dollars)			
1986	-2 453	-254	NA	NA		-2 707
1987	-2 572	-267	-4	-36		-2 879
1988	-2 697	-280	-4	-38		-3 018
1989	-2 827	-294	-4	-40		-3 165
1990	-2 965	-307	-4	-42		-3 318
1991	-3 108	-323	-4	-44		-3 479

Note: Totals may not add due to rounding.

NA = Not applicable. The only change in effect of 1986 was the repeal of the investment tax credit.

1 The additional decline in investment caused by the changes in depreciation systems actually ranges from $3,64 million in 1987 to $4,40 million in 1991.

Source: Conway, Durst, Hrubovcak and LeBlanc (1988, p.38)

results from adopting the new depreciation rates and tax lives introduced by the Act. Subsequent adoption of the new marginal tax rates causes an additional decline in net investment by $36,37 million in 1987. The importance of repealing the investment tax credit is dramatised by examining the time path of capital stock under the Act. By 1991, the Act causes the capital stock to fall from $5,5 billion to $3,6 billion (1972) dollars.

The decline in net investment and capital stock caused by the new marginal tax rates is somewhat surprising because the marginal tax rate decreases under the Act, from 22 per cent to 15 per cent. The decline in the marginal tax rate increases after-tax income but reduces the value of interest and tax depreciation deductions. Therefore, the level of debt financing will also affect investment over the simulation period. If farmers reduce the level of debt financing or if before-tax interest rates fall as a result of the

provisions in the TRA '86, the decline in net investment would be somewhat mitigated.

II   Growth and continuity of the farming unit

Some analysts have argued that the investment tax credit and accelerated depreciation influence the direction of farm size by reducing the capital costs of equipment (Hardesty, 1984; Richardson and Nixon, 1984, pp.137-144; Skees, 1983). Purchasers of equipment frequently find that the machines' capacity exceeds that needed in the operation for which purchased, and the excess capacity encourages expansion to utilize the equipment fully. Others have argued that taxes play a smaller role in expansion; that expansion to gain tax advantage alone is not rational behaviour, and that economies of size as well as attempts to generate higher levels of income are the primary factors that influence the process of expansion and farm size (Davenport, Boehlje & Martin, 1982, p.22). A study by Musser (cited in Davenport, Boehlje & Martin, 1982, p.44) suggests that income tax rules may in fact discourage farm growth. The study evaluated the economies of size in crop production with particular emphasis on machinery selection and optimal machinery size for different acreage levels. The methodology used was to budget the cost of production for various representative size farm and machinery sets on a before- and after-tax basis. The analysis procedure assumed that, for tax purposes, all income was reported on an accrual basis, that non-farm income increased with farm size, and that income trended upward over time to reflect inflation. The analysis also assumed that the farmer cannot continually expand the farm using interest deductions to reduce current taxable income.

In essence, Musser's work suggests that the underlying technical economies of size in crop production decline up to 5 500 acres on a before-tax basis, but the inclusion of taxes as a cost results in the curve declining up to 200-300 acres and then rising after that because the future income generated is taxed in higher marginal tax brackets. As a result of the assumptions, the high farm and non-farm income associated with larger farm sizes produced higher after-tax costs on larger farms.

Musser's key assumption - that marginal tax brackets increase with farm size - is not consistent with some empirical work which suggest that tax rates rise little or not at all as farm size increases from medium to large (Nixon & Richardson, 1982; Sisson, 1979). This has been explained by the availability of tax incentives for investment that offset tax liabilities that would otherwise be due on the larger farm income associated with larger size (Hanson & Eidman, 1985, pp. 271-278; Hardesty, Carman & Moore, 1987, p.366). This rather level tax rate allows farm size to increase and benefit from the economies of scale associated with increasing size without incurring higher tax rates (Batte & Sonka, 1985, pp.600-608). In this view, the investment credit and accelerated depreciation constitute incentives to grow. They neutralise the progressive tax system to the point where tax costs are nearly proportional even with increasing farm size and farm income. They thus offset the major increase in costs associated with increasing size and permit firms to benefit from the decrease in costs flowing from economies of size.

Other factors which have also influenced the direction of farm size, organisation and continuity include cash accounting and capital gains provisions, incentives to incorporate installment payments of estate tax. Cash accounting (that is reporting income when received and deductions when they are paid) gives taxpayers the opportunity to create tax assets (and liabilities). These assets are available to find consumption expenditure, further investment in a farm, or investment in off-farm assets. Since some of the tax assets will be reinvested in farming operations, farms may grow more rapidly than they could if cash accounting were not utilised. Under this theory, the largest tax assets can be created by the highest tax bracket taxpayers who are then provided with more funds to grow than are lower bracket taxpayers.

A conversion of deductible capital expenditures into capital gains produces a strong incentive to expand operations with two aims. The first is to expand the tax bracket through higher unsheltered taxable income. The second is to combine shelter assets with unsheltered assets.

Tax law often encourages farm (and other) operations to incorporate but is simultaneously induced to grow to prevent the disagreeable

alternatives of either facing an accumulated-earnings tax or having a shareholder face the tax on dividends.

Thus, the empirical and numerical evidence of the impact of tax provisions on size economies and incentives for growth are conflicting and contradictory. Although some work does suggest that the progressive structure of the income tax rates might result in a U-shaped longrun average cost curve, this work does not recognise the potential for farmers to use various tax management techniques to lower future tax liabilities and effective tax rates. If one of the tax management strategies used to keep future marginal tax brackets low is to purchase additional land and machinery and equipment to obtain additional credits and deductions, then it might be argued that the tax provisions encourage growth in farm size. However, as to size economies, the conflicting empirical evidence suggests that income taxes may be relatively neutral in their effect - they neither magnify the technical economies of size that exist in agriculture, nor do they offset the size economies and force the cost curve to increase with increases in farm size. However, the tax incentives to growth still remain, with or without their influence on the cost curves.

III. Production and price responses

Special farm income tax provisions have encouraged investment in selected agricultural enterprises, increased production from those enterprises, and as a result of the price inelasticity of demand for almost all agricultural products, lowered per unit prices and decreased total revenue (Carman & Hardesty, 1986, p.115). Agricultural enterprises for which tax incentives were effective and where there is some evidence of increased output as a result of incentives include livestock, poultry and perennial crops (Carman, 1968, pp.1591-1595; Carman & Youde, 1973, pp.184-191; Davenport, Boehlje & Martin, 1982 pp.26, 33-35; Lin, Carman, Moore & Dean, 1974, pp.183-195; Youde & Carman, 1972, pp.13-15).

Tax shelters involving citrus and almond groves, for example, proliferated during the late 1960s (Davenport, Boehlje & Martin, 1982, p.26; Windish, 1987, p.227). Because of concern that production would be overstimulated by investment syndicates, citrus and almond growers urged the US Congress to repeal the rules allowing the deduction of

development costs. The Tax Reform Act of 1969 subsequently required the capitalisation of all citrus and almond orchard and grove development costs for the first four years after planting (O'Byrne & Davenport, 1984, p.398). However, the Act shifted investor interest to the development of grapes and other perennial crops. According to Carman and Hardesty (1985, p.48) the impact of tax motivated grape plantings during the 1970s continue to depress returns from California vineyards.

The impact of the change in tax law on California citrus and almond acreage, production, and prices as well as the production and prices of alternative tax shelter orchard crops were evaluated by Carman (1981). Results from a perennial crop supply response model indicate that by 1978 California citrus and almond plantings decreased an estimated 46 241 acres due to cost capitalisation provisions first effective in 1970 and 1971. At the same time, California walnut and grape plantings increased an estimated 99 163 acres in response to these same capitalisation provisions. Similar projections for 1985 have citrus and almonds decreasing by 54 254 acres with grapes and walnuts increasing by 91 552 acres (Carman & Hardesty, 1985, p.47). This estimated increase was due only to the tax law change and did not include the already increased level of investment due to favourable tax rules for development of these perennial crops. Acreage of crops not included in the analysis, such as jojoba, pistachios and kiwi fruit, also expanded as investors took advantage of the favourable tax treatment available for these crops.

The estimated percentage impact of cost capitalisation provisions on individual crops is shown in Table 4.10. The projected 1985 grape acreage increased by some 14 per cent over what it would have been without the citrus and almond capitalisation provisions. Acreage under lemons decreased by 21 per cent while prices for lemons increased by almost 32 per cent.

The impact of tax reform on real orchard prices was also estimated for 1979. Increased acreage and lower prices for walnuts and grapes as a result of tax reform result in decreases in orchard values. The capitalisation provisions was primarily responsible for a $331 and $319 per-acre decrease in Sacramento and San Joaquin Valley walnut orchard values, respectively (Davenport, Boehlje & Martin, 1982,

TABLE 4.10: <u>PROJECTED 1985 TOTAL ACREAGE AND PRICE RESPONSE TO THE CAPITALISATION PROVISIONS</u>

Crop	Percentage response	
	Acreage	Price
Navel oranges	- 7,5	+ 7,9
Valencia oranges	-19,0	+ 4,9
Lemons	-21,0	+31,8
Almonds	- 2,1	+ 0,5
Walnuts	+ 2,0	- 2,7
Avocados	+ 0,1	-
Grapes	+14,3	- 3,4

Source: Hardesty & Carman (1985, p.51)

p.35).   Increased product prices due to tax reform helped offset the initial decrease in values for almond orchards and citrus groves.

Increased productivity and decreased grape prices led to an additional decrease in estimated vineyeard values due to tax reform.

Requiring capitalisation of citrus grove and almond orchard development costs was associated with an immediate decrease in grove and orchard values. The per acre decrease in values was almost three times as large for navel oranges and lemons as it was for almonds. It was hypothesised that the decrease in values was due to the extensive negative publicity about the economic outlook for citrus (Davenport, Boehlje & Martin, 1982, p.34). Almond capitalisation requirements were enacted a year later with very little publicity and orchard prices remained virtually static.

The estimated impact of the capitalisation provisions on established tree and vine orchard values was negative for each of the crops considered. Davenport, Boehlje & Martin (1982, p.35) were of the opinion that this negative impact would persist for several more years, even given the cyclical nature of perennial crop supply response.

The economic effects that Treasury II (USA, 1985a) would have on agriculture was also estimated by Wharton Econometrics (see Davenport,

1985, p.94). Wharton, for example, estimated that the cost of capital in the agricultural sector would rise by 19,8 per cent initially and finally settle to being 14,6 per cent higher than the projected cost if tax reform were not enacted. Most of the increase in capital cost would come from the elimination of the ITC. It was also estimated that the number of grain consuming animals, mainly cattle, would fall by 3,8 per cent during 1986-88. The lower number of animals would lead to higher prices for beef and pull up the prices of pork and poultry and lead to a slightly lower demand for corn and soyabeans. Both corn and soyabean acreages would be cut as a consequence. These effects as well as the higher cost of capital would combine to reduce farm output and lower farm income over the 1986-93 period.

IV. Financial stress

Debt problems are at the heart of the current farm finance crisis in many countries (Bullock, 1985; Canadian Bankers' Association, 1987; Centre for European Agricultural Studies, 1980; Lloyd, 1987; Melichar, 1987; Mostert & Van Zyl, 1987; The Rural Debt Problem, 1986; Shepard, 1986; USA, 1988b & 1988c). Much of the debt can be attributed to incentives provided by income tax rules effective during the 1970s (Carman & Hardesty, 1986; Hardesty, 1984; Hardesty, Carman & Moore 1987; Harl, 1985). Agricultural economists have also suggested that the continued difficulties of the agricultural sector are related in part to tax-motivated investment behaviour by both full-time and part-time farm operators (Boehlje & Carman, 1982, pp.1030-1038).

An analysis of California crop farm investment response to changing tax laws found that high-income farms could afford to pay more for assets (such as land or machinery) than could low-income farms because the former received greater tax savings on interest deductions than did low-income farms (Hardesty, 1984, p.163; Carman & Hardesty, 1986, p.61). In addition, interactions between the progressive rate structure and the deductibility of interest expenses and depreciation cause the investment opportunities of high-income farms to expand relative to low-income farms. Because of the importance of interest deductions on after-tax returns from agricultural investments, expansion-minded farmers were encouraged to make liberal use of debt, and many were highly leveraged (Carman & Hardesty, 1986, p.116). Indebtedness associated with land purchases is an important component

of current financial stress. As noted, interest deductions are worth more to high-income farms than to low-income farms. High-income taxpayers have also enjoyed a significant advantage upon sale of land as a result of capital gains provisions. Due to the combined effects of the capital gains provision and interest deductibility, the maximum price that a purchaser was willing to pay for farm land increased with the purchaser's marginal tax rate (Boehlje, 1981, pp.156-157; Hasselbrook & Lanner, 1985, p.477). The "artificial" incentives to invest were responsible for a sizeable portion of the over-investment in US agriculture which, according to Bullock (1985, p.10), was the main US farm problem.

Beside special provisions extending some direct relief to US farmers under severe financial stress (Schmidt & Garrison, 1987, p.567), some of the general provisions of the Tax reform Act of 1986 reduce the incentives that promoted over-investment in the agricultural sector and encouraged excessive indebtedness by many farms. The elimination of the investment tax credit, longer depreciation periods, and reduced tax rates dampen tax-motivated investment by farmers when farm incomes improve. Carman and Hardesty (1986, p.120) were of the opinion that ".... the reduced rate change by itself should tend to increase savings, reduce farm debt, and reduce investment in land and machinery" (emphasis added).

It has been argued that over time the movement of tax laws in the direction of economic neutrality in decision making should be in the long-run economic interests of agriculture as well as other sectors of the economy (Bullock, 1985).

V.   Impact of tax measures on conservation practices

A few studies in Australia and the United States have considered the utilisation and impact of tax provisions on the adoption of soil and water conservation practices.

1.   Australia

In recent years, land degradation in Australia has become an increasingly important rural policy issue. Erosion (by wind and water) and salination are the principal forms of degradation (Alcock,

1980; Australia, 1978). Just over half the agricultural land in
Australia in 1975 was estimated to have suffered some form of land
degradation (Bureau of Agricultural Economics, 1985a, p.1). While
some of this land (43 per cent) required only a change in management
practices, the remainder was thought to require expenditures of a
capital nature. The cost of these capital works was estimated at
$1600 million in 1984 prices (Bureau of Agricultural Economics, 1985a,
p.5).

A national soil conservation programme was established in 1983 and as
part of this policy the Bureau of Agricultural Economics (BAE) was
asked to examine the role of taxation concessions in encouraging the
participation of land users in the maintainance and restoration of the
agricultural resource base. Four possible tax systems involving
rebates, credits and concessional deductions, either in isolation or
combination, were considered, namely:

(i)   a rebate system with tax credits;

(ii)   a rebate system with concessional deductions;

(iii)   a rebate system without tax credits, and

(iv)   a system allowing concessional deductions at a level
          greater than 100 per cent.

In addition, the effect of the rebate was quantified at three separate
levels (10, 20 and 30 per cent). The relative effect of each of the
above systems on the adoption of soil conservation measures was
estimated. In addition, the relative costs of the different systems
were estimated both in total and per unit area affected. The results
are presented in Table 4.11.

Of the ten systems considered, four would have a negative effect on
the area of land where conservation occurs. These systems involve
rebates or rebates/credits at 20 per cent and below. Although two of
these systems would actually increase the number of farmers who
benefit, these same farmers would control a smaller area of land than
those who would lose from the introduction of the systems.

TABLE 4.11: EFFECTS OF VARIOUS TAX MEASURES ON AUSTRALIAN FARMERS, AREA CONSERVED AND COST TO GOVERNMENT

Tax measure		Net increase in farmers having higher returns	Net increase in land area giving higher returns	Change in area conserved due to				Extra cost to Government in year 1 from:			Government cost
				Rebate/credit	Loss of concessionary deduction	Loss of tax credit	Total	Rebates/credits	Concession	Total	
		%	%	'000 km²	'000 km²	'000 km²	'000 km²	$m	$m	$m	$/km²
I	(a)	80	60	+6,0	-1,5	0,0	+4,5	+1,8	-0,6	+1,2	277
	(b)	32	-10	+3,4	-4,1	0,0	-0,8	+0,7	-1,2	-0,5	-
	(c)	-40	-50	+1,9	-5,6	0,0	-3,8	+0,2	-1,2	-1,1	-
II	(a)	90	80	+6,0	0,0	0,0	+6,0	+1,8	0,0	+1,8	300
	(b)	66	45	+3,4	0,0	0,0	+3,4	+0,7	0,0	-0,7	200
	(c)	30	25	+1,9	0,0	0,0	+1,9	+0,2	0,0	-0,2	100
III	(a)	55	38	+6,0	-1,5	-1,7	+2,9	+1,3	-0,6	+0,8	263
	(b)	7	-32	+3,4	-4,1	-1,7	-2,4	+0,3	-1,2	-0,8	-
	(c)	-65	-72	+1,9	-5,6	-1,7	-5,4	+	-1,2	-1,2	-
IV		75	78	+5,9	0,0	0,0	+5,9	0,0	+1,5	+1,5	264

I.   Rebates/credits: (a) at 30 per cent; (b) at 20 per cent; (c) at 10 per cent.

II   Rebates/credits and concessionary deductions: (a) at 30 per cent; (b) at 20 per cent; (c) at 10 per cent.

III   Rebate only: (a) at 30 per cent; (b) at 20 per cent; (c) at 10 per cent.

IV   Concessionary deductions (120 per cent).

Source : BAE (1985a, p.28)

The most technically effective system examined, and the most costly, involves a rebate/credit at 30 per cent as an alternative to the current expensing provision. Because this "Rolls-Royce" system would also have the highest cost per unit area conserved, the social returns would have to be much higher under this system than any of the others, if its implementation were to be justified.

According to the study the concessional deduction at 120 per cent promotes a moderate increase in area conserved at a cost per unit area comparable to systems employing rebates at 30 per cent. However, little or no help is provided to low-income earners, and the greatest benefit goes to those with the highest incomes. If the problem of land degradation were most severe on low-income farms, this measure would probably be ineffective.

A rebate/credit at 30 per cent is relatively expensive on a per unit area basis, but has the merit of having a major effect on the area conserved. The study found that assistance to the top 10 per cent of income earners would be reduced (through the loss of the expensing provision), while it would be increased for the remainder.

A rebate-only at 30 per cent results in a lower area conserved than when credits are provided because the farmers with lower incomes are excluded from all or most of the benefit. If the land degradation problem were more severe in this category, the system of a rebate only will be ineffective.

A rebate/credit (at 10 per cent and 20 per cent), in addition to the existing concessionary deduction, offers some incentive for a net increase in conservation, while at the same time being relatively less expensive than the other systems considered. Returns to the lower income farmers are increased, without reducing the present assistance given to higher income farmers. This scheme appears to be especially effective if the land degradation problems are predominantly on the lower income farms. The higher level of rebate/credit (20 per cent) will naturally be more effective than the lower rate, which only has a minor net effect on soil conservation activity.

On a comparative basis, the schemes that satisfy political and cost minimising objectives or ensure a certain distribution of benefits are

those based on the use of rebates and credits, together, possibly with the existing concessional deduction as an alternative for those who receive less assistance from a rebate/credit-only system (Bureau of Agricultural Economics, 1985a, p.3). The level of rebate/credit needs to be at least 20 per cent in this case if more than a minor effect on soil conservation activity is required.

2.   United States

Studies by Boggess, McGrann, Boehlje & Heady (1979, pp.177-183) and Anderson & Bills (1986, pp.225-228) found that US tax provisions and other government policies taken together have a significant impact on the adoption of soil and water conservation practices, particularly by farmers with high net farm incomes. IRS data show that farmers deducted $129 million in conservation expenditures for the 1980 tax year, although only 10 per cent of all US cropland is treated with measures that fall under Section 175 of the tax code. However, conservation deductions related positively to farm size, as measured by gross farm receipts and net farm incomes. Larger farms (with gross receipts exceeding $40 000) accounted for about 20 per cent of all farms but nearly 75 per cent of all deducted conservation expenditures. Farms with net farm income exceeding $10 000 accounted for 12 per cent of all farms and 44 per cent of all conservation deductions. An interesting finding, however, was that conservation expenses were deducted in disproportionately large amounts by farmers who reported losses from farming. Overall, 57 per cent of all farms reported net operating losses during 1980 and these farms accounted for more than one-third of all deducted conservation expenditures (Anderson & Bills, 1986, p.226).

Anderson and Bills (1986, p.227) assert that there is overwhelming evidence suggesting that conservation programmes generally need to be more closely targeted to erosion problems. In addition, the efficacy of the conservation expense deduction as a tool to direct erosion control toward land most in need of treatment is constrained in several ways:

     "First, the owner must have taxable income to derive a
     benefit   from   the   deduction.   Also,   the   economic
     attractiveness of conservation deductions increases with

increases in taxable income; the available data on elections
to deduct conservation expenditures support this
relationship. In addition, elections to expense the cost of
a conservation project are associated with investments on
larger farms" (Anderson & Bills, 1986, pp.227-228).

Activities covered by Section 175 are frequently cited among factors
promoting outside investment and over-investment in agriculture; it
has even been alleged that conservation deductions contribute to the
conversion of marginal land to crop use or pave the way for more
intensive use of the existing cropland base (Ward, 1985, pp.A1, A10;
Ward & Hamilton, 1984, pp.A1-A2).

Collins (1982, pp.319-322) evaluated the impact of the US income tax
provisions on the willingness of landowners to engage in soil and
water conservation measures and the differential impacts of the tax
laws on various classes of landowners. The analysis proceeded in a
case study format with capital budgeting procedures applied to
numerous sets of scenarios with respect to farm and non-farm income,
the size of the soil and water conservation expenditure, and the
recapture requirements. Regression analyses of those who have
participated in conservation projects suggest, however, that there are
other variables that are more important and that the tax provisions
play a minor role in the decision to undertake a conservation
project. The existence of a substantial amount of non-farm income
also appears to have little, if any, effect on the conservation
decision. However, it was assumed that taxpayers are unable to use
additional deductions or the cash accounting system to lower marginal
tax rates in years following the conservation deduction.
Consequently, the income generated by a conservation expenditure was
taxed at high marginal tax brackets for those who had high incomes.
If the high-income farmer had the opportunity and flexibility to lower
future marginal tax brackets through the use of other deductions
and/or a cash accounting system, future tax burdens would not be so
high and the after-tax return would be increased. It was also argued
that farmers with consistently high incomes might be less inclined to
participate in conservation projects as frequently as those who have
variable incomes.

The net influence of the 25 per cent limitation on the amount of the deduction on participation in conservation projects is difficult to assess. Clearly, a limitation that delays the generation of the tax benefit until later years would be similar to a requirement to capitalise and depreciate the expenditure, thus increasing the net cost of the project and discouraging conservation expenditures. The key determinants of whether the 25 per cent limitation encourages or discourages conservation expenditures include the size of the expenditure, the amount of farm and non-farm income, and the size of the deduction. If the limitation did not exist, deducting the entire expense in any year may in fact lower the marginal tax bracket, thus resulting in a tax savings from the deduction that is not as large as would occur if the tax bracket was not lowered. In contrast, if the 25 per cent limitation restricts the size of the deduction so that the tax bracket is not lowered, thus enabling the taxpayer to obtain an additional deduction in a future year at a similarly high marginal tax bracket, then the limitation may be advantageous (Collins, 1982, p.320).

Finally, as expected, farmers who intend to sell their land within the recapture period are less likely to adopt a conservation measure. Statistical analyses indicated that farmers who had engaged in a conservation measure had owned their land longer than those who did not engage in such practices (Davenport, Boehlje & Martin, 1982, p.51). The results also indicate that the farmer engaging in a conservation project tends to have a smaller farm, owns less valuable land, leases less land on a cash basis, is older, has less education, and has less income from both farm and non-farm sources compared with those who do not participate in such projects.

E.   REVENUE FORGONE

Ascertaining the cost of selective tax measures have become quite common in recent years and a number of countries, including Australia, Canada, New Zealand, the United Kingdom and the United States now publish accounts of these costs.

I. Australia

Analysis by the Industries Assistance Commission (Industries Assistance Commission, 1983, p.163) indicates that much of the assistance (in the form of revenue forgone) to the agricultural sector is provided through the income tax system. The investment allowance has always been regarded as one of the largest individual budgetary items in terms of revenue forgone. Such estimates are presented in Table 4.12. In 1984/85 the estimated revenue forgone due to the investment allowance was $685 million (Australia, 1986a, p.24), while the revenue forgone which can be ascribed to agriculture's utilisation of the investment allowance is estimated at $120 million. According to the Treasury the revenue cost of special (accelerated) write-offs in agriculture in 1982/83, 1983/84 and 1984/85 amounted to $118 million, $161 million and $226 million, respectively (see Table 4.12).

TABLE 4.12: AUSTRALIA - ESTIMATED REVENUE FORGONE ($ MILLION) DUE TO THE INVESTMENT ALLOWANCE AND SPECIAL (ACCELERATED) WRITE-OFFS (1982/83 TO 1984/85)

Year	Investment Allowance		Special (Accelerated) Write-offs[2]
	All Industries	Agriculture[1]	
1982/83	578	102	118
1983/84	610	107	161
1984/85	685	120	226

1) Estimates based on proportional utilisation of investment allowance as reflected in 1984/85 taxation statistics.

2) Total of items listed under Sections 57AE, 57AH, 75A, 75B, 75C and 75D of the Income Tax Assessment Act, 1936.

Source: Australia (1986a p.24; 1986b)

II. Canada

Although the first tax expenditure account[34] published in 1979 in Canada has been regularly updated, the separate value of each farming tax provision cannot always be determined from existing tax

statistics. However, their cumulative impact is indicated by comparing the effective rates of taxation on farm income and the rates applicable to other sectors of the economy. This information is presented in Table 4.13. The average total federal plus provincial taxes paid on farming income for 1980 and 1981 were only $152 million, giving an effective average tax rate of 4 per cent, just over one-quarter of the average rates on wage and salary income and on non farm business income. As a result, primarily of cash-basis accounting, accelerated depreciation and income tax credits, farm income reported for tax purposes was only about one-half of farm income as estimated by Canada's Department of Statistics.

A report by the OECD (1984, p.38) shows that the tax expenditure benefits to farmers and fishermen found in the income tax system equal 9,9 per cent of their income (before exclusions, deductions or exemptions). The corresponding figures for deductions and tax credits are 3,1 per cent and 2,4 per cent, respectively. The estimated annual average value of the investment tax credit for farmers and fishermen for the period 1979 to 1983 is $110 million (Canada, 1985c, p.40) while the annual average cost of excess depreciation for the period 1975 to 1980 is $15 million (OECD, 1984 p.40; Smith, 1979, p.126). Although no estimates are currently available for the value of cash basis accounting Johnson and Scarth (1976, p.48) estimated that this provision increases average disposal farm income by 2,75 per cent on average.

Barichello and Glenday (1985, pp.263-283) show that the capital cost allowances for agricultural quotas, which often is regarded as a trivial element of the tax system, increases quota prices by 2 per cent and, over a period of 15 years, the present value of the provision to the economy at large is $45 million.

III. New Zealand

The McCaw Task Force estimates suggest all current tax concessions amount to about $1240 million per annum (NZ, 1982, p.68). These concessions have attracted more attention ".... because of the apparent size of but lack of information on the revenue forgone .... and doubts as to the effectiveness of some concessions in meeting stated objectives" (NZ, 1982, p.61). In 1982 the revenue forgone due

TABLE 4.13: CANADA - FEDERAL AND PROVINCIAL TAXES ON FARMING AND NON-FARMING INCOME OF INDIVIDUALS[1]

	Net farm operating income [2]	Wage and salary income	Non-farm business income [2]
Income as per the National Accounts ($ million)	3 790	182 680	11 420
Income as reported for tax purposes ($ million)	1 920	161 790	8 110
Federal and provincial income tax ($ million)	152	28 562	1 706
Average effective rate of tax	4%	15,6%	14,9%

1) Figures are averages for 1980 and 1981 taxation years. Tax data on incorporated farms and other businesses are excluded.

2) Farm and non-farm business income does not include capital gains.

Source: Canada (1985a, p.19)

to the deduction for farm development expenditure, investment allowances, and first year depreciation was estimated to be $30 million, $28 million and $12 million respectively (NZ, 1982, p.67-68). These estimates more or less tally with those of Lattimore, Ross and Sandrey (1988, p.5) who have shown that tax concessions to farmers averaged $52 million per annum for the 1979-87 period. It represents about 7,5 per cent on average of the total assistance to pastoral agriculture and 1,5 per cent of output.

IV. United States

In 1981 and 1982 farm losses reported by sole proprietors exceeded farm profits by $7,8 billion and $9,8 billion, respectively. That occurred in spite of $29,8 billion and $24,6 billion estimated net farm income in 1981 and 1982 (Hanson & Eidman, 1986, p.70). Taxable farm income reported on tax returns filed by individuals for 1976 was

$5 billion. That same year the US Department of Agriculture estimated net farm income to have been $18,7 billion. This difference between taxable and estimated economic farm income was not unusual; the same phenomenon has been reported consistently for years. Although the two measures have not been satisfactorily reconciled, it has been argued that some part of the difference is due to tax preferences (Davenport, Boehlje & Martin, 1982, p.8). The following figures reflect estimated revenue losses for the United States due to the expensing of agricultural outlays (OECD, 1984, p.81; Surrey & McDaniel, 1985, pp.7-24):

Fiscal year	$ million
1980	530
1982	550
1984	585
1986	630
1988	670

The distribution of these revenue losses for individuals by income levels has been estimated for calender years 1972 and 1977 as follows (Davenport, Boehlje & Martin, 1982, p.9; Surrey 1973, p.88):

Income level ($'000)	Expensing of outlays (%)	
	1972	1977
0 - 10	33,5	5,3
10 - 20	31,8	18,1
20 - 30	(	17,1
	(21,8	
30 - 50	(	24,8
50 and over	12,9	34,7

Since nominal income levels have increased since 1977, it seems likely that the distribution of these revenue losses has shifted somewhat to higher income levels.

According to Treasury I (USA, 1984b, p.251) the average revenue losses attributed to the expensing of conservation expenditures and farm fertiliser and field clearing were estimated to be $490 million for the period 1986-90.

F. SOUTH AFRICA

I. Introduction

In South Africa the tax treatment of capital expenditures is less
complicated and the Commissioner allows depreciation to taxpayers
other than farmers on a basis that requires the rate of depreciation
to accord with the useful life of a depreciable unit (Silke, Divaris &
Stein, 1982, pp.627-639). However, farmers are in a special position
in as much as expenditure on most capital items is fully deductible
for income tax purposes in the year the expenditure is incurred. The
relevant items are described in paragraphs 12(1) (general deductions)
and 15 (forestry deductions) of the First Schedule of the Income Tax
Act, 1962 and are reviewed in this Section. The first sub-section
focuses on a brief historical development of the paragraph 12(1)
concession, whereafter a recent assessment of and recommended changes
to the paragraph and the implications of the concession are
presented. Changes to the paragraph are then recommended. The
Section is concluded with new proposals for forestry deductions.

II. Historical overview of paragraph 12(1)

Prior to the introduction of paragraph 17(1) of the Third Schedule to
the Income Tax Act, 1941, wear and tear allowances were applied to
expenditures of a capital nature. The cost of repairs and maintenance
was allowed as incurred. As early as 1919 witnesses to the Van
Hulsteyn Committee (RSA, 1919, p.34) requested that expenditures on
development and improvements, such as fencing, boreholes, irrigation,
dams, dipping tanks, the laying out of vineyards and orchards and the
prevention of erosion, should rank as a deduction from income. The
Committee opposed it because:

"(i) .... a farmer would be able to reinvest all his surplus
       profits in improvements and so avoid taxation;

(ii) The principle would have to be generally applied to all
      other kinds of income, with the result that the general
      yield from the tax would be decreased and the rate
      would have to be raised; the ultimate effect would be

> to revive all the evils and anomalies of the existing
> section nine." (RSA, 1919, p.34)[35]

Neutrality in respect of capital expenditure was, however, discarded when paragraph 17(1) was introduced. The effect of the provisions was that a farmer could deduct in the determination of his taxable income the expenditure he incurred in respect of:

(i)   dipping tanks;

(ii)   dams, water furrows, boreholes and pumping plants;

(iii)   fences;

(iv)   the eradication of noxious plants;

(v)   the prevention of soil erosion;

(vi)   the erection of buildings used in connection with farming operations other than those used for domestic purposes;   and

(vii)   the establishment of orchards and vineyards (RSA, 1951, p.74).

The total deduction was limited to 30 per cent of the gross farming income of the year of assessment, but if the gross income was insufficient to absorb the capital improvements effected, the unabsorbed balance could not be carried forward (The Taxpayer, Vol.3, No.4, April 1954, p.68).

During its investigation in 1951, the Steyn Committee received submissions that advocated the withdrawal of this "unjustifiable" concession. Others urged not only the continuation of the concession but that the following deductions be allowed for income tax purposes as well:

(i)   cost of implements and machinery used for farming purposes;

(ii)   farmer's living costs;

(iii)   income tax, transfer duty and succession duty paid by the
        farmer;

(iv)   bond and loan repayments;

(v)   higher depreciation on machinery;

(vi)   legal expenses in respect of advice prior to large
        transactions;

(vii)   higher insurance rebates;

(viii) mortality allowance for cash basis farmers;[36)]

(ix)   the additional expenses to which a farmer is put in respect of
        the education of his children over that which the townsman has
        to incur. (RSA, 1951, p.74).

A proposal was also made that unclaimed losses should be carried
forward to future years to cover expenditure in excess of the 30 per
cent cap (RSA, 1951, p.75). The Committee found some of the proposals
reasonable and recommended:

(i)   that expenditure on the eradication of noxious plants and the
        prevention of soil erosion be allowed in full as an ordinary
        deduction in the year in which it was incurred;

(ii)   that expenditure on the specified types of improvement be
        allowed as a deduction against net farming income with the
        proviso that any unclaimed amount be available for set-off
        against net farming income of succeeding years;

(iii)   that farmers should also be allowed to deduct expenditure in
        respect of the construction of farming roads and irrigation
        schemes (RSA, 1951, pp.75-76).

The Committee suggested the scrapping of the 30 per cent cap because
it led to tax avoidance, the fictitious inflation of gross farm income
and caused hardships to young farmers who commenced farming (RSA,
1951, pp.75-76; The Taxpayer, Vol.3, No.4, April 1954, p.68). Because

of reported cases of abuse, the Committee recommended that the concession of permitting the deduction in respect of expenditures on buildings used for residential purposes be withdrawn (RSA, 1951, p.77).[37]

As a result of the recommendations of the Steyn Committee, which was supported by the Diederichs Commission (RSA, 1954), the Income Tax Act, 1941, was amended as proposed but with the following exceptions: the list of capital improvements was extended to include the carrying of electric power from main transmission lines to farm apparatus and the cost of erection of houses for employees (excluding relatives) was limited to £2000 for any employee or his family (The Taxpayer, Vol.3, No.4, April 1954, pp.68-69). An increase in the depreciation allowances on farm machinery from 10 to 20 per cent was proposed by the Minister of Finance in his 1954 budget speech, although neither the Steyn Committee nor the Diederichs Commission had made such a recommendation.

With the introduction of the Income Tax Act of 1962 the capital development expenditures were accommodated in paragraph 12 of the First Schedule. Further changes or additions to the paragraph prior to the Margo Commission's investigation were as follows:

(i)   extensions, additions or improvements to employee housing were added to paragraph 12(1)(f), while the cap of £2000 (R4000) was increased to R6000;

(ii)   the planting of trees, shrubs, perennial plants for the production of grapes or other fruits, nuts, tea, coffee, hops, sugar, vegetable oils or fibres, and the establishment of any area used for the planting of such trees, shrubs or plants (paragraph 12(1)(g));

(iii)   the acquisition of machinery, implements, utensils and articles used by the farmer for farming purposes, except any motor vehicle used primarily for conveying persons or any caravan or aircraft (not crop-spraying aircraft) or any office furniture or equipment or anything else which has its cost deductible from the farmer's income under any other provision of the Act (paragraph 12(1)(j)).[38]

To counter any abuse, all deductions under paragraphs 12(1)(c) to (j) were effectively allowed only to the extent that there was sufficient income derived from farming after deductions of expenditures on items in paragraphs 12(1)(a) and (b). Expenditure on the latter two items (eradication of noxious plants and prevention of soil erosion) was deductible in full irrespective of the farmer's taxable income, and could result in or increase an assessed loss. Save for two exceptions relating to moving assets and employee housing, deductions allowed to a farmer under paragraph 12(1) have not been subjected to taxation if recovered or recouped (Silke, Divaris & Stein, 1982, pp.1054-1056). Thus farmers not only enjoyed an immediate write-off on virtually all capital expenditures, but in effect also a tax free capital gain whenever a developed farm was sold. Although this privilege was somewhat curtailed by the provision that items (c) to (j) could not create assessed losses, they still offered farmers excellent tax deferral opportunities.

III. Margo Commission, White Paper and 1988 fiscal amendments

The Margo Commission, during its investigation received numerous submissions on farming taxation of which many argued that the immediate write-off of capital expenditures on items in paragraph 12 - especially purchases of machinery and equipment - encourages the bunching of farm investment expenditures particularly in high income years as many farmers make management and investment decisions purely on tax considerations; detrimentally affects rural towns and supply industries; encourages a propensity to spend rather than to save, which more often than not results in over capitalisation and an exacerbation of cash-flow problems; and effectively benefits only larger-scale farmers (RSA, 1987, p.233).[39] Some submissions argued that the expensing provisions should remain to encourage (and maintain) productivity and farmers in a start-up situation (Submissions Nos. 587, 612 & 613). A contrary submission (Submission No. 587, p.10) argued that the concession "... hou belangrike voordele vir die boer in _indien_ dit met oorleg toegepas word" (emphasis added). Another stated that the immediate write-off allowance "tends to lure farmers into over-capitalisation of their farms in spite of the fact that few of them normally pay tax in any event. In addition the scheme only effectively benefits larger-scale farmers" (Submission

No. 460, p.1). Hattingh (1986, p.21) and the Land Bank (1985, p.7) supported this view.

The Land Bank (Land Bank, 1985, pp.6-7) summarized the disadvantages of the immediate write-off with respect to machinery and plant as follows:

"Die belangrikste nadeel ten opsigte van die bestaande belastingstelsel is die ontmoediging van 'n spaarsin by die boeregemeenskap. Vanweë die afskrywingsklousule sal boere eerder van die betrokke artikels aankoop dan om belasting te betaal. Hoe meer vooruitstrewend die boerdery, hoe groter is die voordeel wat verkry word en hoe groter vind horisontale uitbreidings van bestaande boerdery-eenhede plaas ... Die oorinvestering in plaasgereedskap ... het 'n laer winsgrens in die boerdery tot gevolg. Goeie jare gevolg deur swak jare het tot gevolg dat die likiditeits-posisie van die boer riskant word en noodhulpskemas ontstaan. Vanweë fondse wat deur die belastingtoegewings in omloop kom, word sekere landbouhulpbronne soos weiveld, besproeiingswater, ensovoorts, oorbenut, wat kan lei tot 'n aftakeling van hierdie hulpbronne".

According to the Margo Commission (RSA, 1987, p.233) it is often argued that exigencies and peculiarities of agriculture require the application of special tax provisions. Because these provisions are exploited, ring-fencing or quanrantining measures, such as that which applies to paragraph 12 items are introduced. The Commission (RSA, 1987, p.233) expressed the view that the immediate write-off:

"... provides incentives for farmers (especially those on high marginal tax rates) to invest in areas such as agricultural land development where capital expenditure may be immediately deducted. This diverts investment from other areas which may have a higher return to the community as a whole (i.e. a higher pre-tax rate of return) and where an immediate deduction is not allowed. The provisions bias investment decisions and inflate primary sector input prices, including those of land ..... Although the 100 per cent write-off expenditure on agricultural plant and

machinery has been of exceptional assistance to farmers, the Commission is of the opinion that this provision has encouraged over-capitalization, which in turn has depleted farmers' financial reserves. An additional negative factor is that farmers have been encouraged to mechanise, when employment of labour would have been more in line with the country's objectives".[40)]

Although the Commission (RSA, 1987, p.234) believed that the criticisms applied mainly to the acquisition of plant and machinery it consequently recommended that capital expenditures in farming be written off over three years, at a rate of 50 per cent in the first year, 30 per cent in the second year and 20 per cent in the third year but that quarantining should continue to apply to all assets except plant and machinery. Nearly eight years earlier the Jacobs Committee (RSA, 1979b, pp.210-211) made a similar proposal in respect of plant and machinery which they motivated as follows:

"Die Komitee het ook bedenkinge of die aanpassing waar- volgens boere hulle besteding aan trekkers en landbou- implemente (uitgesonderd besproeiingskemas, boerderygeboue, ens.) in die jaar van aankope geheel van hulle belasbare inkomste kan aftrek, sodat hulle in goeie oesjare hulle inkomstebelastingaanspreeklikheid ooreenkomstig kan verminder, die doel dien wat aanvanklik daarmee beoog is. Die Komitee se standpunt is dat boere hulle landbou- masjinerie (insluitende trekkers en voertuie) se depresiasie oor die produktiewe lewe van die bates vir die berekening van hulle produksiekoste moet gebruik en dat dieselfde beginsel ook vir inkomstebelastingdoeleindes moet geld. Die feit dat boere in die jaar van aankope die koste van trekkers en landboumasjinerie van hulle belasbare inkomste kan aftrek, bring mee dat daar onnodige druk op hulle deur agente of bankinstellings uitgeoefen word om sulke uitgawes aan te gaan. Dikwels word hierdie implemente ook op krediet aangekoop. Alhoewel die belastingvergunning dan benut word, het die boer nietemin paaiementverpligtings in die daaropvolgende paar jare en mag minder gunstige landboutoestande dit vir hom dan moeilik maak om sy

verpligtings na te kom, terwyl hy ook geen afskrywings vir depresiasie teen sy belasbare inkomste kan aftrek nie. <u>Die Komitee beveel gevolglik aan dat die bepaling dat boere hulle landboumasjinerie (insluitende voertuie en trekkers) in die jaar van aankope van hulle belasbare inkomste kan aftrek, ingetrek word en dat die jaarlikse depresiasie vir die doel in aanmerking geneem word</u>" (original emphasis).

Although the <u>White Paper</u> (RSA, 1988, p.16) indicated that Government accepted the Margo Commission's two-fold proposal in respect of farming capital expenditures, it was not very clear whether they accepted the 50:30:20 per cent depreciation provisions for development and improvement expenditure. Government argued that the extension of accelerated depreciation to all plant and machinery would result in a great loss of revenue, could steer additional capital expenditure in the wrong directions and lead to a possible misallocation of resources (RSA, 1988, p.14). The acceptance of the Margo Commission's proposals nevertheless led to the deletion of paragraph 12(1)(j) of the First Schedule and as from 1 July 1988 a new Section 12B extended the 50 : 30 : 20 per cent depreciation provisions to farming equipment only.[41] The result is that, while their cost in a particular year is no longer ring-fenced, it will be deducted over a three-year period to the extent of 50 per cent, 30 per cent and 20 per cent.

The Commission (RSA, 1987, p.234) also recommended that capital expenditures in respect of immovables be allowed for tax purposes only at the time when the expenditures were initially incurred and that no further relief be allowed, except for expenditures relating to repairs to such items. The Commission made this recommendation because double deductions on capital expenditure were often claimed when farms were sold. Because of difficulties in ascertaining the sale price, it was also recommended that receipts from immovable assets should not be recouped.[42] These recommendations were also accepted by Government (RSA, 1988, p.61).

The present tax treatment of capital expenditures can thus be summarised as follows:

(i)   expenditures on items in paragraphs 12(1)(a) to (i) can be written off immediately against taxable farming income, but only

expenditure on items in paragraphs 12(1)(a) and (b) may create or increase an assessed loss;

(ii) machinery, implements, utensils or articles (other than livestock) brought into use on or after 1 July 1988 and used for farming purposes have to be written off over three years as follows: 50 per cent in the year during which the asset is brought into use; 30 per cent in the second year; and 20 per cent in the third year. The allowance can be set off against any income but is not available to lessors of farming machinery, implements, utensils or articles.[43]

IV. Implications of capital allowances

Although farmers have called for tax concessions for capital expenditures since 1919, they were only "rewarded" when paragraph 17 was included in the Income Tax Act of 1941. Two facts have crystallised from consequent developments. The first is how the Steyn Committee could simultaneously recommend the introduction of accrual accounting for inventories and an extension of cash accounting in paragraph 17. The second is the fact that while the Margo Commission proclaimed the need for neutrality, equity and the elimination of tax expenditures, Government did not apply them to all agricultural capital expenditures. Government rather extended the ring-fencing of capital expenditures excluding plant and machinery. In this regard Government fell in with the submissions to the Commission which in the main referred to the disadvantages of the 100 per cent write-off of plant and machinery. However, the disadvantages apply to other capital expenditures with equal force and the Commission's recommended extension of ring-fencing on the long-lived assets in paragraphs 12(1)(a) to (i) seems rather strange because gross investment in these assets as a percentage of total gross farm investment decreased from 44 per cent in 1960 to 30 per cent in 1988. Ring-fencing thus applies to the smaller portion of investment.

Despite the considerable dissatisfaction with the concessionary capital allowance to farmers as conveyed by submissions to the Margo Commission, a search of South African tax literature at the same time reveals an almost "bare cupboard" of research of the effects of the

immediate write off of capital expenditures on agriculture or the
fisc.

One witness to the Margo Commission (Submission No. 613, p.1) referred
to the disadvantage of the immediate write-off as follows:

"Dit gee aanleiding tot 'n kontantvloeiprobleem vir die boer
deurdat hy in goeie jare nie kontant spaar vir die swak jare
nie, maar in kapitale bates belê wat dikwels onproduktief is
in die swak jare. Die volgende voorbeeld illustreer die
punt: In jaar A word 'n netto-wins van sê R100 000 gemaak en
'n belasbare inkomste van R80 000. Die boer koop nou
argumentshalwe 'n tweede of verdere stroper aan vir 'n
bedrag van R75 000 met die uitsluitlike doel om minder
belasting te betaal sonder dat hy werklik 'n addisionele
stroper benodig. (Dit kan ook wees dat hy 'n ou stroper met
'n nuwe vervang sonder dat die oue uitgedien was.) In jaar
B daarna tref droogtetoestande die boer en kan die
addisionele stroper (of nuwe een in die plek van 'n oue wat
nog steeds dienlik was) geen wesenlike bydrae lewer tot die
boer se inkomste nie. Die netto-resultaat van voorgaande is
dat die boer in die goeie jaar weinig of geen
inkomstebelasting betaal nie (tot nadeel van die Staatskas
en ander belastingbetalers) en in die swak jare verwag om
gesubsidieer te word (weer eens tot nadeel van die Staatskas
en ander belastingbetalers.)"(original emphasis)

In an unpublished memorandum on fiscal policy the Inter-
departmental Committee for Policy and Expenditure Priorities for
Agriculture (1989, pp.1-2) stated:

"Die eenmalige afskrywing van kapitaalitems kan onnodige
aankope en die te vroeë vervanging van werktuie en voertuie
sowel as die onnodige aankope van aanteelvee in
voorspoedjare aanmoedig. So byvoorbeeld toon statistieke
ten opsigte van trekkerverkope dat daar 24 862 trekkers
gedurende 1981 verkoop is teenoor die jaarlikse gemiddelde
van 13 631 vir die voorafgaande ses jare... Benewens
oorkapitalisasie lei hierdie tendens weer tot die
verswakking in die langtermyn-likiditeitsposisie van sulke

ondernemers en 'n gebrekkige voorsiening van reserwes in minder gunstige periodes".

The liquidity problem which resulted from the 82 per cent increase in tractor purchases is aptly illustrated by the trend in the annual number of applications for the consolidation of hire-purchase debt which the Land Bank received from 1981 to 1985. During 1981 and 1982 about 90 farmers on average applied for R2 million for hire-purchase debt consolidation. In 1983 the number and amount increased to 2 664 and R106,2 million, respectively (Land Bank, 1985, p.6). Although high interest rates, the Atlantis Diesel Engine project, inflationary expectations and drought conditions contributed to these increases, tax considerations played a major role as well.

A number of studies that utilised optimization models have found considerable surplusses in farm machinery capacity (Brotherton & Groenewald, 1982, pp.22-30; Hancke & Groenewald, 1972, pp.9-16; Van Rooyen, 1973). In an analysis of farming in the Ruens by Viljoen and Groenewald (1977, pp.6-13), they found that successful farmers had less tractive power or investment per hectare. Their rate of machinery replacement was also lower. In Western Transvaal a study by Janse van Rensburg (1985) found that farmers with low profitabilities had markedly higher investments per hectare in plant and machinery than farmers with high profitabilities. A recent analysis of the optimal replacement of tractors found that marginal tax rates have had a negligible effect on the replacement period of tractors (Van Zyl, Langley & Stapelberg, 1989, p.11). No consideration was, however, given to tax concessions.

To illustrate the effects of tax payments on the choice between long-term and short-term investments, assume that the cost of capital (or minimum discount rate of return) is 10 per cent and that there is a choice of two investments: A, a long-term investment in plant costing R10 000 which gives a return of R2 355 per annum over ten years. B, two consecutive short-term investments in plant, the first in year one the second in year six, each costing R5 000 and giving a return of R2 000 per annum over each five year period. The annual return from the long term investment has been chosen in order that its present value before tax equals the present value of the two short term investments before tax. This is illustrated by a calculation

that involves deducting the initial cost of the investment from the net present value (NPV) of the total return.

$$\text{NPV of A} = \text{R2355} \times 6,145 - \text{R10 000}$$
$$= \text{R4470}$$
$$\text{NPV of B} = \text{R}[2000 \times 3,791 - 5000] + [(2000 \times 6,145 - 2000 \times 3,791) - 5000 \times 0,564]$$
$$= \text{R4470}$$

A and B are therefore equally profitable before tax.

If there is an income tax at the rate of 45 per cent and straight line depreciation over the life of the asset is allowed (i.e. depreciation will be R1 000 per annum for both A and B) the following will be the net present value calculations after tax:

$$\text{NPV of A} = \text{R}[2355 - 45\%(2355 - 1000)] \times 6,145 - 10\,000$$
$$= \text{R725}$$
$$\text{NPV of B} = \text{R}[2000 - 45\%(2000 - 1000)] \times 3,791 - 5000 +$$
$$[2000 - 45\%(2000 - 1000) \times 6,145] -$$
$$[2000 - 45\%(2000 - 1000) \times 3,791] -$$
$$5000 \times 0,564$$
$$= \text{R1705}$$

The effect of the tax payment is therefore to make the two short term investments preferable. The effect is the same if depreciation is allowed on a declining balance method at 1,5 times the straight line rate. In these circumstances the NPV for A and B would be R794 and R1834, respectively.

If the cost of the investments can be written off for tax purposes in the year of acquisition as is the case with farming capital expenditures, the following will be the NPV calculations after tax:

$$\text{NPV of A} = \text{R}[2355 - 45\% \times 2355) \times 6,145] +$$
$$= [45\% \times 10\,000] - [10\,000]$$
$$= \text{R2459}$$
$$\text{NPV of B} = \text{R}[(2000 - 45\% \times 2000) \times 3,791] + 45\% \times 5000 -$$
$$5000 + [(2000 - 45\% \times 2000) \times 6,145 - (2000 - 45\% \times$$
$$2000) \times 3,791] + 45\% \times 5000 \times 0,564 - 5000 \times 0,564$$
$$= \text{R2458}$$

Some studies have also illustrated that the combination of expensing and debt-financing creates negative tax rates on expensed investments and that expensing allows growing firms to zero-out their tax liabilities (King & Fullerton, 1984, pp.82, 134, 185, 244; Sargent & Scott, 1986, pp.5-13). In a study by Oldman of Harvard University which was submitted to the Margo Commission it was illustrated, for example, that expensing of $1000 resulted in effective tax rates of nil per cent (100 per cent equity finance), (-)200 per cent (80 per cent debt-financed investment with interest deduction and 10 per cent interest) and (-)300 per cent (80 per cent debt financed investment with 15 per cent interest). Also illustrated was that with expensing leverage and expensing combine to convert an investment with a 6 per cent total rate of return into a 20 per cent after-tax return. This illustrates the policy problem with allowing expensing under an income tax; that is, turning low (or even negative) before-tax returns on unproductive investments that are debt financed into positive after-tax returns. This is why the US Treasury Office of Tax Policy (Margo Commission Research Document 219, p.10) and the Bureau of Agricultural Economics (1985b, p.22) have consistently opposed a hybrid approach that allows both expensing and the full deduction of interest.

Few local studies attempted to ascertain the revenue forgone due to the immediate write-off of capital expenditures. Heyns (1984, p.84) estimated the revenue forgone for 1983/84 to be R117 million. In a research project for the Margo Commission, Du Plessis (1985, pp.6-7) estimated that the loss of taxable income due to the carry over of excess capital expenditures amounted to R17 million for the 1981-84 period. This figure was, however, calculated by applying an arbitrary ratio to actual tax revenue and consequently is not very useful. If the Australian ratio of tax losses associated with the averaging to capital expenditure provisions is applied to the saving from averaging as calculated by Du Plessis, the saving due to capital expenditures would have amounted to R110 million. Using a present value approach, Smit (1986) estimated the impact of different depreciation methods on the taxable income of mining, agriculture and trade and industry. Smit found that the use of expensing (in lieu of normal wear and tear allowances) benefitted agriculture on average by R547 million between 1980 and 1985. Revenue forgone would thus have amounted to R246

million per annum over the same period if a tax rate of 45 per cent
had applied.

V.   Alternatives

Whatever the analytical approach taken, the dominant issue in recent
empirical studies of fixed investment has been the importance of
fiscal incentives. Excellent surveys of the literature on the impact
of tax policy on business investment have been provided by Bosworth
(1984), Chirinko (1986) and Corker, Evans & Kenward (1989). These
surveys note that overall agreement does not appear to exist on the
role of tax policy: some studies ascribe very little influence to tax
variables in affecting the course of fixed investment, whereas others
indicate a more substantial role. To the extent that consensus
exists, it appears to be that the predominant determinants of fixed
investment are major macro-economic variables, such as the rate of
growth of output, the level of interest rates, and the state of
inflationary expectations (Corker, Evans & Kenward, 1989, pp.42-43).
Tax policy, although found generally significant, appears to play a
subsidiary role.

Because some tax provisions are unique to agriculture, a number of
studies have focused on the "micro" effect, that is, the consequences
of tax concessions to certain farming sectors or individual farmers.
The overview above has illustrated that the tax treatment of capital
expenditures in agriculture varies from country to country and that
special income tax rules such as accelerated depreciation, income tax
credits and investment allowances have been extensively used and
exploited both by farmers and non-farm investors with the result that
long term agricultural returns and the structure of agriculture have
been affected. In addition, the research survey suggests that these
tax preferences, as well as capital gains provisions and interest
deductibility broadly influence resource allocation, production
methods, quantity produced, income distribution, conservation
practices and the size and number of farms. The provisions are often
also related in part to financial stress in agriculture.

Recent income tax law changes in several countries have been directed
specifically toward the negative responses to and revenue losses
associated with the tax concessions and to ensure that economic

conditions would force investment decisions to be based on commercial viability rather than on taxation advantages. In particular, the underlying philosophy of tax policy with regard to investment became substantially less interventionist. Tax codes were to be as neutral as possible, rather than actively encouraging investment. It was better for investment decisions to be made with reduced attention to tax consequences. Such a result could be achieved by eliminating tax concessions and at the same time lowering tax rates. Recently the following changes have impacted on agriculture:

(i)   The repeal of investment tax credits and deductions for land clearing or development expenses, the pooling of capital assets for depreciation purposes and increased recovery periods for property used in agriculture;

(ii)   the capitalisation of preproductive period expenses;

(iii)   more stringent recapture and hobby loss rules.

Several countries, particularly the USA, have introduced fairly complicated measures to "recoup" some of the advantages flowing from the use of farming tax concessions. These measures which include "at risk" rules, limits on interest deductions, passive loss restrictions and minimum taxes are discussed in more detail in Chapters to follow. All the changes referred to above are expected to go a long way towards removing investment distortions from the agricultural sector and are regarded as being more neutral, simple to operate and essentially fair. Only New Zealand seems to have satisfied the criteria of neutrality, simplicity and fairness.

In proposing reforms of the tax treatment of capital or development expenditures a number of conflicting considerations usually have to be balanced. If the tax system has to encourage productive investment it should not make the use of capital so cheap that the resource is used indiscriminately without proper regard to the return it will yield without these tax considerations. A system of generous allowances usually creates variations in effective tax rates and as a result, often encourages tax sheltering which in turn requires counter-measures. On the other hand strict adherence to simplicity, may clash with neutrality and contribute to fundamental shifts in behaviour.

From the foregoing it would appear that, besides continuing with the immediate write-off, the following allowances require consideration:

(i)   Economic depreciation by the present value method (ED(PV)) allows taxpayers to deduct the cost of the asset in the year it is acquired instead of spreading it out over future years; the amount deducted would equal the sum of all future depreciation allowances, discounted to reflect the fact that deductions are worth more now than in the future. Instead of taking deductions each year of the life of an asset, all deductions would be consolidated into a write-off in the first year. For example, an asset with a value of R100 and a life of five years will qualify for a first year write-off of about R91 if the rate of discount is 5 per cent.

(ii) Depreciation over the useful life of an asset, indexed for inflation as proposed by Treasury I (USA, 1984b). The fact that the Tax Reform Act of 1986 kept a modified accelerated depreciation system without indexation illustrates that any attempt to accommodate inflation-indexed economic depreciation is fraught with technical difficulties. This is demonstrated by the absence to date of an internationally generally acceptable accounting practice catering for this phenomenon. Any proposal can only be considered on an **ad hoc** basis and would require frequent adjustments to neutralise the impact on the nominal tax rate. The introduction of inflation indexation would necessitate the inclusion of not only long-term capital assets, but also of current assets, i.e. inventories. Furthermore, if inflation indexation is applied on the asset side of the balance sheet, the liabilities side can obviously not be ignored. The consequences of introducing inflation indexation on the macro economic system is that inflation will become institu-tionalised. Authorities should fight inflation and not encourage it. To the extent inflation is present it should be addressed by the corporate sector through its pricing system and its consequent allocation by the market mechanism. The accommodation of inflation indexation diminishes the scope for a reduction of the nominal tax rate thereby entrenching the international perception of South Africa being a high tax country.

(iii) A system which entails the pooling of "look-alike" assets into asset classes which are depreciated at a class rate on a declining balance (DB). Such schemes are in operation in Canada and New Zealand and have been proposed in Zimbabwe.[44]

The rival methods of depreciation, that is, the 100 per cent write-off (called expensing for discussion purposes), economic depreciation and DB depreciation on pooled assets (DBP) can be compared according to a number of criteria. Brief notes accompany the comparisons. Only ED(PV) is included as the strongest contender of economic depreciation methods.

(i)   <u>Simplicity</u> is one of the most important criteria. A distinction needs to be drawn between methods that are <u>conceptually</u> simple and those that are simple <u>in practice</u>. Expensing and DBP is simple in both senses. Conceptually ED(PV) is not simple because it requires the determination of a "natural" rate of discount; but, in practice, if tables for assets of varying lives were published, it too would be simple to operate.

(ii)   <u>Sensitivity to estimated life of assets</u>. The importance attached to this criterion will depend on how well one believes economic lives of assets can be estimated in an era of technological change. Expensing fails the test; the other two methods pass.

(iii)   <u>Neutrality to form of finance</u>. A growing firm allowed to "expense" can achieve a zero tax-rate if its investment is equity-financed, and a negative tax-rate if it is debt- financed in a regime in which interest is tax-deductible. The same can happen under DBP if actual economic lives prove to be longer than estimated. It can, under these circumstances, also happen under ED(PB) if the firm is able to borrow at a real rate of interest differing from the assumed "natural" rate.

(iv)   <u>Neutrality to inflation</u>. DBP methods of depreciation would have to be specifically adjusted for inflation. In practice this has not been done, mainly because DB rates were seen to accommodate inflation. Both expensing and ED(PV) are neutral.

(v) <u>Substitution of capital equipment for labour</u>. Expensing encourages substitution of capital for labour, which is hardly desirable in South African circumstances. DBP should be neutral if there is no inflation. For ED(PV) to be neutral, not only must these estimates be correct, but the real market rate of interest must correspond to the assumed "natural rate".

(vi) <u>Conformity with accounting profit</u> is important only if one believes that the latter is a good index of taxable capacity. Here DBP obviously gives the best conformity; expensing gives poor conformity (for asset lives longer than one year); and ED(PV) gives poor conformity unless the market rate of interest is close to the assumed "natural" rate and one is prepared to accept the discounting procedure.

(vii) <u>Effect on size of tax base</u>. To simplify comparison, a <u>5-year asset</u> is taken. It is necessary to distinguish three cases : rising, constant and falling investment. The actual figures obviously depend on the assumed rates of rise and fall, but a clear enough picture emerges if we take 4 per cent per annum as an illustration.

	Investment Rising	Investment Constant	Investment Falling
4 years ago	85,5	100	117
3 years ago	89,0	100	112
2 years ago	92,5	100	108
1 year ago	96,0	100	104
Current year	100	100	100
Total	463	500	541

. <u>Rising Investment</u>. As investment is still 100 in the current years, but has been rising, DBP would authorise write-offs of 79 and 63 respectively. Expensing would permit the write-off of the full 100. As before, the ED(PV) write-off would be 91.

. <u>Constant Investment</u>. If investment has been 100 a year for the past 5 years, expensing would allow a write-off of 100 in the current year. On the basis of a 4 per cent "natural" rate of discount, ED(PV) would allow a write-off of only 91, thus giving a slightly larger tax base. DBP would allow

write-offs of 83 (30 per cent DB) and 67 (20 per cent DB) thus giving an even larger tax base.

. <u>Falling Investment</u>. As investment is once again 100 in the current year, this would be the write-off permitted under expensing. The ED(PV) write-off remains 91, but DBP would now permit 88 and 72.

Summarizing the figures, for a 5-year asset and with a 4 per cent "natural" rate of discount and (where applicable) a 4 per cent per annum growth or decline in investment, the write-offs permitted would be:

Method of write-off	Investment Growing	Investment Constant	Investment Falling
ED(PV)	91	91	91
Expensing	100	100	100
DBP - 30% DB	79	83	88
- 20% DB	63	67	72

The comparison above clearly illustrates that no one method emerges a clear winner. Although the ED(PV) method has been proposed in the USA (Auerbach & Jorgenson, 1980, pp.113-118) and in Sweden (Federation of Swedish Industries, 1988, pp.88-93) it has never been introduced, mainly because the use of this method requires estimates of the economic life and agreement on a suitable rate of discount to use in calculating present values. Economic lives prescribed by Inland Revenue or those used by the Reserve Bank for national accounts purposes could be utilised, but the latter would not satisfy the taxpaying community.

Although expensing satisfies the important criterion of simplicity, there appears a compelling body of evidence that all forms of accelerated depreciation have had adverse consequences, due to farmers (and non-farmers) being encouraged to incur expenditure to avoid tax. Interest deductibility and debt financing provide an additional stimulus for misuse. In addition, expensing for one particular industry inevitably requires anti-sheltering or quarantining provisions thereby adding further complexity to the tax system. Understandably, write-off rates and rules are an important concern to both farmers and to policy makers and any changes to the status quo need careful consideration. More so if one keeps in mind that total

farm investment (qualifying for a 100 per cent first year write-off) as a percentage of agriculture's contribution to GDP averaged 18 per cent during the 1980's.

It is believed that a pooling method of depreciation which draws on characteristics of schemes in operation or proposed in Canada, New Zealand and Zimbabwe would satisfy many of the criteria enunciated above.

For Canadian farmers there are three major classes:

(i)   buildings - 10 per cent declining balance

(ii)   tillage equipment - 20 per cent declining balance

(iii) tractors and combines - 30 per cent declining balance.

In New Zealand there are only two classes that can be depreciated on either a 10 per cent or 5 per cent declining balance basis. The New Zealand classes can easily be applied to paragraph 12(1) items so that the pools would be as follows:

(i)   Pool A: items in paragraphs 12(1) (a), (b), (c), (d) and (h).

(ii)   Pool B: items in paragraphs 12(1) (e), (f), (g) and (i) as well as items that were previously in paragraph 12(1)(j).

Depreciation allowances on a declining balance basis would obviously lengthen the time period over which the items are presently written off, but in an indirect way it will adequately compensate for the effects of inflation. For instance, with depreciation at 30 per cent (20 per cent) on a declining balance basis, 66 per cent (50 per cent) of the value of an asset will be written off after three years (five years). Inflation after then has a minimal impact.

A structure of depreciation with just one, two or three categories of assets on a declining balance basis would enable substantial simplification. The purchase of a new piece of equipment or expenses on certain land developments will simply increase the size of the pool to which it belongs. As the depreciation rate is the same for all

kinds of assets within a pool, only one calculation will have to be made to find that pool's depreciation allowance. Furthermore, with all allowances on a declining balance basis, the date of purchase of the different assets becomes irrelevant. The allowance is simply 10 per cent (or 30 per cent) of the written down size of the pool, irrespective of when the assets were purchased. In addition, once such a system is instituted, the sale of a capital asset will reduce the size of the appropriate pool by the full amount of the sale price.

Three choices present themselves for consideration, namely to follow the New Zealand approach of having Pool A and Pool B to which declining balance rates of 10 per cent and 30 per cent, respectively, apply; to have only one pool to which a declining balance rate of 30 per cent applies; or to have a pool for capital assets excluding plant and machinery to which a DB rate of 10 per cent applies while the present 50:30:20 regime continues to apply to farming plant and machinery. The advantage of the latter system is that it can presently easily be applied to capital assets in all industries, thereby introducing tax neutrality from the word go.[45] However, this form of accelerated depreciation, which applies to nearly 70 per cent of the gross fixed investment in agriculture, continues to offer excellent tax sheltering and deferral opportunities. Obviously pooling ignores the fact that different capital assets within a pool have different economic lives, but it is more sensitive to the estimated lives of assets, would simplify tax provisions considerably, facilitate the transition from expensing and reduce subsequent changes in the price level. It is consequently proposed that:

(i)   as soon as practically feasible all farming capital assets excluding plant and machinery and under certain circumstances items in paragraph 12(1)(a) and (b) be pooled into one asset class which is depreciated at a rate of 10 per cent per annum on a declining balance basis. A rate of 10 per cent is recommended since proceeds from such assets are normally not recouped;

(ii) plant and machinery be included in a pool which is depreciated at a rate of 30 per cent per annum on a declining balance basis;

(iii) the purchase of new capital assets or expenses on land improvements simply increase the value of the pool while the

sale of capital assets reduce the size of the pool by the full amount of the sale price. It could be considered to place a cap on the amount added to the pool for domestic dwellings for employees in order to counter misuse.

(iv) the total proceeds on all moveable capital assets which reduce the value of the pool be recouped, subject to the proviso that the recoupment be limited to the original price of the particular asset.

(v) expenditures for the eradication of noxious plants and the prevention of soil erosion should alternatively be fully deductible only if they relate to activities which are consistent with a conservation plan approved by the Department of Agriculture.The total deduction should be limited to 10 per cent of gross farming income. Unused deductions should qualify for a carry-forward.

The pooling method of depreciation satisfies the criterion of simplicity, is more sensitive to the estimated life of capital assets, presents less opportunity for tax deferral and sheltering and enhances the income tax base.[46] It would also be opportune to switch now to such a method of depreciation, particularly as the transition would not be too traumatic because many farmers are in a tax loss position, and would suffer no or little hardship following the transition. The proposal for a pooling method of depreciation is also aimed at improving tax neutrality between agriculture and other sectors and more efficient use of resources.

VI. Forestry expenditures

In South Africa the cost of establishing and maintaining plantations is allowed as a deduction. If a plantation is acquired by purchase, the purchase price may be deducted from the gross income of that particular plantation each year until the whole price is deducted (Silke, Divaris & Stein, 1982, pp.1085-1086). Similar provisions have applied to forestry land development expenditures in a number of overseas countries, but the gross mismatching of expenses and receipts has resulted in a high incidence of tax sheltering and tax farming (NZ, 1986, pp.84-106; Windish, 1987, pp.237-241).

Because of the mismatching of expenses and receipts all expenditure on woodlands in the United Kingdom became non-deductible while receipts from the sale of trees or felled timber is no longer liable to tax (Butterworths UK Tax Guide, 1988, pp.365-366). In New Zealand, where forestry is not regarded as farming, development expenditure, together with the costs of growing and maintaining a forest, have been deductible in the year incurred. However, it was argued in the Consultative Document (NZ, 1986, p.84) that this tax treatment has diverted investment from other areas of the economy which might have a higher pre-tax rate of return to the economy as a whole, but where immediate tax deductions are not allowed. As a result of recommendations in the Document a new policy was adopted for forestry to distinguish between capital and current expenditure and to treat each appropriately (King, 1987, pp.36-39). Land clearing and improvement expenditure have to be capitalised and depreciated. Foresters have to debit these costs and the full cost of seedlings, planting, blanking, pruning and thinning to a cost of forest account. These costs are not deductible until forestry revenue is generated. To simplify the system for farmers whose principal business is farming, immediate deductibility of up to $7500 per annum is allowed. Costs such as interest, rent, insurance, administrative overheads, spraying, pest control, fertiliser application and similar expenses may be claimed in the year incurred.

In the United States up to $10 000 of reforestation expenses incurred in a single tax year can be deducted over a period of 84 months rather than being capitalised. A 10 per cent tax credit is also available on reforestation expenses that are eligible for the 84-month write-off, producing a maximum tax credit of $1000 if the full $10 000 is spent during a tax year (Windish, 1987, p.241). Prior to the Tax Reform Act of 1986 management expenses (that is, ordinary and necessary costs associated with the management of timber property) were fully deductible each year as incurred against income from any source by all categories of taxpayers, provided they are engaged in the timber-growing activity for profit (Condrell, Tierney & Siegel, 1987, p.414). The Tax Reform Act of 1986 introduced passive loss rules which imposed a number of limitations on deductions. If timber is held as part of a business in which the taxpayer materially participates,[47] all deductions relating to the timber is fully deductible against income from any source. If timber is held for

investment purposes, management costs are fully deductible. However, non-corporate taxpayers may only claim deductions if they exceed 2 per cent of the taxpayer's adjusted gross income. And finally, if timber is held by a taxpayer as part of a business in which he does not materially participate, losses cannot be offset against active income (salaries and wages) or "portfolio income" (dividends, interest and royalties) (Condrell, Tierney & Siegel, 1987, pp.415-424).

The changes referred to above all reflect a move to apply more uniform capitalisation rules to one of the so-called "natural-deferral" industries and also to reduce the dominance of tax shelter investors (USA, 1984b, p.128). The present provisions in South Africa offer excellent tax sheltering opportunities and Inland Revenue officials have recently indicated that the great demand for timber as well as the mismatching opportunities have in fact led to many top rate South African investors becoming involved in forestry. As in overseas countries the present system cannot be justified and the time has come to change the provisions so that normal income tax rules apply to forestry. It is consequently proposed that expenditures specified in paragraph 15 of the First Schedule should be capitalised in a forestry account and be deductible only when income is derived from forestry. Costs in felling or transporting timber should be deductible in the year incurred.

There is the perception that the application of these tax rules may be unduly harsh. The opposite is true. This is because of the benefits to forestry of a tax system which levies tax only when income is realised. It can be shown that the normal tax rules tend to favour forestry over investment in shorter-lived inventories, irrespective of the inflation rate. Calculations by the New Zealand Treasury, for example, show that with certain assumptions and in contrast to general perception, the longer the life of a forest, the lower the effective tax rate (NZ, 1986, pp.98-103). This is also the case when inflation is introduced. The recommended forestry account approach thus not only enhances neutrality, but will largely nip tax sheltering in the bud.

G.   CONCLUSION

In this Chapter it was shown that capital expenditures in agriculture have for many years in several countries enjoyed the benefit of accelerated depreciation, investment tax credits and investment allowances. The concessions have contributed, to varying degrees, to overdepreciation,[48] tax deferral, changing production patterns, financial stress and responses in conservation practices. In addition, revenue costs associated with the extension of concessions, have compelled most countries to amalgamate, scrap or modify concessions with the express aim of harmonising the tax regime for agricultural sectors with regimes applicable in other sectors to reduce distortions and tax sheltering.

In South Africa the continued use of expensing has encouraged overinvestment in machines, equipment and buildings, particularly in years of high taxable income. Recently it has been demonstrated in many parts of South Africa that earlier decisions based solely on tax considerations can adversely affect farm viability in later years. In addition, overdepreciation can alter competitive relationships between various agricultural sectors, if these sectors are based on differing input mixes. By adopting more realistic depreciation allowances, the tax system would ensure a more efficient use of resources, improve tax neutrality and go a long way towards removing complex measures to counter tax sheltering or to distinguish between **bona-fide** and hobby farmers.

FOOTNOTES

1. In some countries the terms capital and development expenditures are used interchangeably whilst in others capital expenditures refer to machinery and equipment and development expenditures refer to land development or structural improvement expenditures.

2. The Australian Draft White Paper describes economic depreciation as simply the year-on-year change in the asset's market value, or value to the user in its particular use" (Australia, 1985a, p.219).

3. The Bureau of Agricultural Economics (1985a, pp.17-19) found that for just under a quarter of Australian farmers both a credit or a concessionary deduction would have equal value. About two-thirds would have lower net costs with tax credits, while producers with marginal tax rates in excess of 30 per cent would face higher net costs.

4. See Coombs Task Force (Australia, 1973a), Mathews Committee (Australia, 1975b), Jackson Committee (Australia, 1975c), Crawford Study Group (Australia, 1979b), Commonwealth/State Joint Study Group on Raw Materials Processing (Australia, 1981a) and Industries Assistance Commission (1982).

5. The allowances that were available included regional, high priority activity, farming and fishing investment allowances.

6. Besides the general investment tax credits of 5 and 7 per cent, special rates exist for research and development, manufacturing in specified areas, high-cost exploration as well as the Atlantic region and Cape Breton.

7. A special rule will permit a full offset of federal tax for Canadian controlled priSubmissione corporations on their business income eligible for the small business deduction.

8. A single purpose livestock structure is any enclosure or structure specifically designed, constructed, and used for: (i) housing, raising, and feeding a particular type of livestock and its produce, and (ii), housing the equipment, including any replacements, necessary

for the housing, raising, and feeding of this livestock. A single purpose horticultural structure is: (i) a greenhouse specifically designed, constructed, and used for the commercial production of plants, or (ii) a structure specifically designed, constructed, and used for the commercial production of mushrooms (USA, 1984a, p.28).

9.   At one stage the amount of the investment that was eligible for the credit depended upon the useful life of such property (Hardesty, 1984, p.8).

10. The repeal of the income tax credit was also suggested in Treasury I, the Bradley-Gephardt plan, Kemp-Kasten plan, the Tax Reform Bills of 1985 and 1986. See Conway, Durst Hrubovcak & LeBlanc (1988, pp.8-12)

11. Transition property is property placed in service after 1985 if the taxpayer had a written, binding contract to acquire, construct or reconstruct the property. The taxpayer must also place the property in service by a specified date.

12. A qualified farmer is any taxpayer whose gross income was at least 50 per cent from farming for the three-year tax period before the year of the election.

13. The loading was expected to encourage modernisation, to revitalise industry and to strenghten Australia's competitive position internationally (Australia, 1985a, pp.220-221).

14. According to Downer (1976, p.15) the provisions were regularly criticised for enabling wealthy landowners to reduce their income tax liabilities.

15. The Asprey Committee (Australia, 1975a, p.285) found the ten year write off "... a reasonable compromise in providing allowances appropriate to the determination of true net income".

16. The Income Tax Act provides that a taxpayer has to deduct, as CCA for the year, the unclaimed balance in a particular capital cost class where he owns no assets of that class at the end of a taxation year. This deduction is commonly referred to as a terminal loss.

17. According to the suggested "put-in-use" rule "taxpayers may not start claiming current cost allowances <u>and</u> income tax credits will not be earned until the earlier of the year asset is put in use and the year in which the construction of an asset by or on behalf of the taxpayer is completed and it is thus ready for use" (Canada, 1987b, p.108). A major consideration for this proposal was to ensure better matching of income and expenses. The <u>White Paper</u> (Canada, 1987b, p.108) argued that "Under current rules, tax depreciation begins in the year in which an asset is acquired by a taxpayer. In many cases the current rules result in the recognition of expenses considerably in advance of the associated revenues. This mismatching of revenues and expenses is exacerbated where the assets are not placed in service for an extended period of time".

18. Conveyed to the author by Mr W.G. Fulton, Chief Agricultural Officer, Canadian Imperial Bank of Commerce, Toronto, Canada. He also reported that the taxable portion of capital gains was increased to two-thirds and that the put-in-use rules that would have prohibited the taking of CCA on equipment until it was actually used was also dropped.

19. For "politically expedient" reasons a portion of the proceeds received on the sale of most agricultural quotas acquired before 1972 were excluded from taxable income (Butterworths, 1974, pp.24.53-24.54).

20. It should be noted that recapture does not apply where assets are depreciated under the straight-line method. As noted earlier this would only affect assets in classes 1, 3 and 6.

21. See footnote 16 above.

22. This section is based on information obtained from Butterworths (1985).

23. These include factors such as high speed, greater than normal usage, normal obsolescence and use with corrosive or abrasive material (Butterworths, 1985, p.412).

24. At one stage the period over which the allowance could be deducted varied according to the cost price of the asset. For assets costing up to NZ$2000 the full 20 per cent was allowed in the year the asset

was first used. For assets costing between NZ$2001 and NZ$4000 the allowance was 10 per cent in the first year and 10 per cent in the second year. For assets costing more than NZ$4000 the allowance could be spread over five or four years at the taxpayer's option.

25. Qualifying property includes machinery and equipment, livestock (excluding horses) and single purpose livestock and horticultural structures.

26. "Old" Sections 126 and 127 of the Income Tax Act 1976 and Section 119D of the Land and Income Tax Act 1954 allowed the current year deductions. The expenditures were divided into five groups: Group A embraced various types of land clearance and preparation expenditure; Group B embraced expenditures for drainage, roads, water supply, fences and aircraft landing strips; Group C included expenditures for the erection of electric power lines or telephone lines; Group D comprised of cost of constructing feeding platforms, feeding yards, plunge sheep dips or self feeding silage pits; and Group E included cost of constructing supporting frames for growing crops.

27. In its submission to the Brash Committee (Mapp, 1986, p.335), the New Zealand Society of Accountants, for example, suggested that the Committee's list of items be divided into four categories, namely land improvements, repairs and maintenance, building "look alikes" and plant "look alikes". It was suggested that the items that would fall into these categories be as follows:

Land improvements   -   permanent tracks and roads

Repairs and maintenance   -   scrub clearance, weed and pest control
                                   and fertiliser

Building "look-alikes"   -   dams, wells and water works

Plant "look-alikes"   -   fencing, growing frames, yards and stocks

28. A 10-year write off for vines and trees has been recommended as far back as 1967 by the Ross Committee (NZ, 1967, pp.305-306). Farmers had to capitalise the actual cost of trees and the planting of them to the land account and no depreciation allowance was permitted. The

Committee found it unreasonable that orchard trees were not depreciated and proposed that the Department of Agriculture ascertain the average useful life of orchard trees and to prescribe a suitable basis and rates of depreciation.

29. Hasselbrook & Lanner (1985, p.477) suggested that "A comprehensive soil conservation plan must include changes in tax laws. Otherwise governmental efforts to curb erosion will be at cross-purposes with a tax system that encourages just the reverse".

30. Section 263A(d)(1) of the TRA'86, for example, requires the capitalisation of pre-productive expenses of products having a pre-productive period of more than two years. Under a special annual election provision farmers may deduct pre-productive expenses currently if they use straight-line depreciation on all farm assets.

31. Dean (1956, pp.79-89) also supported this "cash-flow" depreciation proposal.

32. Long-lived capital equipment represents about 50 per cent of investment in depreciable farm assets. In South Africa long-lived capital investment represents about 33,5 per cent of total agricultural investment.

33. Negative net investment means capital expenditures on new machinery do not offset depreciation.

34. Canada published its first tax expenditure account in December 1979 as part of the budget package. See Canada (1979).

35. Section 9 of the Income Tax (Consolidated) Act, 1917 allowed farmers to use a cash method of accounting for tax purposes.

36. The value of livestock held at the end of a tax year could be reduced by a mortality allowance which was deductible from the opening stock of the next tax year. The allowance varied between 7 and 15 per cent (The Taxpayer, Vol.5, No.6, June 1956, p.126). See also Chapter 5.

37. The Steyn Committee (RSA, 1951, p.77) referred to a case in which a private company carrying on farming operations claimed under the then

existing provisions, a deduction of £20 000 representing the cost of a residence for its farm manager, who was also its managing director and sole beneficial shareholder.

38. An erstwhile Commissioner of Inland Revenue reported that "Die oorgaan van 'n stelsel van jaarlikse afskrywing tot een van aftrekking in jaar van aankoop het ook sy oorsprong in die volgehoue druk vir die toelating van 'n investeringstoelae vir boere wat in alle billikheid moeilik weerstaan kan word aangesien die rede vir die toestaan van sodanige toelae eweseer op landbou-produksie van toepassing is. Weer eens, gebaseer op die studie van prof Hamman met betrekking tot vervangingswaarde, is oorgegaan tot aftrekking in die jaar van aankoop en is beide primêre produsente op dieselfde grondslag geplaas. Die kontantvloei probleme wat eie aan boere is, is ook in aanmerking geneem" (Margo Commission Research Document No. 218, p.7).

39. See Margo Commission submissions Nos. 254, 409, 460, 587, 611, 612 and 613.

40. These remarks concur with those made in the New Zealand Consultative Document (NZ, 1986, pp.3-4).

41. The 50:30:20 allowance may also be claimed on plant and machinery by manufacturers, agricultural co-operatives and hotel-keepers (Divaris & Stein, 1988, pp.A44-A51).

42. If one assumes that 15 per cent of the amount granted to farmers under mortgage loans during 1988 represents the payment for improvements, farmers would have received taxable income of R70 million. However, under normal business transactions recoupments are normally balanced by deductions and the fisc would probably not lose any revenue.

43. In general the allowance will only be available to lessors where the lease in question is an operating lease or the lessee derives "income" from carrying on his trade and the lease is for at least five years or the useful life of the asset where this is less.

44. See Commerce Clearing House (1989, pp.203-218), King (1987, p.35) and Income Tax Reporter (Vol.27, Part 1, 15 February 1988, pp.28-29).

45. This approach also addresses the assessment problems associated with farming activities which are combined with manufacturing activities - an issue which the Margo Commission regarded as being adequately addressed by the 50:30:20 depreciation regime.

46. The effective tax rate of 10 per cent under the present provisions (see Table 4.3), for example, increases to 32 per cent if depreciation is calculated on a 30 per cent diminishing value basis and the tax rate is decreased to 40 per cent.

47. US law provides that to be materially participating, the taxpayer must be involved with the property on a basis that is regular, continuous and substantial (Condrell, Tierney & Siegel, 1987, p.426). The authors list 19 factors which may be useful in showing material participation.

48. Schoney and Rinholm (1989, p.47) defines overdepreciation as a situation when the fair market value of a capital asset exceeds the undepreciated value of the asset. They found that approximately 88 per cent of Saskatchewan farmers have incurred potential contingent tax liabilities of approximately $79 162 through overdepreciation of farm machines and buildings (p.59).

CHAPTER 5

LIVESTOCK: ACCOUNTING AND VALUATION OPTIONS
FOR INCOME TAX PURPOSES

A.   INTRODUCTION

A review of the literature reveals that the tax treatment of livestock is a topical issue in many countries. It has long been recognised as probably one of the most complex of problems facing tax authorities as well as livestock farmers. In broad terms it is a reflection of different accounting methods, the diverse types of valuation methods and livestock values which are volatile and often unpredictable. It is also a reflection of biological growth, the physical environment and the timing and manner of realisation (South African Institute of Chartered Accountants, 1988, par.12). The objective of this chapter is to examine these and related issues in selected countries including South Africa in some detail and to set out the implications of different taxation systems for livestock.

In section B certain general comments are made with respect to livestock taxation. This is followed by particulars and implications of taxation systems for livestock in Australia, Canada, New Zealand, United Kingdom and the United States. Special emphasis is placed on recent transitional arrangements in Canada and New Zealand. The aspects selected for discussion are accounting and valuation methods, the capital asset approach, casualties and the bunching of income, and tax farming. However, since the latter two subjects are discussed in greater detail in chapters 6 and 7 respectively, only brief comments are made in this regard. Section D contains details of the taxation of livestock in South Africa over quite a number of years. Emphasis is also placed on deliberations and recommendations of the Margo Commission (RSA, 1986). The chapter is concluded with a new suggestion for the taxation of livestock.

B.   GENERAL COMMENTS

The generally accepted accounting practice is that stock should be valued at historical cost or net realisable value, whichever is the lowest. This basis of stock valuation is commonly applied in the non-agricultural industries for purposes of calculating profits or the disclosure of financial statements of enterprises. Historical costs reflect the cost of acquiring the stock as well as further cost incurred in getting the stock to its present condition or location. Net realisable value is the estimated selling price which stock would realise in the normal course of business less any selling cost.

Systems of valuing livestock for tax purposes vary from country to country and no wholly satisfactory system appears to have been evolved. The usual basis of valuation is cost. Normally, this is the purchase price plus breeding and/or rearing costs. As an alternative some taxation systems allow farmers to use market value or replacement price. To simplify income measurement several countries have introduced imputed or "standard" values for livestock, particularly those that have been bred on the farm. Occasionally farmers may ignore livestock inventories or are given the option to value livestock at nil standard values which, in effect resembles a cash method of computing income. On the other hand high priced or pedigree livestock are sometimes regarded as more akin to plant and are amortised over a number of years. These animals are often identified as costing a multiple of a specified market value.

In an edited version of The Wealth of Nations (1925, vol.1, p.264), fixed capital is described as that which an owner turns to profit by keeping it in his possession, and circulating capital as that from which he makes a profit, by parting with it, and letting it change masters. Livestock can fall into either category: they may be "retained" in the form of a pedigree herd to produce milk, wool or offspring (capital asset approach); or they may be reared and sold, in which case they may be said to "circulate" (trading stock approach). The general rule in most countries is that livestock are treated as trading stock, the effect being that sales revenue from livestock is taxable, purchase costs tax deductible and inventory changes either taxable or deductible. The "trading stock" approach treats all animals as trading stock regardless of whether they are

used primarily for the production of revenue generating milk, wool, progeny, or used as fattening stock for meat production, or employed in the ongoing replacement (maintenance) of the herd/flock itself.

The "capital asset" approach likens the herd or flock to a machine used to produce milk or wool as well as surplus progeny which are sold off to create annual revenue. Under this approach it is not normally envisaged that depreciation would be charged as a cost, but rather that the herd/flock is continuously maintained by retaining sufficient progeny to replace those animals that die or are sold off because they have reached the end of their effective productive life. Problems of capital value changes and income recognition occur when the overall size of the herd/flock is significantly altered.

C.   COUNTRY EXPERIENCES : APPROACHES AND IMPLICATIONS

I.   Accounting methods

In the countries selected for consideration livestock farmers generally are required to use an accrual method of accounting. Accrual-basis farmers report income when it is earned, claim deductions when expenses are incurred, and as nearly as possible recognise taxable income only for the taxable period to which it relates. Canadian and United States farmers are also entitled to compute their income in any taxation year on what is referred to as a "cash basis". Cash-basis farmers, in general, report income when received, claim deductions when paid and disregard inventories. The following two sections highlight the characteristics and effects of this particular accounting method as it applies to livestock farmers in Canada and the USA.

1.   Canada

(a)   Cash and accrual methods

Under the Canadian cash method, income is computed simply by deducting cash disbursements from cash receipts. Until 1972 the use of the cash basis precluded any consideration of inventories in determining income. However, an inventory option[1] was introduced effective 1 January 1972 allowing a farmer who uses the cash basis to increase

income for the year by any amount not exceeding the market value of his livestock inventory, excluding his basic herd, at the end of the year. This amount is deducted from income in the succeeding year. The effect of using the inventory option is to allow farmers who are building up their herds to avoid the seven year time limit in carrying forward losses (Canada, 1985c, p.76; Johnson & Scarth, 1976, p.28). The provision, in conjunction with cash accounting and loss transfer provisions, also allows farmers considerable flexibility in averaging good years with bad years.

Over the years the cash method of computing income has attracted criticism from several quarters. The Carter Commission (Canada, 1966, vol.4, p.441) offerred three "compelling" reasons why farm income had to be computed on an accrual basis. Firstly, the effect of cash basis accounting is to allow those reporting taxable income an extended deferral of tax which, in relative terms, is equivalent to an interest-free unsecured loan from Government. Johnson and Scarth (1976, pp.33 & 48) were of the opinion that "the magnitude of the tax savings due to the utilization of the cash method of computing income ..... is likely to be relatively small .... The savings are greater if sales increase annually rather than if they remain at a given level or decline, because there will be a gain in deferring the tax on the additional sales each year." This view was contradicted by the Department of Finance (Canada, 1985c, p.75) which stated that "Although no estimates are currently available, this item could be substantial in size." Secondly, while these rules were introduced to benefit full-time farmers, they have also provided a significant tax advantage to part-time farmers with high off-farm income because a person with other sources of income could invest in livestock and deduct the cost against his other income. Thus, notwithstanding the fact that the livestock is still on hand, for tax purposes a farm loss is created (Canada, 1985a, p.16). Thirdly, special relieving measures are often required to offset "lumpy" incomes created by the cash method of accounting. These factors persuaded the Carter Commission to recommend that income from farming should be reported on an accrual rather than a cash basis except in the case of an individual whose gross revenue from farming is less than a specified sum, say $10 000 (Canada, 1966, vol.4, p.441).

The Carter Commission was aware that the immediate implementation of their recommendation could cause hardship and considered various transitional provisions. The first possibility was to exempt opening assets from taxation and regard this as a necessary price of placing all taxpayers on equal footing. This exemption was, however, considered inequitable as it did not give equal tax treatment with other taxpayers who did not elect to take advantage of it and were therefore already "paid up". The second possibility was the establishment for each taxpayer of a contingent liability equal to the tax which would become payable upon the reduction or ultimate liquidation of the opening assets. The third possibility, which the Commission accepted, was to reduce the estimated market value of the business at the effective date of the new legislation by the excess of the assets over liabilities set up to convert the accounts from a cash to an accrual basis. On ultimate disposition this adjustment would be included in income. The Canadian Department of Finance nevertheless concluded that cash accounting should remain (Canada, 1969, p.68). However, by 1987 the Canadian Department of Finance again suggested that farmers should account for tax purposes on a modified accrual method, but, with a cash basis adjustment (Canada, 1987a, p.89; 1987b, p.2).

(b)   White Paper and Ways and Means Motion

According to the White Paper (Canada, 1987a, p.89) on income tax reform:

> "Farmers will maintain the benefit of cash accounting for the purposes of reducing positive farm income for tax purposes. However, losses will be accounted for on a simplified accrual basis. The simplified accrual method will require an adjustment to cash basis accounting in respect of inventories on hand (valued at market or the lower of cost or market), prepaid expenses, and the difference between accounts receivable and payable at the end of the year. Any cash basis adjustment claimed in one year will be included in the following year's income".

In contrast Resolution 11 of a <u>Ways and Means Motion</u> (Canada, 1987b, p.5) to implement phase one of the tax reform states

> "That for fiscal periods commencing after June 17, 1987 and ending after 1987, income from a farming business be determined on an accrual basis of accounting but a cash basis reserve be allowed not exceeding the lesser of such income for the period and the amount by which the total of the inventory on hand, prepaid expenses and trade receivables exceeds accounts payable in respect of the business, at the end of the period".

Although the effects of the two methods are the same, the <u>Ways and Means Motion</u> imposes the accrual method of accounting on farmers, whereas the <u>White Paper</u> implies that the cash method will continue to be accepted in years that a farm business reflects a positive income. This could result in difficulty in the subsequent year if that is a loss year and the farmer must calculate losses on an accrual basis. If the farmer does not have the value of his opening inventory, accounts receivable, prepaid expenses and accounts payable, he will not be able to determine the accrual basis loss.

Although the <u>White Paper</u> and <u>Ways and Means Motion</u> reflect broad proposals in respect of the tax treatment of livestock, particular problems, which although recognised by the Department of Finance, have yet to be resolved. The Department has nevertheless indicated that, notwithstanding what is stated in the <u>White Paper</u>, they expect that the accounting records of farmers have to be kept on an accrual basis, and not on a cash basis (Blatt, 1987, p.46). The proposals present a host of problems some of which are identified in the following paragraphs. Suggestions to make certain proposals more workable are also referred to.

As was stated above the amount of the cash basis reserve that can be claimed will be limited to the lesser of:

(a) the income determined on the accrual basis for the year; and

(b)   the amount by which the total of the inventory on hand, prepaid
        expenses and trade receivables exceeds trade accounts payable at
        the end of the year.

All farm operations of a single taxpayer will be combined for purposes
of determining the cash basis reserve.   This has three important
implications.   First, although this will result in ease of determining
profits, the amount that can be claimed as a cash basis reserve might
be reduced from what it would have been if each farming operation was
considered independently (Blatt, 1987, pp.69-70).   If a farm business
is carried on by a partnership, the cash basis reserve is to be
calculated at the partnership level.   As a result, if a taxpayer is a
partner in a farm partnership and also carries on his own farming
business, his overall farming activities could result in a profit, but
he could be denied the cash basis reserve.   On the other hand, if the
partnership has a profit and his own operation has a loss, the method
will result in a larger reserve being allowed.   Another interesting
practical problem created by calculating the cash basis reserve at the
partnership level can occur in those situations in which the net
profit allocation percentages change as net profit increases.   The
potential exists for splitting taxable income in significantly
different proportions than actual income (Blatt, 1987, pp.48-51).

Finally, in order to obtain the largest amount of cash basis reserve
possible, accounts payable should be as low as possible at the end of
the year.   In fact, since the only liabilities that reduce the amount
of the reserve are trade accounts payable incurred for current
expenses, prepaid expenses and inventories, farmers were advised to
borrow from banks to pay these liabilities before the end of the year
(Blatt, 1987, p.53).

Inventory also presents a host of problems, especially for a farmer
who was on the cash basis and who has some animals on hand at the end
of the 1987 tax year.   The White Paper states that a farmer may value
his inventory at either market value or the lower of cost or market
(Canada, 1987a, p.89).   Once a taxpayer has adopted a method he may
not change to the other.   If a farmer chooses the lower of cost or
market no cost is to be attributed to non-purchased livestock and
natural births (Canada, 1987c, pp.33-34).   If a farmer chooses to
value all his inventory at fair market value he will have to include

those items enumerated above to which no cost is assigned, as well as any purchased inventory. The value of the "no cost" inventory could be very difficult to determine. Presumably a market value will have to be obtained for livestock from newspapers and auction houses.

For a farmer who is on the cash basis the problem is that in the situation mentioned above no value is assigned to the opening inventory in the first year. However, if some of the inventory is sold in the year, and some or all of that inventory is replaced by purchased inventory, the net income for the year will reflect the proceeds of sale, but there will be no cost applicable. This results from the fact that on the accrual basis the closing inventory will have to be recognised, which will eliminate the "expenses" of the livestock purchased during the year. Granted, if the farming operation results in a profit for the year, all, or part of the closing inventory can be offset by the cash basis reserve. The real problem occurs if the farm operations result in a loss in which case the cash basis reserve cannot be claimed. This problem was recognised by the Department of Finance (Canada, 1987a, p.89.) which stated that "losses computed on this simplified accrual basis will remain fully deductible against other income for those farmers who make profits in at least three out of seven years ...".

In fact the farmer may have a loss on the accrual basis, computed in the accounting sense, whereby the opening inventory is valued. However, since no value is assigned to the opening inventory under the simplified accrual basis, the loss which equals the amount received by the farmer on the sale of opening inventory will not be recognised for income tax purposes. Another effect of the non-recognition of the value of opening inventory is to eliminate retroactively the cash basis method of accounting, with a one year deferral in the recognition of income resulting from this elimination.

A partial solution for some taxpayers is afforded by the amount elected under paragraph 28(1)(b) as the optional value of livestock inventory at the end of 1987. This gives recognition to an opening value of inventory. It could, however, be much lower than the true value.

According to Blatt (1987, pp.58-61) a simple solution to the problem
would be to allow the farmer a deduction in 1988 from accrual income,
after deducting the cash basis reserve determined in the normal
manner. The amount of this deduction would be the amount, if any, by
which the net of trade accounts receivables, prepaid expenses,
inventories and trade accounts payable exceeds the accrual income. If
the accrual basis results in a loss, the amount of the loss would be
increased by the net of trade receivables, prepaids, inventories and
trade payables. In effect, for 1988 this will result in the income or
loss being equal to the cash basis income. If the trade payables
exceed trade receivables, prepaids and inventories, no adjustment
would be allowed. The resulting net income or loss will be increased
or decreased by a portion of the deduction allowed. In the following
years accrual income or loss will be adjusted for a portion of the
adjustment until the total adjustment is brought into income.

This proposal in effect would phase in the difference between the cash
and accrual basis income or loss, after allowing for the cash basis
reserve, over a number of years. The number of years allowed for the
phase in would be a policy decision. The effect of this proposal is
shown in Table 5.1. For example, a farmer who would have had a cash
basis loss, but has an accrual basis income in 1988, will be allowed a
1988 farm loss equal to 75% of the cash basis loss, if one assumes a
four year phase-in period.

(c) Other proposals

Recently, the Government has indicated that it intends to ensure that
the option to use cash basis accounting for farm income will be
maintained, but to also address measures to restrict cash basis
losses. Apparently two proposals to replace the modified accrual
basis are under consideration (Deloitte, Haskins & Sells (Canada),
1988, p.2).

The first is that farmers be allowed to continue to use the cash basis
of accounting, but that the deduction for losses be restricted to a
maximum of $10 000 and that this limit be reduced by $1 for each $2 of
off-farm income in excess of $30 000. Under this method, no cash
basis losses would be deductible when off-farm income is in excess of

TABLE 5.1: CANADA - ADJUSTMENT FOR CONVERSION TO ACCRUAL BASIS[1]

	Case I	Case II	Case III	Case IV	Case V
Year 1	$	$	$	$	$
Net income (loss) accrual basis, except no value assigned to opening inventory	30,000	(40,000)	12,000	15,000	55,000
Cash basis reserve	30,000	_____	12,000	15,000	32,000
Income (loss) before adjustment	0	(40,000)	0	0	23,000
Adjustment for pre system inventory	(2,000)	(32,000)	(20,000)	(17,000)	0
	(2,000)	(72,000)	(20,000)	(17,000)	23,000
Portion of adjustment included in income	500	8,000	5,000	4,250	_____
Income to be taxed	(1,500)	(64,000)	(15,000)	(12,750)	23,000
Year 2					
Income (loss) full accrual basis	(15,000)	19,000	22,000	(7,000)	8,000
Prior year's cash basis reserve	30,000	0	12,000	15,000	32,000
	15,000	19,000	34,000	8,000	40,000
Current year cash basis reserve	14,000	14,000	14,000	8,000	14,000
	1,000	5,000	20,000	0	26,000
Portion of adjustment included in income	500	8,000	5,000	4,250	_____
Income to be taxed	1,500	13,000	25,000	4,250	26,000

1) Assumptions
   (a) Ending inventory, receivables, prepaids, minus payables
       (i) Year 1 = $32,000
       (ii) Year 2 = $14,000
   (b) Value of opening inventory, Year 1 = $50,000
   (c) Adjustment included in income over 4 years.
Source: Blatt (1987, p.60)

$50 000. The second alternative proposes that all farmers would be permitted to account on the cash basis, but an inventory adjustment would be required when a cash basis loss is generated. The cash basis loss would be reduced or eliminated to the extent of the lower of the cost or value of livestock inventory on hand at the end of the year. This adjustment would only be in respect of inventory, the cost of which was deducted in the year or a previous year. Apparently, a farmer would still have the option of using the flexible livestock inventory election to generate a net farm profit in order to meet the revenue test and utilise other deductions and credits. As a transitional provision, the adjustment to cash basis losses would be phased in by reducing the value of inventory to be added to cash losses, from what it otherwise would be, by $15 000, $12 000, $9 000 and $5 000 in the first four years respectively.

Farm groups raised several concerns with respect to the modified accrual rules. To subject profitable farmers to the modified accrual basis was considered to be unwarranted and complex. Consequently, the Government has decided to consult further with farm groups in order to develop more appropriate rules for fiscal periods commencing after 1988.

2. United States

(a) Cash and accrual methods

By virtue of administrative rulings issued more than 50 years ago USA farmers have generally been exempted from the accrual accounting requirement. The reason for this exemption was the impression that farmers lack the financial resources and the expertise necessary to match farming expenditures with the particular income (USA, 1978, p.314). As a result, the simpler cash (receipts and disbursements) method was permitted.[2] Under this method income is reported in the year actually or constructively received, whichever is earlier. Expenses are ordinarily deductible in the year paid, but the purchase price of animals bought for resale is deducted only in the year the animals are disposed of. Farmers may, however, elect to deduct the purchase price of hens and baby chicks bought for commercial egg production or for raising and resale in the year these costs are paid or delay the deduction until they are sold (USA, 1985a, p.19).

Cash-basis accounting is simple, usually involves less tax during years of increasing inventories, reflects the farmers' actual cash flow position and lightens the tax load on sale of raised draft, dairy, breeding and sporting animals. On the other hand the cash-basis farmer runs the risk of disproportionate sales in any one year, may have to hold back on livestock sales and may be at a tax disadvantage when livestock inventory declines.

In general, farmers who produce, buy or sell merchandise have to use inventories and accrual accounting for purchases and sales. Farmers using inventories have to inventory all livestock and poultry held primarily for sale. Livestock purchased for breeding, dairy, sporting or draft purposes (so-called Section 1231 assets) may be included in inventory or treated as depreciable assets at the farmer's election. Accrual accounting largely avoids the distortion of income characteristic of the cash method, involves less taxes when tax rates or cash income increase, may involve less taxes when inventories decline, and permits expenses to be incurred in the desired years without cash outlay. While simplicity was listed as an advantage for using the cash accounting method, complexity represents a disadvantage for using the accrual method. This method may cost more in taxes while inventory values increase and may cause the taxpayer to lose a large part of the benefits of Section 1231 on sales of draft, dairy, breeding and sporting animals.

Apart from the effect of Section 1231 which is discussed in Section III(4) below, the various factors tending to make one method or the other more attractive are set out in Table 5.2.

(b) Implications

Probably no issue in the reporting of farm income has received as much attention as has the use of cash accounting by farmers. As noted earlier, cash accounting permits taxpayers to manipulate the time that income is reported or that deductions are taken. Volding & Boehlje (1977, pp.15-20) simulated the impact of different accounting procedures on six different types of farms in two different size categories as measured by farm receipts. The objective of the analysis was to maximise the discounted after-tax income over a 5-year

TABLE 5.2: FACTORS OTHER THAN SECTION 1231 AFFECTING CHOICE OF
ACCOUNTING METHODS FOR UNITED STATES LIVESTOCK FARMERS

Conditions	Accounting method favoured thereby	Comment
1. Large operations	Accrual	More businesslike. Levels reportable income. Valuation at "cost" or "lower of cost or market" relatively favoured.
2. Small operations	Cash	Simplicity. Farm-price method would be best of accrual systems.
3. Increasing inventories	Cash	Don't have to pay on unrealised "book" profit
4. Increasing sales volume	None	Unless other factors vary, taxable income remains same under cash or accrual method. If increasing sales are due to reduction of inventories the accrual basis is favoured.
5. Increasing tax rates	Accrual	Tax is paid at lower rates on inventories previously accumulated. No advantage unless some goods accumulated in previous years are sold.
6. Increasing market prices	Neutral effect, except "farm-price"* accrual method is at a disadvantage	Market price increases alone do not alter relative value of accounting methods except that the farm-price system has the effect of making a taxpayer pay tax on his "book profit."
7. Falling market prices	"Farm-price"* and "lower-of-cost-or-market" accrual methods.	Decrease in closing inventory is a deduction from taxable income.
8. Falling tax rates	Cash	Sales will involve less tax than the same income accrued in a preceding higher tax year.
9. Falling sales volume	None	Effect neutral as in 4.
10. Falling inventories	Accrual	"Book" losses offset cash income.
11. Death, with peak inventory	Cash	Property passes to estate free of income tax.
12. Death, with reduced inventory	Accrual	Decrease in inventory would be an offset against income received in year of death

*   The farm price method is discussed below.
Source: O'Byrne & Davenport (1984, pp.45-46)

period through choice of an accounting system. Three accounting systems were compared: the accrual system, the cash system with maximum cash adjustments and the cash system with optimal cash adjustments.[3] Enterprise types analysed included cash grain, hog and beef feeding, dairy, beef cow-calf, beef feeding and hog feeding farms. Table 5.3 summarises the relative advantage of the cash accounting system with optimal adjustments compared with accrual accounting for all farm sizes and enterprise types. Table 5.3 indicates that larger farms ($100 000 or more in sales) in each enterprise type receive a higher pay-off from the cash method compared to their smaller counterparts ($20 000 to $40 000 in sales) when after-tax income is considered. One major reason for this is that large farms have more earned income and consequently higher marginal tax rates. One dollar in additional cash adjustments saves more income from taxes when the marginal tax rate is higher. A similar conclusion can be drawn about farm size and the advantage of the cash method when the remaining business variables are studied since these variables are directly related to after-tax income. The class IA enterprise types listed in order of most advantageous to least advantageous use of cash - optimal adjustment accounting when the business variables are considered are (i) grain farm, (ii) pig- and beef-feeding farm, (iii) beef-feeding farm, (iv) dairy farm, (v) pig-feeding farm, and (vi) beef cow-calf farm. The general order of enterprise types exists for class II farms, but the differences between enterprise types are not as great as with class IA farms because the taxable income is lower.

Other studies have shown similar results. Bryant, LaDue & Smith (1973) demonstrated that use of the cash accounting system on dairy farms resulted in a substantial increase in firm growth over time. The exploitations of the cash accounting rules in the cattle feeding industry are well documented by Meisner & Rhodes (1975). Their work suggests that the tax advantages of the cash accounting system combined with the limited partnership investment vehicle was a major factor in the development of the Southern Plains cattle feeding industry during the late sixties and early seventies. O'Byrne and Davenport (1984, p.41) show that profit of $90 becomes taxable income to the extent of $0 (cash basis), $36 (cost method accrual basis) and $84 (farm-price method accrual basis).

The returns from cash accounting are increased substantially when sales proceeds from the assets produced through fully deductible costs are taxed at capital gain rates. This aspect will, however, be discussed in Section III (4) below.

(c) Recent changes

Over the years the US Revenue Authorities have suggested or implemented the following measures to counter tax sheltering and deferral effects of cash accounting. Firstly, the following farming operations have been required to use the accrual method of accounting and to capitalise preproductive period expenses[4]:

TABLE 5.3: UNITED STATES - RATIOS OF BUSINESS ANALYSIS VARIABLES UNDER CASH ACCOUNTING WITH OPTIMUM ADJUSTMENTS TO BUSINESS ANALYSIS VARIABLES UNDER ACCRUAL ACCOUNTING

| | Business analysis variable | | | | | |
| Farm type | After-tax income | | Consumption | | Change in net worth | |
	IA[1]	II[2]	IA	II	IA	II
Grain farm	1,514	1,222	1,632	1,116	1,877	1,445
Pig- and beef-feeding farm	1,467	1,228	1,316	1,102	1,615	1,592
Dairy farm	1,421	1,223	1,298	1,083	1,487	2,443
Beef cow-calf farm	1,265	-	1,472	-	1,376	-
Beef-feeding farm	1,371	-	1,223	-	1,555	-
Pig-feeding farm	1,362	1,263	1,291	1,157	1,377	1,399

- = Ratios for Class II farms for these enterprise types cannot be determined because earned income was negative.

1) $100 000 or more in annual sales

2) $20 000 to $40 000 in annual sales

Source : Volding and Boehlje (1977)

(i)   farm corporations and partnerships, with the exception of
      corporations which do not have annual gross receipts exceeding
      $1 million, corporations with one type of stock and less than 35
      stockholders (S corporations) and corporations where 50 per cent
      (65 per cent) or more of voting stock and 50 per cent (65 per
      cent) or more of all classes of stock are owned by members of the
      same or two families (three families); and

(ii) farming syndicates.[5]

As a result of further Treasury proposals (USA, 1984b, p.128; USA,
1985a, p.213) tax shelters[6] were also precluded from using the cash
method, but the gross receipts limit of $1 million for corporations
and partnerships was raised to $5 million. In addition the Tax Reform
Act of 1986 restricted the deduction for prepaid expenses to 50 per
cent of qualified costs (Rossi, 1987, p.63).[7]

II. Valuation Methods

> "Nothing illustrates the uniqueness of farming as
> a business more than the determination of the
> cost of inventory" (Blatt, 1987, p.65)

The valuation of livestock presents particular problems for three
major reasons:

(a)   While costs are readily identifiable in respect of animals that
      have been purchased during the year, it is virtually impossible
      to compute accurately the cost of animals bred on the farm.

(b)   Immature animals increase in value as they approach breeding age
      and then progressively decrease in value as they grow older and
      move towards the end of their productive life span.

(c)   Under free market conditions the market value or replacement
      price will fluctuate widely, reflecting not only supply and
      demand but also climatic conditions and market expectations.

Identifying livestock is not normally difficult: the major problem is
determining what is its correct value for tax purposes. The way in

which selected countries address this problem and the implications of their particular livestock valuation schemes are outlined below.

1. Australia

(a) General approach

In Australia livestock may be valued at its cost price or market selling value.[8)] Mannix & Mannix (1987, p.114) explain these terms as follows:

> "Cost price means the actual cost of the stock to the taxpayer up to the relevant time, i.e. the cost of acquiring it plus any further cost incurred up to that time in getting the stock into its then existing condition or location. ....
> Market selling value is the current value of the article of trading stock in the particular taxpayer's selling market and means the realisable value."

(b) General and special closing values

Where the livestock is an eligible horse[9)] two other options are available; namely a "general closing" and a "special closing value". In the case of an eligible horse of either gender, the taxpayer may elect to have it valued at the general closing value which is the opening value less what is called the "general reduction amount". The latter in the case of a stallion is an amount, specified by the taxpayer, not exceeding 50 per cent of the opening value of the horse. In the case of a mare the general reduction amount is $33^1/3$ per cent of the opening value. The opening value is either the value of the horse as at the end of preceding year of income or where the horse became livestock of the taxpayer during the year of income the lesser of cost price or depreciated value.

An alternative value is allowed in the case of an eligible mare. This is referred to as the "special closing value" and equals the difference between the opening value and the "special reduction amount". The latter differs according to the age of the mare. In the case of a mare that has not attained the age of 10 years before becoming livestock of the taxpayer the special reduction amount is an

amount ascertained in accordance with the formula A/12-B where A is
the cost price of the mare and B is the number of whole years attained
by the mare before that date. Where the mare has attained the age of
10 years, the special reduction amount is the cost price divided by a
number not less than three, which number is chosen by the taxpayer.
Where an eligible horse becomes livestock during the year of income
the general reduction amount and the special reduction amount are
reduced in proportion to the number of whole days the horse formed
part of livestock divided by the number of days in the year.

(c)   Nominated cost and average cost methods

The valuation option adopted generally applies to the whole of the
farmer's livestock. If the taxpayer neglects to nominate a particular
valuation method, the Commissioner automatically applies the cost of
production method. Under this method a taxpayer may select particular
values for the natural increase of all classes of livestock. However,
the values selected must be equal to or greater than the prescribed
minima indicated below:

	Minimum value
Sheep	$1,00
Cattle	$5,00
Horses	$5,00
Pigs	$4,00

If a taxpayer adopts the market selling value he must include his
closing stock in the livestock schedule at the market selling value on
the last day of the income tax year. If he adopts cost price he must
include his closing stock valued on that basis. The method of
calculating this closing value as illustrated in the examples below,
is known as the "average cost" method, and it is the one almost
universally in use amongst taxpayers who have adopted cost price.

Example 1:

Where the taxpayer had adopted market selling value.

Sheep Account

	Numbers	Value		Numbers	Value
Opening stock	nil	nil	Sales	3 600	$17 000
Purchases	8 200	$32 000	Deaths and missing	240	-
Natural increase	3 350	-	Slaughtered for rations	110	428
Gross profit	-	15 428	Closing stock at market selling value	7 600	30 000
	11 550	$47 428		11 550	$47 428

Example 2:

Where taxpayer has adopted cost price, and has selected $1 as the cost price of lambs.

Sheep Account (Year 1)

	Numbers	Value		Numbers	Value
Opening stock	nil	nil	Sales	3 600	$17 000
Purchases	8 200	$32 000	Deaths and missing	240	-
Natural increase	3 350	-	Slaughtered for rations	110	428
Gross profit	-	8 689	Closing stock	7 600	23 261
	11 550	$40 689		11 550	$40 689

Method of Valuing Closing Stock

Purchases	8 200	at cost price	$32 000
Natural increase	3 350	at $1,00 per head	$ 3 350
	11 550		$35 350

Average cost per head = $3,06
7600 at $3,06   = $23 261.

Sheep Account (Year 2)

	Numbers	Value		Numbers	Value
Opening stock	7 600	$23 261	Sales	2 700	$13 000
Purchases	1 500	$32 000	Deaths	270	-
Natural increase	2 850	-	Slaughtered for rations*	100	306
Gross profit	-	7 907	Closing stock	8 880	23 862
	11 950	$37 168		11 950	$37 168

Method of Valuing Closing Stock

Opening stock	7 600	at average cost price	$23 261
Purchases	1 500	at cost price	$ 6 000
Natural increase	2 850	at $1,00 per head	$ 2 850
	11 950		$32 111

Average cost per head = $2,69.
8 880 at $2,69   = $23 862.

* Stocks slaughtered for rations are valued at average cost at the
    end of the previous year, viz. $3,06 per head.)

(d) Partnerships

Where a partnership is formed for the purpose of carrying on a
pastoral business, an election to value closing stock at cost price or
market selling value, can be made only by the partners individually.
Where their options differ separate partnership livestock schedules
must be prepared in order to determine each partner's share in the net
income of the partnership.

This may be illustrated by examples (1) and (2) above by assuming that
the sheep account is that of a partnership consisting of A, who had
elected to value closing stock at market selling value, and B, who had
adopted cost price and had selected $1 as the value of lambs. If
profits were to be divided equally and the partnership allowable
deductions were $2000, the shares of the partners in the net income of
the parnership would be:

	A	B
Gross profit (example (1)) based on market selling value	$15 428	
Gross profit (example (2)) based on cost price		$8 684
Deductions	2 000	2 000
Partnership net income	$13 428	$6 684

A's share of such net income is one-half of $13 428 = $6714. B's
share is one-half of $6684 = $3342.

(e) Implications

Use of the minimum tax values has two effects. The most obvious is to undervalue most natural increase for tax purposes until the year of sale. In this regard the Treasurer (Keating, 1986, pp.1-2) stated that

> "The low statutory minimum cost prices for animals acquired by natural increase constitute a structural flaw in the income tax law. Contrary to general trading stock principles, deductible breeding costs incurred in acquiring animal progeny are not required to be brought to account as part of the progeny's cost at the year's end. The progeny can be included in the trading stock account at the relevant statutory cost price, which can provide significant tax deferral benefits. In other words, unlike costs incurred in relation to other trading stock, animal breeding costs remain fully deductible when incurred rather than effectively being deductible only when the progeny is sold or otherwise disposed of. Instead of the actual profit (if any) being subject to tax in the year of disposal, almost the entire amount of any sale proceeds is subject to tax at that time." (emphasis added)

For the above reason it was announced in the 1986-87 Budget Speech that the income tax law would be amended to require that service fees incurred in breeding horses be taken into account in determining their cost price for the purposes of the trading stock provisions of the law. Service fees include those paid for physical service of a mare by a stallion, as well as fees paid for services by way of artificial insemination of a mare. Any fees paid in respect of an unsuccessful service and fees paid for the agistment of a mare while at stud are not included in the cost price of the progeny, nor are veterinary and other costs not forming part of a service fee. The decision to confine the corrective measure to horse breeding service fees apparently reflects the fact that the tax deferral advantages from the "flaw" in the law are generally greater for horse breeders than for breeders of other animals.

There are some difficulties involved in providing a general estimate of the gains or losses sustained by livestock producers as a result of the existing tax provisions. According to the Asprey Committee the cost price system contains a bias in favour of bred stock as against purchased stock and also permits a deferment of tax when animals are bred for sale or immature animals are purchased for ultimate sale (Australia, 1975a, p.283). At the commencement of a breeding enterprise, the opening value of livestock is equal to the purchase price. Over time, the opening value falls toward a weighted average of nominated cost of natural increase and market value of annual purchases. Thus, the accuracy of any point estimate of gross profit for tax purposes may depend, in part, on the length of time that the enterprise has been established.

A second problem in assessing the effect of the nominated cost method of valuation concerns the estimation of market values for natural increase. Natural increase will vary from stock aged one day to stock aged one year at the time of valuation for tax purposes. Additionally, the quality of stock of a given age will vary between farms and between seasons. The use of average market values would result in tax calculations of income which, in some cases, exceeded actual accrued income and, in others, were exceeded by actual income.

The Bureau of Agricultural Economics (BAE) (1985b, pp.70-75) endeavoured to ascertain what the tax results of different forms of valuation procedures would be. The BAE examined the results for a hypothetical sheep enterprise and the gross profit from livestock trading accounts obtained from their Australian Agricultural and Grazing Industries Survey for the 1982/83 and 1983/84 years. The summary results are reproduced in Tables 5.4 to 5.6[10)]

For the particular example, a producer who established the enterprise at the beginning of the period would have made a substantial tax saving by using the existing tax provisions, rather than market values. However, an established producer would have lost from application of the existing provisions.

The estimated tax differences were also calculated for the case where the original flock was purchased in 1979-80, using the present minimum value of $1 a head. Had that value ruled from 1979-80, the gains (in

1983-84 values) over the five years would have amounted to $2558, compared with $2780 for the minimum value of 40c a head. The change in minimum values does not change the result in the steady state case since, in that case, the calculated gross profit is equal to the nominal value of sales less purchases.

It should be remembered that the implicit loan which accrues during the years immediately after the establishment of the enterprise continues only as long as the enterprise. Upon sale of the flock, the full nominal difference between the market value and average cost (for tax purposes) of the flock is taxable.

While the example given in Tables 5.4 and 5.5 cannot be used to provide a general estimate of the impact of the existing tax provisions of livestock producers' after-tax income, it provides some idea of the orders of magnitude of the two effects of those provisions. In a practical sense, it may be difficult to find a system which effectively allows for value adjustments and at the same time does not impose, on some farmers, unrealistic values for natural increase. Although farmers are free, under the current provisions, to use values for natural increase which are greater than the prescribed minimum values, there is no incentive to do so.

TABLE 5.4: AUSTRALIA - SUMMARY RESULTS OF GROSS PROFIT FROM SHEEP TRADING ACCOUNT UNDER DIFFERENT METHODS OF LIVESTOCK VALUATION

	Cost-price basis		
Year	Development: original flock purchased in 1979-80 (40c a head natural increase)	Steady state[1]	Adjusted price
	$	$	$
1979-80	1 051	9 524	10 377
1980-81	2 833	9 260	4 640
1981-82	1 913	6 802	- 4 662
1982-83	3 081	6 777	3 890
1983-84	4 601	7 389	7 288

1) Does not vary with the valuation of natural increase.

Source: Bureau of Agricultural Economics (1985b, p.71)

TABLE 5.5: AUSTRALIA - GAINS FROM USING NOMINATED COST (40 CENTS) RATHER THAN MARKET VALUES

Year	Tax rate	Original flock purchased in 1979-80		Steady state	
		Gross profit difference[1]	Tax saving	Gross profit difference[1]	Tax saving
	%	$	$	$	$
1979-80	23,93	9 326	2 232	853	204
1980-81	23,16	1 807	418	-4 620	-1 070
1981-82	23,10	-6 575	-1 519	-11 464	-2 648
1982-83	21,04	809	170	-2 887	-607
1983-84	24,00	2 687	645	-101	-24
Five-year total (1983-84 values)		2 780			-4 944

1) From Table 5.4

Source: Bureau of Agricultural Economics (1985b, p.72)

An examination of gross profit from livestock trading accounts obtained from the BAE's Australian Agriculture and Grazing Industries Survey (AAGIS) for 1982/83 and 1983/84 confirm some of the observations from the hypothetical examples above. Gross profit for the "average" farm derived from AAGIS sample estimates and the tax saving from use of the average cost method are presented in Table 5.6.

According to the BAE it is possible that by allowing farmers to nominate values for natural increase (as is currently the case) but indexing all opening values (including those nominated for natural increase) for inflation for the purposes of end-of-year tax calculations, may provide the best practical solution (1985, p.74). The approach would not involve the problems discussed above of the use of administratively determined values for natural increase. Nor is it apparent that there would be any risk to the Taxation Office of overstatement of values by producers, since that would raise tax payable in the current period. It may encourage producers to quote values which are closer to market values, as only the real, rather than nominal, differences between nominated values and sales prices would be taxed in a later period. However, inventory allowance schemes, which are considered below, did not meet with much success in Canada and the UK.

TABLE 5.6: <u>SUMMARY RESULTS AND TAX IMPLICATIONS OF ALTERNATIVE MEASURES OF GROSS PROFIT PER AVERAGE AAGIS[1] FARM</u>

Year	Gross profit		Tax saving from use of average cost rather than market value[2]
	Average cost valuation[2]	Market valuation[3]	
	$	$	$
1982-83			
Sheep	6 004	1 386	-972
Cattle	15 452	11 372	-858
	21 456	12 758	-1 830
1983-84			
Sheep	5 649	11 431	1 388
Cattle	14 493	42 987	6 830
	20 142	54 418	8 227
Total for two years (1983-84 levels)	41 598	67 176	6 271

1) Australian Agricultural and Grazing Industries Survey.

2) National increase valued at 40c for sheep and $2 for cattle.

3) Opening values adjusted with CPI.

4) Tax rates: 21,04 per cent and 24,00 per cent for 1982-83 and 1983-84, respectively, from Table 5.4

<u>Source</u>: Bureau of Agricultural Economics (1985b, p.73)

2. <u>Canada</u>

In Canada farmers, who use the generally accepted method of computing income, in common with other taxpayers, are subject to the requirements of the Income Tax Act that, for the purposes of computing income, inventory, which includes livestock, must be valued at the lower of its cost or fair market value (Commerce Clearing House, 1989a, p.171). The wording of the Act effectively permits each individual item in the inventory to be valued at the lower of its cost

or its fair market value. A farmer carrying on the business of
breeding may value each animal of a particular species, excluding
registered animals and animals purchased by drover for resale, at a
unit price[11], which is equivalent to the value obtained by dividing
the total value of all the animals in the particular class at the end
of the year immediately preceding the election by the number of
animals in that class. If the fair market value of the livestock
inventory, or any class of the inventory is lower than the unit price,
the fair market value may be used. According to Blatt (1987, pp.9-10)
it would appear that if the fair market value increases in a
subsequent year so that it exceeds the value determined by the unit
method, the original value can be used. Clearly, the unit price basis
avoids the problems connected with establishing and identifying costs
for individual components of a heterogeneous group of animals.

The Department of Finance has further indicated that notwithstanding
the recommendations of the White Paper, the unit price method provided
for by Regulation 1802 may continue. Because of the wording of the
regulation an election will apply to both purchased and live birth
inventory. The unit price method could result in a benefit in those
years in which the taxpayer has a loss on the accrual basis, and the
fair market value of the inventory is in excess of the unit price
value. The benefit will result from the fact that the loss will be
greater than otherwise determined. It would have no effect in a
profit year since the reduced income resulting in a lower inventory
value would be offset by the reduced amount of the cash basis reserve
that will be allowed. A second benefit of using this method is its
simplicity.

Two special rules have recently been proposed with respect to farmers
who own show animals, breeding horses and race horses.[12] Firstly,
farmers will be treated as if they have met a profitability test but
not a gross revenue test. Accordingly, losses from these activities
will be limited to the lesser of $15 000 or the actual losses from the
activities until the gross revenue test is met for three years. In
order to meet the test, the gross revenue from farming must be greater
than the taxpayer's total net income from all other sources in at
least three of the most recent seven years, including the year in
question.

The second rule deals with the treatment of the cost of animals owned at the end of fiscal periods which commence after 17 June 1987 and end after 1987. Each of these animals will in effect be treated as a separate depreciable pool, subject to a write-down of not more than twenty per cent of the declining balance. This write-down could be taken even if it creates a loss. The entire proceeds of disposition of any such animal will be included in income.

Since the animals are considered to be inventory, the written down cost of any animals sold during the year can be deducted in the year of sale. Similarly when an animal dies the written down cost will have to be deducted in the year of death. Also the carrying value of inventory at the end of the year will be included as a component of the cash basis reserve. The general rule of not assigning any cost to live births will also apply to these types of animals. Therefore live births will not result in income unless and until the animal is sold. However, from a recent comment on tax reform it would appear that the Government has decided not to proceed with The White Paper proposals (Deloitte, Haskins & Sells (Canada), 1988, p.5).

3. New Zealand

(a) Overview of old and new valuation systems

Prior to the enactment of the Income Tax Amendment Act (No 4) of 1986[13], New Zealand farmers had the following options for valuing livestock on hand, viz. cost price, market selling value, replacement price or a standard value. The first three, known as the cost option,[14] preserved neutrality with other commercial sectors, while the latter ensured that a farmer's assessable income closely approximated his cash income and avoided the impracticability of valuing livestock at cost (NZ, 1967, p.298). Although standard values were originally introduced in 1926 as a method of simplifying income measurement and to overcome the problems associated with significant market price fluctuations in the value of livestock, Government have in recent decades used standard values to expand deliberately total livestock production (Russell, 1987a, p.6). Livestock retention yielded taxation advantages which encouraged farmers to develop additional land and to intensify production on existing land. Further, non-farming investors were able to invest heavily in

livestock purchases and, because of the standard value basis of valuation of stock, they were able to create farming tax losses which could be offset against taxable revenue from other (business) sources (Russell, 1987a, p.7).

The Government (NZ, 1967, p.299) introduced special variations in respect of standard values, including the use of nil standard values with the

> ".... express purpose of maintaining the growth of livestock numbers in accordance with the long-term targets set by the 1964 Agriculture Development Conference and was intended to be a taxation incentive designed to encourage increases in livestock numbers by deferring taxation resulting from increases in livestock".

By the early 1980's there were serious distortions in the investment patterns in New Zealand. The tax deductibility of expenditure on livestock purchases[15] and other farming taxation incentives had encouraged heavy investment in land and livestock and prices had risen to unrealistic levels (King, 1987a, p.5). In 1983 the National Government introduced measures to limit the amount of tax deductible losses that non-farming investors could offset against other (business) income (King, 1987a, p.34). In addition, although the use of standard values for livestock continued to be allowed, the rules were changed so that new owners of livestock and all persons acquiring additional land could not claim the full tax deduction on livestock purchases immediately: the tax deduction claim had to be spread over a period of three years (Russell, 1987a, p.7). These measures slowed, but did not halt, continued investment in livestock and the national herd continued to expand at a time when the nation was having difficulty in marketing its total production.

A new labour Government was elected in 1984 and one of their major policy planks was a "market led" economic policy. This included the removal of many subsidies and tax incentives and a determination to ensure that economic conditions would force investment decisions to be based on commercial viability rather than on taxation advantages (Fardell, 1986, p.151). As part of the Government's moves to restructure the agricultural sector it was announced in December 1985

that the old standard value and nil value schemes would be abolished
and replaced with new livestock valuation schemes which would value
the trading stock of farmers more in line with the valuation of
trading stock in other sectors. The initial announcement was followed
by the publication of a Consultative Document (NZ, 1986) and a
Consultative Committee (known as the Brash Committee) was appointed to
hear submissions on the Consultative Document. The Brash Committee
reported in June 1986 and by the end of the 1986 income year new
legislation was enacted.

Basically, the new reforms have thrown out the nil and standard value
systems. These have been replaced by a new system of setting annually
adjusted book values relating to current market prices. But farmers
still have the right to value the stock under one of the three
alternatives known as the cost option. This preserves neutrality of
inventory valuation in relation to other commercial sectors. In
addition to these cost option alternatives, three further schemes for
livestock valuation are available to taxpayers other than livestock
dealers. These are known as the:

(i)   Trading stock scheme;

(ii)   High-priced-stock scheme;

(iii) Herd scheme.

At the option of the taxpayer, the herd and trading stock schemes may
be operated simultaneously in respect of each livestock species. The
herd scheme applies to certain stock classes only, with the trading
stock scheme or the cost option being used to value the other classes.

Both schemes retain a standard value basis, and both schemes have some
elements of concessionality, reflecting the influence of biological
systems on livestock inventory. There the broad similarities between
the schemes end. The herd scheme is considered in section III(2)
below (see p.288).

(b)   Trading stock scheme

Under the trading stock scheme, which is the simplest of the valuation
systems available, taxpayers value livestock on hand at the end of
each income year at the trading stock standard values (TSS) for that
year.   These standard values are set by Inland Revenue at 70 per cent
of a 3 year rolling average of national average market values by
livestock type or class.[16]   Any change in the total standard value
over the year is assessed for tax purposes.   These assessable changes
result from changes in TSS from one income year to the next and/or
changes in numbers and/or classes of livestock owned from one income
year to the next.

Increases in the total standard value between years are treated as
taxable income, and decreases as deductible losses.   All replacement
stock in any class is fully tax deductible in the year of purchase (or
breeding) up to the benchmark price level for high priced stock.

Purchases of additional stock (or the cost associated with breeding
and rearing them) are fully deductible up to the benchmark price level
for high priced stock.   This means that a writedown is allowed between
purchase price and TSS if the purchase price is greater.

Stock purchased or bred for a cost lower than the closing standard
value must be written up to that value if on hand at closing balance.
This results in an increase in assessable income in that year.   Also,
the difference between sale price and opening standard value is
assessed for tax purposes as either a profit or loss.   This is the
same treatment as occurs under the old standard value system (or
indeed any inventory valuation system), and differs only in that
standard values are more closely aligned to realisable market values.

The example on the next page gives a fully detailed illustration of
how the stock accounts appear under the trading stock scheme.   The
essential difference between this and the old standard value system is
that the closing values for each class of livestock differ from the
opening value.

Example 1

A possible layout of a sheep account using the trading stock scheme. Assumptions include : (a) 10% increase in livestock values over the year; and (b) trading stock values which are 70% of the average market values instead of the 3 year rolling average.

Class	Opening No.	Closing No.	Opening TSS Value (per head) $	Closing TSS Value (per head) $	Total Opening Value $	Total Closing Value $
2-tooth ewes	500	500	14	15,40	7 000	7 700
M.A. ewes	700	600	7	7,70	4 900	4 620
5-6 yr ewes	300	400	3	3,30	900	1 320
Rams	40	40	84	92,40	3 360	3 696
M.A. wethers	200	200	7	7,70	1 400	1 540
Ewe hoggets	460	400	9	9,90	4 140	3 960
Wether hoggets	300	360	9	9,90	2 700	3 564
	2 500	2 500			24 400	26 400

Natural incr. 1 500

Purchases and sales

Purchases	No.	No.	Purch. cost	Sale price	$	$
Rams	10		200	-	2 000	
2-tooth ewes	200		24	-	4 800	
TOTAL					6 800	

Sales

	No.				$
Lambs	740	-	14		10 360
M.A. ewes	150	-	6		900
5-6 yr ewes	250	-	3		750
Ewe hoggets	140	-	18		2 520
Wether hoggets	200	-	14		2 800
M.A. wethers	100	-	12		1 200
TOTAL					18 530

Deaths

All stock		130	Assessable income	
	4 210	4 210	from sheep = 13 730	
			44 930	44 930

At $13 730, the assessable income from sheep trading is $1946 more than if the Herd Scheme had been adopted. This is exactly the difference in valuation change over the year.

M.A. = mixed age
TSS = Trading stock standard value

(c) Cost option

On the recommendation of the Brash Committee an option to value livestock at cost was added to those previously announced in the Consultative Document.[17)] Under the cost option, taxpayers may value livestock of any class at actual cost, market value or replacement price. This allows such taxpayers to put themselves on substantially the same footing as other taxpayers holding trading stock. The cost option will be most attractive to those who farm livestock types which have a cost price market value or replacement price considerably less than the new standard values. However, it is believed that as in the past, the cost option will be rarely used.

(d) High-priced-stock scheme

There are separate rules for "high-priced" specified purchased livestock and bloodstock. High priced is defined as costing three times or more (four times in the case of sheep) the national average market value for the previous year (King, 1987a, p.13). Such animals are entered into the accounts at the purchase price and written down at the following prescribed annual rates:

Deer	15 per cent	Cattle	15 per cent
Goats	20 per cent	Sheep	25 per cent
Stags	20 per cent	Pigs	33 1/3 per cent

The write-off may not commence unless the livestock was purchased at least six months before the taxpayers balance date. Furthermore, immature high priced livestock purchases must be valued at purchase price until they reach two years of age, or in relation to pigs, one year of age. Thereafter the annual write-down may commence.

Following a comment by the Brash Committee on the need to reform the taxation of bloodstock, the tax treatment of thoroughbred and standardbred horses has been changed so that it is consistent with the rules that will apply to other forms of high-priced livestock (NZ, 1987, pp.73-86). The previous options of valuing bloodstock on hand at its market selling price, replacement price or cost price have been removed. Generally all bloodstock must now be valued with reference to the cost price, which cost price is subject to annual write-downs.

However, market value may be used if the value of the horse has been significantly reduced by events such as an accident or infertility. The annual cost write-down of any horse will commence in the first year in which the horse is used for breeding. The following write-down basis applies (Russell & Christie, 1987, pp.43-44):

.   stallions   - 20 per cent of cost price

.   broodmares   - an amount equal to 33,3 per cent of cost price where the horse is aged 12 or more, or where the horse is aged 11 or less, an amount calculated on a straight line basis which will reduce the cost to $1 at age 14.

.   breeding bloodstock - a straight line basis if used for breeding prior to 1988. For broodmares aged 12 or more the write-down would be over a three year period commencing from the 1988 income year or to age 14 where aged 11 or less. In the case of stallions the write-off is over 5 years or over the remainder of the five year period commencing at the beginning of the year in which the horse was first used for breeding purposes.

Transitional provisions also required that horses, which were transferred from a taxpayer's stud account to the racing account prior to the end of the 1987 income year, remain in that account throughout their racing career. Horses which are subsequently used for breeding must be transferred to the stud account at the same value that was used for their original transfer to the racing account. Any profits on the sale of breeding stock and any insurance recoveries arising on the death of, or injury to, such bloodstock, may be offset against the cost price of the replacement animal. This approach matches that applicable to depreciation recoveries on the sale of plant. The offset facility is subject to certain time restrictions.

The rules governing the treatment of stud horses that are raced are as follows (Russell & Christie, 1987, p.44): First, all stud horses that are capable of being used for breeding are deemed to be raced as part of the business and need not be transferred to a racing account. However, if such a stud horse is used otherwise than part of the breeding business (e.g. raced as a hobby), the transfer to the racing account is regarded as a sale by the stud at market value on that

day. Horses held in a racing account, and which are subsequently used for stud duties, will be deemed to have been purchased by the stud at their market value on the day they commenced to be used for stud purposes.

Second, where stud horses are regarded as unable to be used for breeding, they are deemed to be raced as a hobby. Consequently, on the day on which they commenced to be prepared for racing, they are considered to have been sold by the stud at their market value. Where a stud owner wishes non-breeding horses to be raced as part of the stud business, the Commissioner must be notified of the day on which the horse is first prepared for racing or is actually raced. The horses will then remain in the stud account at their actual (or deemed) cost price to the stud operation for the period during which they are being raced.

(e) Transitional provisions

Various transitional reliefs are available as farmers move from the old to the new valuation methods. In the Consultative Document (NZ, 1986, p.48) the Government stated:

> "..... that the immediate implementation of the trading stock and herd schemes without transitional arrangements would result in substantial additional tax liabilities for some farmers. This could result in an undue burden on these farmers at a time when they are affected by other changes. ... An important concern of the Government is to be fair to both the farmer and the general taxpayer. In deciding how much assistance to provide, it is recognised that farmers have already benefited from large write-downs of livestock to the existing standard and nil values. ..... Some farmers will have a greater capacity to adjust to the new schemes than others. The assistance measures are not finely tuned to meet the needs of individual farmers since that would be impractical. The Government considers, however, that they are fair to both the farmer and the general taxpayer."

The first part of the transition took place in the 1987 income year and was achieved by requiring farmers to revalue their closing 1987

livestock to the new (70 per cent) standard values.[18] Thereafter, if a farmer failed to notify Inland Revenue that he was adopting a particular livestock valuation scheme, then it meant automatic inclusion in the trading stock scheme. To facilitate the change from the old (low) standard values to the new (higher) standard values, a special deduction or income write-off calculated as "base number" of livestock multiplied by the difference between the new and the old standard values for each class of livestock was allowed. "Base number" was determined as the number of livestock on hand at the taxpayer's 1985 balance date or the lesser of numbers of stock on hand at 12 December 1985 and the numbers of stock on hand at the taxpayer's 1986 balance date.[19] This complex formula had to be developed because of the effluxion of time between the date the legislation was first announced and its final implementation.[20] The result of the formula was that where a taxpayer's livestock numbers had remained static from 1985 to 1987, the special deduction would exactly equal the revaluation to the new standard values and no adverse tax consequence resulted. Where the write-off exceeded the gross revaluation income, the excess could be deducted against assessable income from any other source or carried forward as if it were an ordinary loss. Any net taxable portion of the gross revaluation income could be spread over the 1987 income year and all or any of the following four income years. Not less than 20 per cent of the assessable excess had to be taxed each year; until such time as the total livestock revaluation income had been included in the taxpayer's assessable income. An example which illustrates the transitional arrangements in respect of the trading stock and herd schemes, is given in Section III(2) (see p.291).

The new legislation made provision for persons (a) bailing livestock and (b) those persons who ceased to derive income from livestock in 1986.[21] From the end of 1987 income year, bailed livestock deficiencies (or surpluses) were valued under whichever valuation scheme was elected by the bailee for each type of livestock. The transitional reliefs (i.e. write-offs and spreading) were also applied to bailees. It could occur that due to deficiencies the total write-off for all livestock owned by a bailee was negative. This resulted in a zero write-off. For farmers who ceased to derive income from livestock in 1986 the determination of the write-off and income spreading was slightly altered.[22]

(f) Pros and cons

The cost and trading stock options, in particular, attracted some
criticism. According to Russell (1987a, p.11) it is "virtually
impossible to correctly record costs incurred in the acquisition of
livestock where such livestock is bred on the farm" and the use of
market value or replacement price "creates unfair distortions in
income recognition because of price fluctuations in the market".[23]
Fardell (1986, p.154) referred to two implications of the new standard
value scheme, namely, there is no significant write-down on
acquisition of stock and, secondly, it may produce unrealised
assessable income as stock increases in value, especially as stock
matures and becomes more valuable, such as calves becoming yearlings
and then two-year old steers. Russell (1987a, p.13) argued as
follows:

> "The change in tax legislation affecting livestock also
> means that Central Government has lost its opportunity to
> encourage investment in livestock farming. Given that there
> is a comprehensive income taxation regime in place, a
> Government can use the standard value system to great
> advantage in encouraging expansion and development in
> agriculture. New Zealand applied this technique quite
> expertly until the early 1980's."

He concluded that a standard value system "has the advantages of
simplicity of operation and also provides a most effective tool for
economic management." However, Mapp (1986, p.338) believed that the
objections to the new schemes were rather misplaced for two reasons:

> "Firstly, the transitional arrangements give existing
> farmers a very substantial permanent tax saving as opposed
> to tax deferred as 50% of the increase in value from
> existing standard values to the new standard values are
> permanently written off ...... Secondly, few pastoral
> farmers will have taxable profits this year. Any unrealised
> income will be offset by other deductions, especially
> interest. The practical effect for many farmers will be
> simply to reduce losses to carry forward. Of course once

pastoral farmings become profitable again there may be tax
to pay on unrealised assessable income."

However, according to the Consultative Document (NZ, 1986, p.8) the
important point to remember is that:

"..... business activities are taxed in New Zealand (and
most other countries) on an income basis and not on
cash-flow. If business activities were taxed on a cash-flow
basis, no account would be taken of stocks or depreciation
in computing assessable income. It follows that cash
generated by the business may not equate with the profits
recorded for tax or accounting purposes. This is, however,
a feature of an income tax and not a valid ground for
criticising the treatment of livestock under the new
schemes".

In conclusion, obvious advantages of the new legislation are that:

(a) income flows are smoothed since profits normally are less than
     under the old scheme. This may, at least when farming is
     profitable, ensure the income is taxed at lower rates;

(b) Income deferral opportunities are substantially reduced, thus
     producing a faster taxation flow to the Revenue authorities;

(c) Investment decisions must now be linked to commercial viability
     rather than taxation advantages; and

(d) "Lock-in" problems have virtually disappeared.

4.   United States

In the United States profits or losses from the sale of livestock may
be treated for tax purposes as ordinary income or losses or capital
gains or losses, depending on the circumstances (USA, 1988a, p.10).
In addition accrual-basis farmers may value livestock at (i)
cost,[24] (ii) cost or market,[25] whichever is lower, (iii)
farm-price or (iv) unit-livestock-price. These different treatments

and valuation methods make the reporting of income from livestock very complex.

(a) Cost and cost or market whichever is lower

Difficulties in determining costs of production on a farm make the cost method of valuing livestock unfeasible for most farmers. When used, it accomplishes a desireable objective of keeping closing values low, and it is relatively better than the farm-price method in connection with sales of draft, dairy, breeding, and sporting animals. Since, under the cost method, the closing inventory valuation can be higher than the market price, there is obviously a tax advantage in being in a position to use the market value as a basis of valuation. The "cost or market, whichever is lower" method would, therefore, be advantageous compared with an inventory valued at cost when prices decline and, in view of the wide price fluctuations frequently characteristic of agricultural products, would seem preferable to the ordinary cost method.[26]

(b) Farm-price method

For many years the IRS has recognised the difficulties involved in ascertaining actual cost of livestock and has authorised the "farm-price" method of valuation. By this method livestock is valued at market-price less the direct cost of getting the livestock to the market. Among farmers reporting on the accrual basis the farm-price method is most widely used because of its simplicity. This method will almost certainly mitigate taxes during a period of declining market prices. However, in a period of widely fluctuating prices this method tends to either push taxpayers into higher income tax brackets or reduce their taxable income to a level where certain exemptions cannot be claimed.

(c) Unit-livestock-price method

The unit-livestock-price (ULP) method is a substitute for a cost inventory. Different classes of animals in the inventory are valued at standard unit prices. The Farmer's Tax Guide (USA, 1988a) does not contain any prescribed prices, but a few years ago the following prices were suggested: $40 for calves, $110 for yearlings, $180 for

two-year olds and $250 for mature animals (O'Byrne & Davenport, 1984, p.603). The chief advantage of the ULP method is that it simplifies the determination of cost so that the taxpayer has some of the advantages of the cost method, yet faces even less of a problem in computing the value of livestock compared with a farmer using the farm-price method. The drawback of the ULP method is the difficulty in fixing a suitable unit cost for each classification. If these costs are based on records made in a high-cost year the closing inventories will have the effect of producing a "book profit" in years when production costs have fallen below those figures. This may produce a tax in one year on "profits" never actually realised and in the next year a loss might cause the taxpayer to waste his tax exemptions. On the other hand, if unit costs are fixed while costs are abnormally low, the tendency would be to lose out on the usual advantage of accrual accounting. The spread between actual sale prices and the unit costs selected might be so great as to make the cost-deferring effect of the accrual system relatively insignificant as a factor in evening up year-to-year income.

Table 5.7 summarises the principle features of the approved inventory valuation methods for farmers.

5.   Stock relief

To conclude this Section, it should also be noted that Canada and the United Kingdom have introduced temporary relief measures to offset the increase in the value of trading stock, including livestock. For a period of almost ten years Canadian taxpayers were permitted to deduct an amount equal to 3 per cent of the cost amount of the opening inventory of livestock held by a farming business. The 3 per cent inventory allowance was removed in the February 1986 budget (Commerce Clearing House, 1989a, p.174).

In 1974 stock relief was introduced as a temporary measure in the United Kingdom for trading stock, including livestock (Stanley, 1984, pp.42-43). Under the original scheme, tax relief was allowed on the increase in the book value of livestock, subject to a reduction by a calculated percentage of profits for the period. In 1980 a replacement scheme gave relief calculated on the basis of livestock at the beginning of the period of account (ignoring the first £2000),

TABLE 5.7: <u>UNITED STATES - INCOME EFFECTS AND DRAWBACKS OF DIFFERENT
LIVESTOCK VALUATION METHODS</u>

Method	Income Effect	Drawbacks
Cost	-	Inconvenience when used for livestock, because of difficulty in determining exact cost for each animal
Lower-of-cost-or-market	Taxable income tends to follow fluctuations in market from which taxpayer buys. Tends to minimise income before sale, maximise income in year of sale.	Same as cost method, plus problem of determining replacement cost.
Farm price	Taxable income tends to follow market in which taxpayer sells his livestock or products. Fluctuations are larger than under lower-of-cost-or-market method. Tends to maximise income before sale, minimise income in year of sale.	Since comparison of market value is required, possibly inconvenient for some farmers.
Unit-livestock-price	Taxable income similar to that under cost method, if unit prices approximate actual costs. If unit price below cost, tendency similar to lower-of-cost-or-market; if above cost, tendency similar to farm price.	Must be used for raised dairy, breeding, sporting and draft livestock if elected for any livestock

varied by reference to a percentage movement in a monthly index over
the period of account. However, recovery of stock relief could occur
on the cessation of business or when the scale of business operations
become negligible in comparison with the scale for any previous period
of account beginning not more than six years before the period to
which the relief was being calculated. The replacement scheme was
abolished in 1984. In his Budget speech of 1984 the Chancellor of the
Exchequer justified the abolition of stock relief by explaining that
it was a form of emergency help to businesses facing the "ravages of

high inflation. Those days are past and the relief is no longer necessary" (as quoted in Stanley, 1984, p.42).

III. Capital asset approach

The broad principle of a capital livestock system is that the basic flock or herd of the farmer forms part of his capital and that it is only from the production gained from these animals that he derives his revenue or income. In the case of a farmer with a fixed basic flock or herd, all transactions in respect of this flock or herd would be on capital account and would not affect his income; all transactions in respect of the progeny or production from the herd or flock would be on revenue account and would enter into the calculation of his gross farming income. For a farmer the main attraction of a capital livestock system would be that an increase in the value of the capital stock would be a capital gain which would usually not be taxable.

1. United Kingdom herd basis

Generally, livestock kept by farmers is treated for the purposes of United Kingdom income tax as trading stock.[27] Certain animals are excluded from this treatment, namely animals kept wholly or mainly for public exhibition or for racing or for other competitive purposes, and animals kept wholly or mainly for the work they do in connection with farming, such as sheep dogs. However, farmers can choose once and for all to have production herds, that is, herds of mature animals [28] kept for sale of their produce or progeny as opposed to slaughter, dealt with separately as capital assets, on what is commonly referred to as the "herd basis".[29]

On the herd basis, the valuation of production animals are not taken into account in computing trading profits.[30] Briefly put, such an election is really an option for a farmer to have his production herd treated as a capital item rather than as a revenue one. The initial costs of his herd, any additions to it and any receipts from the sale of the whole herd, or a substantial part of the herd (the Inland Revenue regards 20 per cent or more as substantial), are therefore excluded from the farmer's accounts for income tax purposes.[31] The herd basis, therefore, gives farmers an opportunity of having an eventual profit exempt from all taxes, because farm animals are

exempted from capital gains tax [32]. In addition, it avoids tax on increases in annual valuations resulting from inflation.

A herd basis election has several consequences. The first is that the initial cost of the herd, the cost of any additions and the value of the herd are not brought into the farm trading account (see Example 1). 'Herd' includes a flock or any other collection of animals however named but not immature animals unless the land is such that replacement animals can only be those reared on that land and the immature animals are bred for replacement purposes.

Example 1

Farmer Brown acquires a dairy herd and makes the appropriate election as from his first day of farming. His herd transactions and their tax treatment in year one are as set out below:

Year 1

Transactions	£
Bought 100 mature cattle at £150	15 000
Bought 5 in calf at £200	
(market value of calf £40)	1 000
Bought 17 immature cattle at £80	1 360
	17 360

Herd Account

100 mature	15 000
5 in calf (£200 less £40)	800
105	15 800

Trading account

5 calves	200
17 immature	1 360
Allowable as an expense	1 560

Secondly, the value of animals which form part of the farmer's trading stock and which are added to the herd is treated as a trading receipt. That value is either the cost of breeding and rearing to maturity or in any other case the cost of acquiring and rearing to maturity. Where, on the other hand, an animal (the first animal) within the herd dies, or ceases to form part of the herd, and is replaced in the herd by another animal (the second animal), then the sale proceeds of the first animal (if any) are treated as a trading receipt and the cost of

the second is treated as a trading expense unless it is a better animal, when only the appropriate proportion is allowable. These rules are illustrated in Example 2.

Example 2

Farmer Brown's second and third years are as follows:

Year 2

Transactions	£
Bought 20 mature cattle at £180	3 600
Born 70	-
Matured 15 at 60 per cent of market value of £200 (see note)	1 800
	5 400
Less sold 10 cattle at £200	2 000
	3 400

Herd Account

Opening balance 105   15 800

Additions 20 - £3 600

Matured   15 - £1 800 (transferred from trading stock)

       35   £5 400

Average replacement cost of the 10 animals
sold £5,400 x $\frac{10}{35}$ = £1 543

Therefore average cost of 25 non-
replacement animals = (£5 400-£1 543)   3 857

Herd Account: closing balance
(130 animals)   19 657

Trading account

Sale of 10 mature animals (and replaced, see below)	2 000
Transfer to herd: 15 animals	1 800
Cost of 10 mature cattle replacing 10 sold as above	(1 800)
(To be included in Case I receipts)	2 000

Year 3

Transactions	£
Bought 10 mature cattle at £200	2 000
Died 4	-
Born 30	-
Matured 20 at 60 per cent of market value of £200 (see note)	2 400
	4 400

Herd Account

```
Opening balance 130                              19 657
Additions 10 - £2 000
Matured    20 - £2 400
           30   £4 400
```

Replacement cost of 4 = £4 400 x $\frac{4}{30}$ = £587

Therefore 26 non-replacement animals cost £ 3 813

```
Herd account: closing balance                    _____
(156 animals)                                     23 470
```

Trading account

```
Transfer to herd account                          2 400
Cost of 4 mature cattle to replace
4 deaths ( 4 x 2000)                               (800)
         10
To be included in Case I receipts)                1 600
```

Note: the use of 60 per cent of market value is in accordance with an agreement between the National Farmers' Union and the Inland Revenue; the exact cost of the breeding and rearing may be used instead.

It will be observed that in Examples 1 and 2 Farmer Brown has increased his herd over the three years; in both years two and three purchases have exceeded sales. If however he had sold a herd animal and not replaced it, then the profit or loss arising from the transaction would have been included or deducted, as the case may be, in the farmer's trading account.

The profit (or loss) shall be calculated by comparing the sale proceeds with the cost of breeding and rearing the animal to maturity (if home-bred) or the cost of acquiring and rearing it to maturity in other cases. Obviously therefore the herd basis requires some careful record-keeping.

Thirdly, where the herd as a whole is sold and another production herd of the same class is acquired, the same provisions as above shall apply as though there had been sold from, and replaced in, the original herd a number of animals equal to the number in the original herd or in the newly acquired herd, whichever is the less. This rule applies to Farmer Brown in his fourth year as shown in Example 3.

Example 3

Year 4
Transactions   £

Sold herd of 186 (156 + 30 matured in
year 4) at £300   55 800
Sold 50 immature cattle at £200   10 000
                                                             _____
                                                             65 800

Purchased herd of 160 mature cattle
at £250   40 000
Purchased 15 immature cattle at £100   1 500
                                                             _____
                                                             41 500

The income tax computation will include the following:

Immature cattle transferred to herd: 30 at 60
per cent of market value of £200   3 600
Sale price of 50 immature cattle   10 000
Profit on replacement of 160 cattle i.e. at
sale price less purchase price per animal
at £50   8 000

Profit on sale of 26 herd cattle not replaced
i.e. sale price = 26 x 300 = £7 800

less cost $\dfrac{26}{156}$ x 23 470 =   3 912   3 888
                                                             25 488

Less purchase of 15 immature cattle   1 500
                                                             _____
                                                             23 988

Fourthly, if Farmer Brown disposes of his whole herd and does not replace it, the provisions in which the 'capital' philosophy is illustrated is brought into force and the profit on the transaction is excluded from the tax computation as in Example 4.

Example 4

Year 5
Transaction   £

Sale of the whole herd of 160 cattle at £320   51 200
The profit of £11 200 is excluded from the tax computation.

Certain conditions, however, apply to this rule. In particular, the disposal (of the whole herd, or of a substantial part of it) must occur all at once or over a period not exceeding twelve months. Moreover, where the seller acquires or begins to acquire another production herd of the class in question, or replaces the animals sold as part of the herd, within five years of the sale, then the rules for

replacement of the herd or of the animals will apply. However the sale price of the old animals will be taken into account in the year in which the new animals were acquired, even though this may be several years later.

Finally, if the farmer had been compelled to sell his herd for reasons outside his control and his new animals are not of such good quality, the sale proceeds are to be restricted to the amount allowable as a deduction in respect of the inferior replacement animals.

The long-term advantage of tax free capital appreciation constitutes the main attraction of a herd basis election. According to Russell (1987c, pp.5-6) farmers are successfully avoiding tax by "working the system", that is establishing a herd of a fixed size and poor quality at low capital cost, then upgrading through a comprehensive breeding programme under which inputs (service fees for quality sires) are tax deductible revenue expenses, and then quitting the herd for a tax free capital gain.

A herd basis election also has certain disadvantages. Firstly, a loss on the sale of the whole or a substantial part of the herd does not attract any form of tax relief. Secondly, it may be necessary to maintain additional accounting and other records in connection with the herd. Thirdly, there is a possibility that eliminating the paper profit on the herd will make it more difficult for a hobby farmer to realise a trading profit at least once every six years, and this may jeopardise the free use of tax losses.[33].

Finally, Simon's Taxes (1983, p.1702) asserts that the following factors have to be considered when electing the herd basis: First the greater the difference between the cost of animals in the herd and their ultimate market value, the greater the advantage of the herd basis. The difference will be greatest for pedigree animals. There will usually be a useful difference in the case of a home-bred, good quality herd. If, on the other hand, high quality animals are brought in at full market prices, the difference between cost and market value is likely to be smaller, and the advantage of the herd basis correspondingly reduced. The second factor to consider is the size of the herd: the larger the herd, the greater the difference which may be made by electing, or not electing, the herd basis. Third, the

stage of career of the individual farmer, and his plans for the future are also relevant. If prospects include retirement or giving up, say, dairy farming within the foreseeable future, the possibility of a tax-free realisation then can be very attractive. And lastly, problems may arise when there are changes in partners carrying on a farming business, or when the business is transferred to a company. The admission of a new partner under an election for the continuing basis of assessment is, in practice, treated by the Revenue as having disturbed the herd basis. If there is no continuing basis election and a cessation occurs there is a new business, and clearly the opportunity for a new herd basis election arises.

2. New Zealand herd scheme

The introduction of the herd or capital livestock scheme in New Zealand is of particular interest as it had been considered as an alternative to the standard value scheme since 1949. In 1976 The Ross Committee (NZ, p.303) recommended against the introduction of a capital livestock scheme since no advantage over the standard value system could be established. However, as a result of the acceptance of proposals in the Consultative Document (NZ, 1986, pp.37-45), farmers may now elect to place mature adult stock which are kept for production of progeny, fibre, wool, milk or velvet into a herd scheme. For "herd" stock the tax carrying value is determined as 100 per cent of the average market value for each type and class of livestock.[34] Herd stock are revalued annually in line with annually declared average market values but the annual revaluation is tax free/non-tax deductible thus "inflation-proofing" the animals in the herd scheme. The herd scheme therefore achieves a similar objective as stock relief schemes by providing that increases or decreases in the value of the livestock are not assessable or deductible whilst the animals are part of the herd scheme. However, changes in inventory numbers would attract tax or create a deduction.

The example on the following page gives a detailed illustration of the herd scheme for sheep. The example uses the same stock numbers and average market values as the example on p.272 of a sheep account under the trading stock scheme.

Example 1: A sheep account using the herd scheme

Class	Opening No.	Closing No.	Closing herd Value (per head)	Opening TSS Value (per head)	Closing TSS Value (per head	Total Opening Value	Total Closing Value
			$	$	$	$	$
2-tooth ewes	500	500	22,00	-	-	11 000	11 000
M.A. ewes	700	600	11,00	-	-	7 700	6 600
5-6 yr ewes	300	400	4,70	-	-	1 140	1 880
Rams	40	40	132,00	-	-	5 280	5 280
M.A. wethers	200	200	11,00	-	-	2 200	2 200
Ewe hoggets	460	400	-	9,00	9,90	4 140	3 960
Wether hoggets	300	360	-	9,00	9,90	2 700	3 564
TOTALS	2 500	2 500				34 430	34 484
Natural increase:	1 500						

Purchases and sales

	No.	No.	Purchase cost	Sale price		$	$
Purchases							
Rams	10		200	-		2 000	
2-tooth ewes	200		24	-		4 800	
TOTAL						6 800	
Sales							
Lambs		740	-	14			10 360
M.A. ewes		150	-	6			900
5-6 yr ewes		250	-	3			750
Ewe hoggets		140	-	18			2 520
Wether hoggets		200	-	14			2 800
M.A. wethers		100	-	12			1 200
TOTAL							18 530
Deaths							
All stock		130					
	4 210	4 210		Assessable income from sheep -		11 784	
						53 014	53 014

TSS Value - Trading Stock Standard Values.
At $11 784 the assessable income from sheep trading is $1946 less than under the Trading Stock Scheme
(See Example 1 on p.272). This is exactly the difference in valuation change over the year.

The herd scheme has both advantages and disadvantages. The advantages are as follows:

(i)   It eliminates the taxation on increasing livestock values between years.

(ii)   It reduces the tax liability on profits from capital stock sold and not replaced.

(iii)   It does not require complex bookkeeping as is associated with the cost option.

(iv)   Livestock values relate directly to the actual average market values each year.

On the other hand, the disadvantages include the following:

(i)   It does not yield tax losses when livestock values are falling.

(ii)   Higher book values compared with the trading stock scheme constitute an ongoing disadvantage where stock numbers are increasing rapidly.

(iii)   There was an up-front cost in joining the herd scheme and presently there is no spread of income that results from revaluation of herd values.

(iv)   Compared to the trading stock scheme, it yields smaller write-offs for increases in stock numbers purchased above the average market price.

(v)   It could be considered a disadvantage that adoption of the herd scheme means involvement in at least two valuation schemes.

The taxation of unrealised income before the final sale of livestock has attracted criticism from Mapp (1986, p.329):

> "It is the aim of the herd scheme to treat mature female breeding stock as capital assets. The Consultative Document considered the herd as a "machine" producing an annual output, the revenue of which is taxable. However this is only partially achieved since the stock is only temporarily removed from the trading stock scheme until its

final sale or disposal. If they were treated as genuine capital assets then calves or lambs destined for the breeding herd would be regarded at the outset as capital assets and would not produce any unrealised income. Similarly the profit on final sale would not be assessable."

The following example illustrates the transitional arrangements in respect of the trading stock and herd schemes. The same base data have been used throughout, namely:

1985 Stock	150 Cows
1986 Stock	150 Cows
1987 Stock	160 Cows
Existing Standard Value	$70/head
Market Value	$400/head

Step 1

1987 REVALUATION OF STOCK (TRADING STOCK SCHEME)

Opening stock 150 @ $70 (old standard value)	$ 10 500
Closing stock 160 @ $280 (70 percent of $400)	44 800
TAXABLE INCREASE IN STOCK	34 300
Less Special Write-Off (Refer Step 2)	31 500
1987 NON CASH TAXABLE INCOME	2 800

Alternative Step 1

1987 REVALUATION OF STOCK (HERD SCHEME)

Opening stock 150 @ $70 (old standard value)	$ 10 500
Closing stock 160 @ $400 (new herd value)	64 000
TAXABLE INCREASE IN STOCK	53 500
Less Special Write-Off (Refer Step 2)	31 500
TAXABLE INCREASE IN STOCK	22 000

Step 2

CALCULATION OF SPECIAL WRITE OFF

Formula: Base number x (new value less old value)
150 x (280 - 70) $ 31 500

Step 3

CALCULATION OF SPREADING OF INCOME

Formula: Lesser of 1986 or 1987 numbers,
multiplied by difference between new value
and old value, less the special write-off
150 x (400 - 70) - $31 500 $ 18 000
                                                             ===========

Step 4

SUMMARY OF REVALUATION (HERD SCHEME) SPECIAL WRITE-OFF,
AND SPREADING OF INCOME

Taxable Increase in Stock (Alternative Step 1)	$ 53 500
Less Special Write-Off (Step 2)	31 500
TAXABLE INCOME	22 000
Less Income Spread (Step 3)	18 000
TAXABLE IN 1987	4 000
Income Spread (18 000 in five equal portions) 1987	3 600
1987 TOTAL	7 600
In each year from 1988 to 1991	3 600

3.   Canadian basic herd scheme

Section 29 of the Canadian Income Tax Act defines and sets rules with
respect to the number of animals of a class, expressed in equivalent
number of mature animals which were owned by a farmer at the end of
his 1971 taxation year, to be capital property or a basic herd and not
stock-in-trade. The principle of a basic herd was established under a
directive of the tax authorities to relieve the problem faced by a
farmer upon a dispersal sale when he had been computing income on a
cash basis (Canada, 1966, p.442). As a result of recommendations of
the Carter Commission (Canada, 1966, p.443) and proposals of the
Department of Finance (Canada, 1969, p.68) as well as the introduction
of new tax legislation in 1972, which inter alia included a tax on
capital gains, it was announced that farmers would continue to be
permitted to set up basic herds up to the end of 1971. Thereafter the
basic herds were gradually phased out by way of optional and mandatory
deductions (Commerce Clearing House, 1989a, p.194). Subsection 29(1)
permits a taxpayer to elect, on a year to year basis, to reduce his
basic herd by a number of animals not exceeding a defined maximum.

Income for the year is reduced by the average fair market value of the class of animals at 31 December 1971 multiplied by the number which the farmer elected to reduce this herd. Subsection 29(2) on the other hand provides for a mandatory reduction of the basic herd when the actual number of animals on hand at the end of a year is less than the number of the basic herd at 31 December 1971, reduced by the number previously deducted.

Although basic herds have, for all practical purposes, been phased out, a view to regard animals kept for the sale of their produce or progeny as "machinery" that produces inventory was again raised at the 39th Tax Conference of the Canadian Tax Foundation. Blatt (1987, pp.63-64), for example, suggested that herd animals be regarded as a depreciable pool and be subject to various write-offs, depending on the class of the animal. On the sale of any of these animals the full proceeds should be credited to the pool. Any credit balance in a pool at the end of the year should be included in income. This suggestion has not been taken up as yet.

4.   Underlined: United States Section 1231 livestock

Cattle, horses and poultry held for two years or more and other livestock held for one year or more and held for draft, breeding, dairy or sporting purposes are regarded as Section 1231 assets (USA, 1988a, pp.40-41).[35] The characteristic of Section 1231 is that it requires the aggregation of all gains and losses from sales or exchange of the assets. If the net is a gain all the gains and losses are treated as capital gains and losses. If the net result is a loss, then all the gains and losses are treated as ordinary gains and losses. For practical purposes this means that the net loss is fully deductible. The benefits of a net gain are, however, reduced if a net loss was taken as an ordinary deduction in any of the preceding five years (O'Byrne & Davenport, 1984, pp.170-181). Windish (1987, p.24) illustrates this provision with the following example.

A taxpayer claims an ordinary loss deduction for a net Section 1231 loss of $5000 in 1987. If the taxpayer realises a net gain of $8000 in 1988, $5000 is treated as ordinary income and only the balance of $3000 is treated as a capital gain. A net loss of $10 000 realised by the taxpayer in 1989 would all be capital gain, because the net loss

in 1987 was already used to reduce the amount of a net gain eligible for capital gain treatment. Before 1987 only 40 per cent of capital gains was subject to tax. In effect this resulted in a top tax rate for capital gains of 20 per cent, as compared to the then top rate of 50 per cent on ordinary income.

O'Byrne and Davenport (1984, p.168) illustrate the benefits of Section 1231 assets, with the following examples.

Example 1: (Purchased Animals)
A farmer bought a bull for breeding purposes for $1 500. For three years, he claimed depreciation of $300 per year, a total of $900. Assume that he sold the bull early in the fourth year for $1 800. The gain is $1 200. The $900 depreciation claimed is recaptured as ordinary income. The remaining gain, $300, is Section 1231 gain.

Example 2: (Raised Animals)
A farmer raised a bull since used for breeding purposes. He deducted his expenses in raising the bull in his tax returns. The bull was sold after five years for $1 000. Only 58% of this "profit" is taxable if there are net gains for the year.

Example 3: (Losses)
The same facts as in Example 1, except that the bull was sold for $300, resulting in a loss of $400. The full $300 is deductible if there were net Section 1231 losses for the year. If the bull had been killed, the farmer would have had a deductible loss of $600 if there were no gains from casualties. A cash-basis taxpayer would have no loss on a raised animal.

As noted earlier, the returns from cash accounting are increased substantially when sales proceeds from the assets produced through fully deductible costs are taxed at capital gain rates. In these circumstances, if there is other income to offset the deductible costs, the tax benefit from the deduction will exceed the capital gains tax on the sale of the asset so long as the sales price is less than 2,5 times the cost of production (Davenport, Boehlje & Martin, 1982, p.21). Another way of looking at this matter is to say that a taxpayer in the 70 per cent tax bracket can break even selling for $41,66 at the aforementioned capital gain rates an animal that cost a

deductible $100 to raise. A taxpayer in the 50 per cent bracket cannot break even until the price of such an animal reaches $62,50. At this price the unrecovered cost remaining of an expense of $100 (viz. $50) equals the proceeds remaining after capital gains tax has been deducted (viz. $50).

This conversion of deductible capital expenditures into long-term capital gain produces a strong incentive to expand operations with two aims. The first is to increase the tax bracket through higher unsheltered, taxable income. The second is to combine shelter assets with unsheltered income. For example, grain farms (which can be considered as unsheltered in any year in which affairs cannot be arranged so as to reduce taxable income to nil) might be encouraged to try pig or cattle raising. Those in pig or cattle raising might find great financial rewards in expanding into grain farms.

It may be particularly attractive in the case of breeding herds. Hanson (1982, p.120) illustrates that capital gains are roughly twice as large on breeding livestock farms as compared to farms that are predominantly cash grain or feeding operations. Duffy and Bitney (1977) considered the application of cash accounting and capital gain provisions to two kinds of swine breeding operations. One was a farrow-to-finish operation, and the other was a feeder pig enterprise. In each operation results were calculated for a strategy using only young sows for pig production and then for a strategy in which sows were kept for four litters. Under the young sow strategy a much larger proportion of total sales will qualify as long-term capital gain.

The net after-tax profits under each breeding herd replacement strategy from the farrow-to-finish and feeder pig production enterprises are presented in Table 5.8. In the farrow-to-finish hog enterprise the young sows strategy is more profitable above the $40-price level, but the differences represent a relatively small percentage of the after-tax income. In the feeder pig enterprise after-tax profits for the young sows breeding herd replacement strategy are greater over the entire range of feeder pig price levels. These differences in after-tax profits are considerable, both absolutely and in proportion to the total.

TABLE 5.8: <u>UNITED STATES - ANNUAL AFTER-TAX PROFITS (LOSSES) RESULTING FROM FULL-TIME FARROW-TO-FINISH PIG[1] AND FEEDER PIG PRODUCTION[2] ENTERPRISES</u>

Market pig price and 18kg feeder pig price per head	Net after-tax profit (loss)	
	Young sows	Four litters
	Dollars	
a) <u>Farrow-to-finish enterprise</u>		
$30/cwt[3]	(5 888,28)	(3 689,28)
$40/cwt	16 854,13	17 837,82
$50/cwt	37 867,20	37 000,61
$60/cwt	54 517,95	52 231,77
b) <u>Feeder pig production</u>		
$20/head	(13 115,05)	(10 085,94)
$30/head	15 100,78	9 248,72
$40/head	33 001,77	26 778,37
$50/head	52 580,14	41 172,12

1) 192 litters per year
2) 298 litters per year
3) cwt = hundred weight

<u>Source</u>: Duffy & Bitney (1977)

A study by Reid, Musser, and Martin (1980) of the differential tax treatment of ordinary income compared with capital gain on the optimal enterprise organisation and management practices for crop-pig farms in Georgia suggests similar results to that of Duffy and Bitney. The optimal farm organisation was compared on a before-tax and after-tax basis. Inclusion of income taxes in the analysis resulted in the pig enterprise being a more dominant part of the farm operation, particularly for larger farms, along with heavier culling of sows and a larger proportion of young sows in the breeding herd.

In another analysis, Musser, Martin, and Saunders (1976) found an incentive for crop farms to move toward production of animals such as pigs when capital gains tax provisions were incorporated in the analysis. Overall returns were increased by deducting animal development costs against the crop income and then reporting a significant proportion of income from the animals as long-term capital gains.

Bryant, LaDue & Smith (1973) studied the effect of various Federal tax provisions on a dairy farm. They simulated changes in tax liability if each of four tax provisions were eliminated under two circumstances. The four tax changes were (i) elimination of cash accounting, (ii) removal of capital gains on livestock, (iii) repeal of accelerated depreciation, and (iv) elimination of the investment tax credit. They simulated the differences in net worth over a 20-year period assuming growth and taking into account taxes that could be paid on liquidation of the investment.

The results of this simulation as reported by Davenport, Boehlje & Martin (1982, p.41) are summarised in Table 5.9. By use of cash accounting and livestock profits treated as capital gain, the tax bill over the 20-year period was cut in half compared to accrual accounting and reporting livestock sales as ordinary income. The increase in net worth by using these provisions was 55 per cent greater.

The differences are even greater if the taxes on liquidation can be avoided. In the study a disposition of property through sale was assumed. If, however, the property were retained until death, it would take a basis equal to the value at death, and the recapture of investment credit and depreciation would not be triggered. Most if not all of the taxes on liquidation would be avoided, and the net worths would be those reported as if liquidation did not occur.

Davenport, Boehlje & Martin (1982) also referred to ways in which management practices in the swine and feedlot industries were influenced. Without capital gain provisions, pig producers typically would stock their breeding herds with sows to be used for a number of farrowings before being sold. The tax law, however, allows a lower tax rate on sales proceeds of animals held for breeding for more than a year. The lower rate is an incentive to increase the proportion of sales from qualifying animals, by holding sows through only one farrowing. A one-litter sow usually is just over one year old and, thus, the proceeds received on sale qualify for the lower capital gains tax rate. Therefore, there is a tax incentive to farrow young sows and sell them after a year, replacing them with other sows. This increases the circulation of sows and the amount of income subject to capital gains treatment. The practice of using sows for a single

TABLE 5.9: UNITED STATES - TAX LIABILITIES AND NET WORTHS UNDER VARIOUS TAX LAW ASSUMPTIONS, 20-YEAR GROWTH PERIOD

Tax assumption	Net worth after liquidation	Net worth after liquidation as a percentage of net worth produced by assumption 1	Taxes on liquidation	Net worth before liquidation	Net worth before liquidation as a percentage of net after liquidation	Cumulated annual taxes over the 20-year period worth after
	$	%	$	$	%	$
1. Accrual accounting with livestock sales reported as ordinary shares	157 661	100	33 392	191 053	121	90 836
2. Accrual accounting with livestock sales reported as long-term capital gain	165 444	105	28 804	194 248	123	88 624
3. Cash accounting with livestock sales reported as ordinary income	204 721	130	58 565	263 289	167	56 355
4. Cash accounting with livestock sales reported as long-term capital gain	245 114	155	39 932	285 046	181	44 302
5. Assumption 4 with the use of accelerated depreciation and a 7 percent investment credit	267 500	170	59 733	327 233	208	15 568

Source: Davenport, Boehlje & Martin (1982, p.41).

litter, despite the inferior farrowing and mothering qualities, is adopted for the sole purpose of reporting a higher proportion of total pig sales as capital gain.

Since 1970, however, the following measures removed most of the opportunities to convert ordinary income to capital gains purely as a tax shelter:

(a) the holding period for livestock to qualify for capital gains treatment was increased; and

(b) the long-term capital gain deduction was reduced from about 60 per cent to 42 per cent and included in the list of tax preference items for minimum tax purposes. The Tax Reform Act of 1986 finally repealed the deduction.

The Tax Reform Act of 1986 has been shown to greatly impact on after-tax net farm income of livestock farms. Bailey and Grange (1987) estimated an increase in federal tax liability from $3515 to about $13 145 for a Utah cow/calf operation depending on the treatment of expenses. Similar major effects on after-tax income have been estimated by Willitt (1987) and Gutierrez (1987). A recent study by Lambert and Myer (1988) found that the elimination of the capital gains reduced ranch values by 27 per cent and 26 per cent, respectively, for a 340 head and a 500 head ranch.

V. Casualties and the bunching of income

Tax legislation in several countries contain measures designed to reduce the extra tax burden of farmers receiving certain types of "lumpy" income or give relief for property destroyed by casualties or adverse events. These measures generally ignore abnormal receipts, allow a spreading of such receipts over a number of years or regard livestock losses that occur in the business of farming as deductible losses. Since Chapter 6 contains a detailed discussion of averaging measures, relief measures in respect of "abnormal" livestock receipts or losses in Australia, Canada, New Zealand, United Kingdom and the USA are briefly summarised in that particular Chapter.[36]

VI. Tax farming[37)]

Most countries have introduced general provisions to deal with or
reduce the attractiveness of agricultural tax shelters. These
provisions usually impose limitations on the write-off of farm losses,
aim at achieving closer matching of receipts and expenses or permit
the claw-back of certain deductions. As noted above some countries
also rely on specific rules to reduce the ability of taxpayers to use
shelter arrangements in the livestock sphere for tax avoidance
purposes. Reference is frequently made to the tax farming
possibilities within livestock industries. The Carter Commission
(Canada, 1966, vol.4, p.414), for example, stated that cash accounting
"created an extra incentive for wealthy individuals to establish a
farm as a secondary endeavour", while the Australian Draft White Paper
(Australia, 1985a, p.42) noted that "in the case of a valuable stud
livestock breeding business, expenditure on natural increase in
livestock may only have to be partly reflected in the end-of-year
stock values prescribed for income tax purposes. Those provisions
allow large deductions in early years of the investment, which can
generate tax losses to be offset against other income".

In the mid sixties, several investors in the USA found that by using
feedlots, they could construct and syndicate tax shelters that
deferred for one year the taxes on income generated in other pursuits
(Youde & Carman, 1972). The maximum deferral at the least expense was
generated by waiting until late in the year to create the
tax-sheltering entity and also having it engage in its transactions
near the year's end. Many researchers argued that tax policy was a
contributing factor in attracting outside investors to custom cattle
feeding operations during the past decade or more. For example, in
1964, sales of fed cattle from commercial feedlots represented 39 per
cent of all cattle marketings. By 1980, more than 73 per cent of fed
cattle sales were from commercial feedlots (Reimund, Martin & Moore,
1981). Willet and Menzie (1973) claimed that more than 70 per cent of
cattle on feed in Texas, Arizona and California were owned by non-farm
investors.

Rossi (1987) examined the effects of tax reform on non-farm investment
decisions in cattle feeding and found that under the full
implementation of the Tax Reform Act of 1986, cattle feeding resulted

in a zero after-tax return for non-farm passive investors. Using a mean-variance analysis under different leverage and return scenarios, he also illustrated that the full implementation of the Act could dramatically reduce non-farm investment in cattle feeding for both active and passive investors.

VII. Conclusion

The tax treatment of livestock varies from country to country and no wholly satisfactory system appears to have been evolved. The following factors have been identified as having an influence on the tax treatment of livestock: accounting and valuation methods, whether livestock are treated as trading stock and/or capital assets, casualties and adverse events, and non-farm investment in livestock industries.

Evidence presented in this chapter suggests that:

(a) cash accounting has fallen into disfavour with revenue authorities and the use thereof is either being phased out (Canada) or restricted (USA);

(b) standard values have generally been introduced to simplify income measurement and to avoid the impracticability of other bases of valuation, particularly cost. They in turn introduced the following difficulties:

  (i)   significant long-term deferrals of income recognition and taxation (Australia, 1985a, p.42);

  (ii) distortions of investment patterns (Russell, 1987a, p.7); and

  (iii) create a serious "lock-in" factor which discourages existing farmers to convert their livestock to cash (Ireland, 1982, p.594; NZ, 1967, p.300).

(c) some countries favour the capital asset approach (UK and New Zealand) while others have found that this procedure is an undue

administrative burden and results in significant inequities and anomalies, particularly if capital gains are favourably taxed;

(d)   different accounting and valuation methods make the reporting of casualty losses or abnormal livestock receipts very complex;   and

(e)   the favourable tax treatment of livestock has been widely recognised as a tax shelter for non-farm investors and various provisions have been introduced to ensure that livestock investment decisions are based more on economic returns and less on tax benefits.

D.   SOUTH AFRICA

I.   Introduction

In South Africa the treatment of livestock for tax purposes has been the subject of investigation a number of times since 1914 (RSA, 1919; 1951; 1952 & 1987)[38]. Most of the issues accord with those that have been discussed above, namely the valuation of livestock and the accounting basis.   As in New Zealand a standard value scheme for valuing livestock has existed for over 60 years.   However, three distinct accounting options for the tax treatment of livestock have been allowed, namely the cash basis (up to 1955), the stock basis (between 1955 and 1988) and the "ring fenced" stock basis (since 1988)[39].   In the following three sections these options are discussed consecutively, whereafter consideration is given to new options for valuing livestock for tax purposes.

II.   Cash basis period

A cash basis of accounting was allowed between 1914 and 1955, albeit not in a pure form, because the stock basis was always available as an alternative.

1.   The 1914 and 1917 Acts

Section 9 of the Income Tax (Consolidated) Act, 1917, which replaced sub-sections (5) and (6) of section 4 of the previous law, viz. Act No. 28 of 1914 put farmers on the cash basis, but also gave them the

option of taking the stock basis if they chose to make a special application, such decision being irrevocable (RSA, 1919, p.3). Initially the draft Bill put farmers on the stock basis, and gave them the option of taking the cash basis. The main reasons advanced for amending the draft Bill were that the cash basis was regarded as being simpler, a tax on the natural increase was considered inequitable and that over a number of years the cash basis would produce the same result as the stock basis (RSA, 1919, p.4). With regard to the latter it was Inland Revenue's experience that:

- the method enabled stock farmers to postpone the payment of tax indefinitely or until the farm was fully stocked;

- that portion of livestock which was bred by the taxpayer, and retained for breeding purposes, became permanently converted into capital, and was rarely realised;

- and if sold, it was replaced by other breeding stock, so it never became subject to taxation (RSA, 1919, p.4).

2. Van Hulsteyn Committee

The Van Hulsteyn Committee (RSA, 1919, p.5) came to the conclusion that section 9 did not ensure equality of treatment either between livestock farmers and farmers who carried on other kinds of farming operations when both made returns on the cash basis; between livestock farmers who had chosen the cash basis and those who had adopted the stock basis; and between the farming community and the rest of the community. To ensure equality of tax treatment between all taxpayers and to increase the income tax contribution from farming, the Committee recommended the abolition of the cash basis and that all taxpayers carrying on farming should be required to frame their returns on the stock basis (RSA, 1919, p.28). It was also recommended that the then existing method of stocktaking by which farmers could place their own values on livestock be abolished and a schedule system be adopted on the following lines:

. all purchased livestock should be valued at cost;

. livestock bred should be valued at standard values or any selected value above the standard value.

The Committee reluctantly came to the conclusion that any attempt to recover outstanding tax on deferred income should be abandoned (RSA, 1919, p.30). This decision was based on the following opinion of the Head of Inland Revenue:

"(1) The whole of the tax would not be recovered.

(2) There would be no equality of recovery as between those persons who kept books and those who did not. The former would pay the full tax; the latter, owing to the absences of sufficient information in the making of an assessment, would not pay the full tax.

(3) There would be no equality of recovery between the respective individuals who have not kept books. Information required to be furnished for the making of the relative assessments would not be complete or reliable in all cases and consequently there would not be equality of recovery from the respective individuals" (cited in RSA, 1919, p.30).

3. Standard values and mortality allowance

In 1922 "standard values" for pedigree and other stock (see Table 5.10) were fixed by Regulation and all farmers were compulsorily rendered liable to income tax on the increase in the value of livestock held by them during any year of assessment (De Kock, 1927, p.238; RSA, 1951, p.70)[40]. In 1925 the options available to farmers prior to 1922 were again restored (De Kock, 1927, p.239). Farmers on the stock basis were also permitted to deduct a mortality allowance from the value of livestock on hand at the end of the year (The Farmers Weekly, 6 August 1947, p.54)[41]. The percentages which usually had been allowed by the Commissioner were:

Cattle   -   7 per cent
Sheep, goats, pigs   - 12 per cent
Horses, donkeys, mules   - 10 per cent

Ostriches	-	5 per cent
Other livestock	-	10 per cent

4. Commencement of phase-out

A gradual phase-out of the cash basis started in the early 1940s. Under 1944 and 1947 amendments, respectively, companies and individuals commencing or recommencing farming operations were obliged to accept the stock basis in determining their taxable income (Franzsen, 1961, p.143; RSA, 1951, p.70). An amendment was also introduced in 1944 limiting the amount allowed for livestock purchases in any one year to the amount of gross receipts from all farming operations, although any excess disallowed could be carried forward (The Farmers Weekly, 6 August 1947, p.54).

Although most farmers stuck to the cash basis[42], they were allowed to change to the stock basis, subject to certain adjustments. Firstly, the value of stock on hand as at July 1, 1913 or the date of commencement of farming could be deducted from the closing value of livestock. Secondly, the amount to be taxed could be spread over whatever period was necessary to dispose of the opening stock of the livestock. Sales were to be calculated at the same price per head as the opening stock (The Farmers Weekly,, 6 August 1947, p.54).

5. Steyn Committee

During 1951 and 1952 the Steyn Committee (RSA, 1951; 1952) evaluated the special provisions relating to farming, particularly the different methods of assessment and the valuation of livestock for taxation purposes. The Committee concluded that the cash basis method had the following disadvantages (RSA, 1951, pp.70-71):

(i)   the bunching of income when a large number of livestock was realised after a few years of building up the herd, with the result that the farmer became liable for super tax;

(ii) the withholding of livestock or the purchase of additional livestock which led to the overstocking of farms with consequential soil erosion, inflated prices of land and livestock and shortages of meat;

TABLE 5.10: SOUTH AFRICA - STANDARD VALUES OF LIVESTOCK: 1922 AND 1955

| Classification | 1922 Standard values | | | | | | 1955 Standard values | | |
| | Pedigree stock of any breed | | | Other stock | | | | | |
	£	s	d	£	s	d	£	s	d
Cattle:									
Bulls	50	0	0	10	0	0	25	0	0
Oxen	-			7	0	0	20	0	0
Cows	30	0	0	7	0	0	20	0	0
Tollies and heifers									
2 to 3 yrs	15	0	0	4	0	0	15	0	0
1 to 2 yrs	10	0	0	2	0	0	7	0	0
Calves	5	0	0	1	0	0	2	0	0
Sheep									
Wethers	-			0	15	0	3	0	0
Rams	50	0	0	0	15	0	3	0	0
Ewes	15	0	0	0	15	0	3	0	0
Weaned lambs	3	0	0	0	5	0	1	0	0
Unweaned lambs	0	0	6	0	0	6	-		
Goats									
Fully grown	3	0	0	0	15	0	2	0	0
Weaned kids	0	15	0	0	5	0	1	0	0
Unweaned kids	0	0	6	0	0	6	-		
Horses									
Stallions over 4 yrs	65	0	0	20	0	0	20	0	0
Mares over 4 yrs	50	0	0	7	0	0	15	0	0
Geldings over 3 yrs	-			7	0	0	15	0	0
Colts, fillies, 3 yrs	35	0	0	5	0	0	5	0	0
Colts, fillies, 2 yrs	25	0	0	4	0	0	4	0	0
Colts, fillies, 1 yr	20	0	0	3	0	0	3	0	0
Foals, under 1 yr	7	0	0	1	0	0	1	0	0
Donkeys									
Jacks, over 3 yrs	50	0	0	3	0	0	2	0	0
Jacks, under 3 yrs	20	0	0	2	0	0	1	0	0
Jennies, over 3 yrs	25	0	0	2	0	0	2	0	0
Jennies, under 3 yrs	10	0	0	1	10	0	1	0	0
Foals, under 1 yr	7	0	0	0	10	0	-		
Mules									
4 yrs and over	-			10	0	0	15	0	0
3 yrs	-			7	0	0	10	0	0
2 yrs	-			5	0	0	7	0	0
1 yr	-			3	0	0	3	0	0
Under 1 yr	-			2	0	0	-		
Ostriches									
Fully grown	-			3	0	0	3	0	0
Chicks	-			0	7	0	-		
Pigs									
Over 6 months	7	0	0[1]	2	0	0[1]	6	0	0
Under 6 months (weaned)	3	0	0[2]	1	0	0[2]	3	0	0
Poultry									
Over 9 months	-			-			0	10	0

1) Over one year   2) Under one year
Source: Inland Revenue

(iii) the opportunity for non-farm taxpayers to accumulate artificial
losses for set-off against their income from other sources;

(iv) the prejudice against the fisc because the accumulated value of
livestock on hand at the death of the farmer escaped liability
for taxation.

The Committee also referred to the harmful effects of the standard
values for livestock which were considerably below the then market
prices. The Committee (RSA, 1951, p.71) concluded that:

"Stock which would otherwise find its way on to the market
is withheld and stock prices become inflated, to the
detriment of the consumer, land becomes overstocked with
consequential dangers of soil erosion, prices of land are
forced up owing to farmers purchasing more land to
accommodate livestock purchased with this object in view and
the farmer himself in the long run gets into still greater
taxation difficulties from which he is unable to extricate
himself".

In its First Report the Committee (RSA, 1951, pp.71-72) recommended
that all farmers be required to furnish tax returns on the stock
basis, i.e. taking into account annually the value of livestock at not
less than 75 per cent of "standard values" fixed by regulation and
representing the prevailing fair average current market values for
each class of livestock.

The suggested values at which livestock were to have been brought to
account were:

- Not less than 75 per cent of standard value for livestock other
  than pedigree livestock and non-purchased pedigree livestock

- Not less than 75 per cent of purchase price of purchased pedigree
  livestock (but limited to 75 per cent of the standard value).

The Committee (RSA, 1951, p.72) believed that the new basis of
assessment had the following advantages:

(i)   During periods of rising prices farmers gained through the ultimate profit being spread over a number of years and not being taxable in one year on profits earned over a number of years. Likewise, during periods of falling prices, farmers benefitted by utilising losses involved each year as prices receded.

(ii) The evils of overstocking would be eliminated.

(iii) Anti-bunching measures and mortality allowances could be scrapped.

It was appreciated that some adjustment would be necessary in respect of the value of stock on hand to be brought to account as the opening stock value at the beginning of the first year of application of the new system recommended. But it was also felt that it would be inequitable to relieve the amount of stock adjustment entirely of taxation. The Committee (RSA, 1952, p.44) accordingly recommended that the amount of the stock adjustment be taxed at the minimum flat rates for individuals and companies but be exempt from super tax.[43]

III. Stock basis period

1.   Income Tax Act, 1954

Some of the recommendations of the Steyn Committee were included in the 1954 Income Tax Act with the result that as from the 1955 tax year all farmers were assessed on the stock basis.[44] Farmers who had previously been assessed on the cash basis were required to render a return of their livestock on hand as at June 30, 1954 representing their opening stock for the 1955 tax year. These and stock basis farmers were given the option of valuing their livestock at either the standard values fixed by regulation (See Table 5.10)[45] or at their own valuation. Increases in the value of livestock which arose from the adoption of new values, however, were tax free. Livestock acquired by purchase for stud purposes had to be valued at the purchase price paid for the livestock. In granting the mortality allowance the Commissioner, with effect from the 1955 tax year, drew a distinction between livestock acquired by purchase for stud purposes and other livestock. In regard to the former, the farmer could on

application write off the entire cost of the animal over a period of ten years in equal annual instalments. In practice this was achieved by granting a mortality allowance of 10 per cent in the year of purchase, 20 per cent in the second year, 30 per cent in the third year and so on. As regards animals acquired prior to the 1955 tax year, the cost could be written off over ten years with effect from the 1955 tax year. In the case of all other animals, the mortality allowance for all classes of livestock was fixed at 10 per cent (Silke, 1961, p.422).

Companies were also compelled to go over to the stock basis in 1955, but they were not entitled to the concession open to individual farmers.[46] In addition, companies (and estates of deceased persons) were not entitled to elect standard values, but had to use purchase or market price (non-breeding livestock).[47] Companies could also not claim the mortality allowance in respect of livestock on hand at the end of a tax year. The following two examples taken from Silke (1955, pp.19,21) illustrate the effect of the amendments introduced by the 1954 Income Tax Act.

Example (Individual farmer)

Mr A commenced farming on 4 January 1938 with 200 sheep and 50 cows inherited from the estate of his father. He elected the cash basis. In terms of paragraph 4 of the Third Schedule of the Income Tax Act 1941, £600 worth of livestock purchases had not been allowed as a deduction up to the 1953 year. His taxable income for the 1954, 1955 and 1956 tax years was determined from the following information

Stock on hand	Cows	Sheep	Produce
June 30, 1954	150	1 000	£500
June 30, 1955	200	1 200	£400
June 30, 1956	250	1 300	£200

	1954	1955	1956
Sales - produce	£3 200	£3 500	£4 000
Sales - cows	10 at £30	100 at £40	10 at £35
Sales - sheep	200 at £5	500 at £6	100 at £4
Livestock purchases	£5 000	£3 400	£3 200

The Commissioner allowed a mortality allowance as follows: Cows, 7 per cent; sheep, 12 per cent.

In his return for the 1955 tax year Mr A elected to adopt the following standard values: Cows, £30; sheep, £4.

(a) 1954 Assessment

Debits		Credits	
Livestock and produce at beginning ("cash" basis still applies for 1954 tax year)	NIL	Produce sales	£3 200
		Livestock sales	1 300
		Livestock and produce at end	NIL
Livestock purchased (limited to gross income from farming)	£4 500	Assessed loss carried forward to 1955	3 100
Farming expenses	3 100		
	£7 600		£7 600

In terms of para. 4, £1 100 (£600 + £500) worth of livestock has not been allowed as a deduction up to June 30, 1954.

(b) 1955 Assessment

Livestock at beginning (no mortality allowance)	£8 500*	Produce sales	£3 500
		Livestock sales	7 000
Produce at beginning	500	Livestock at end (less	
Livestock purchases	3 400	mortality allowance)	9 804**
Farming expenses	3 000	Produce at end	400
Assessed loss from 1954 brought forward	3 100		
Taxable income	2 204		
	£20 704		£20 704

* Livestock at beginning

150 cows at £30	£4 500
1 000 sheep at £4	4 000
	£8 500

** Livestock at end

200 cows at £30	£6 000
1 200 sheep at £4	4 800
	£10 800

Less Mortality allowance

7 per cent on £6 000 = £420		
12 per cent on £4 800 = 576	996	
	£ 9 804	

No further adjustment in respect of the 200 sheep and 50 cows on hand at the commencement of farming and the £1 100 livestock purchases not allowed as a deduction can be made. These matters now fall away.

(c) 1956 Assessment

Livestock at beginning (less mortality allowance)	£9 804	Produce sales	£4 000
		Livestock sales	750
Produce at beginning	400	Livestock at end (less	
Livestock purchases	6 000	mortality allowance)	11 551*
Farming expenses	3 200	Produce at end	200
		Assessed loss carried forward to 1957 year	2 903
	£19 404		£20 704

```
*  Livestock at end
      250 cows at £30                    £7 500
    1 300 sheep at £4                     5 200
                                        £12 700


   Less Mortality allowance
      7 per cent on    £7 500 = £525
     12 per cent on    £5 200 = £628      1 149
                                        £11 551
```

Example (Farming Company)

Farms Ltd which commenced sheep farming operations in 1935, had elected to be assessed on the cash basis. At 30 June 1953 expenditure amounting to £8 000 in respect of livestock purchases had not been allowed to be deducted from income. The following is a summary of the company's trading account for the tree years ended 30 June 1956.

	1954	1955	1956
Produce sales	£10 000	£12 000	£15 000
Livestock sales (progeny)	20 000	10 000	42 000
Livestock purchases	32 000	15 000	10 000
General farming expenses	10 000	8 500	9 400

In terms of the provisions of the Income Taxt Act, 1954, the Company took stock of its animals for the first time at 30 June 1954. There were 5000 sheep on hand. At 30 June 1955 and 30 June 1956 there were 4500 and 6000 sheep on hand respectively. Produce on hand for the 3 years was £2 500, £3 000 and £3 600 respectively. A fair average market value of the sheep for the 3 years was £5, £6 and £5 10s respectively. The company elected to value its purchased livestock on hand at current market values. No stock was acquired by purchase for stud purposes. The taxable income of the company for the three tax years 1954, 1955 and 1956 are as follows.

(a) 1954 Tax Year

```
    Produce sales                                           £10 000
    Livestock sales                                          20 000
                                                            £30 000
    Less Livestock purchases limited to     £30 000
    General Farming expenses                 10 000          40 000
    Assessed loss carried forward to 1955                   £10 000
```

In terms of para. 4, £10 000 (8 000 + £2 000) worth of livestock has not been allowed as a deduction up to June 30, 1954.

(b) 1955 Tax Year
```
    Produce sales                                           £12 000
    Livestock sales                                          10 000
    Stocks on hand at June 30, 1955:
       Produce                                                3 000
       Livestock (4 500 sheep at £6)                         27 000
    Adjustment on account of opening stocks
    (July 1, 1954):
       Produce                                                2 500
       Livestock (£25 000 less £10 000 livestock purchases
       not allowed as a deduction, i.e. £15 000, but
       limited to market value of livestock sold during
       year, viz. £10,000)                                   10,000
```

Less livestock purchases	£15 000	
General farming expenses	8 500	
Stocks on hand at July 1, 1954:		
Produce	2 500	
Livestock (5 000 sheep at £5)	25 000	51 000
		£13 500
Less Assessed loss brought forward		10 000
Taxable income		£ 3 500

In subsequent years there still remains to be taxed £5 000 worth of livestock on hand at 1 July 1954, viz., £15 000 less £10 000. As the livestock sold represented progeny only, the adjustment is made on the basis of the sale price of the livestock sold. If livestock sales had included purchased livestock it is submitted that for the purpose of the adjustment the company could have elected cost at market value. If sales had included stock acquired by purchase for stud purposes, for the purpose of the adjustment the animals would have to be valued at cost.

(c) 1956 Tax Year

Produce sales		£15 000
Livestock sales		42 000
Stocks on hand at June 30, 1956:		
Produce		3 600
Livestock (6 000 sheep at £5 10s. 0d.)		33 000
Adjustment on account of opening stocks		
(July 1, 1954):		
Balance of livestock (£15 000 less £10 000)		5 000
		£98 600
Less livestock purchases	£10 000	
General farming expenses	9 400	
Stocks on hand at July 1, 1955:		
Produce	3 000	
Livestock	27 000	49 400
Taxable income		£49 200

The livestock on hand at 1 July 1954, viz. £15 000 has now been fully absorbed in taxable income and there is no further adjustment to be made in subsequent tax years.

2.   Standard values, mortality allowance and breeding stock

With effect from the 1958 tax year standard values chosen by farmers could not be more than 20 per cent higher or lower than the standard values which had been laid down by Regulation (Silke, 1961, p.420).[48] In 1963 the mortality allowance was scrapped (Shrand, 1974, p.116; Van der Merwe, 1964, p.37), but substituted for purchased breeding stock by an annual deduction of 10 per cent of the purchase price of each animal for each year of assessment during which the animal was held (Shrand, 1974, pp.116-117). Breeding stock that had been acquired other than by purchase had to be valued at standard values. In 1971 the 10 per cent deduction was increased to 25 per cent (Shrand, 1974, p.118). From the 1971 tax year to the 1981 tax

year purchased breeding stock was defined as livestock which had been purchased at prices above the following benchmarks (Silke, Divaris & Stein, 1982, pp.1018-1019):

	From 1971 to 1976 tax years	From 1977 to 1980 tax years	For 1981 tax year
Bull or bull-calf	R400	R600	R900
Cow or heifer	200	300	450
Stallion or colt	400	600	900
Mare or filly	200	300	450
Ram or he-goat	150	225	350
Ewe or she-goat	75	115	175
Pig	50	75	115
Any other animal	100	150	225

For the 1982 tax year purchased breeding stock had to be valued at either 25 per cent of the purchase price (if purchased during the 1981 tax year) or 50 per cent of the purchase price (if purchased during the 1982 tax year (Silke, Divaris & Stein, 1982, p.1018). Since the 1983 tax year no distinction was made between purchased breeding stock and other livestock and all livestock could be valued at the following standard values:

Classification	Standard values
Cattle:	
Bulls	R50
Oxen	40
Cows	40
Tollies and Heifers:	
Two to three years	30
One to two years	14
Calves	4
Sheep:	
Wethers	6
Rams	6
Ewes	6
Weaned lambs	2
Goats:	
Fully grown	4
Weaned kids	2
Horses:	
Stallions, over four years	40
Mares, over four years	30
Geldings, over three years	30
Colts and fillies, three years	10
Colts and fillies, two years	8
Colts and fillies, one year	6
Foals, under one year	2
Donkeys:	
Jacks, over three years	4
Jacks, under three years	2
Jennies, over three years	4
Jennies, under three years	2

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Mules:
    Four year and over                          R30
    Three years                                  20
    Two years                                    14
    One year                                      6
Ostriches, full grown                             6
Pigs:
    Over six months                              12
    Under six months (weaned)                     6
Poultry, over nine months                         1
Chinchillas, all ages                             1
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Thus prior to the Margo Commission inquiry, livestock farmers (including the grantor of a sheep lease or similar agreement concerning livestock)[49] were assessed on a general trading basis[50] and had three options for valuing livestock on hand, viz. the standard values, own values which could not be more than 20 per cent higher or lower than the standard values or "standard values" chosen by the farmer together with his own classification of livestock. With regard to the latter, the more common methods of valuing livestock, under standard values, are historical cost or net realisable value.[51]

3.   Margo Commission inquiry

During its inquiry into the tax structure of South Africa, the Margo Commission evaluated critically the tax treatment of livestock (RSA, 1987, pp.229-231). The Commission received a number of submissions which mostly commented on the concessionary nature of the unrealistically low standard values. Few submissions favoured the standard value system because of:

(i)   its simplicity and ease of administration;

(ii)   its incentive characteristics, especially for young farmers expanding their enterprises; and

(iii) its salutary influence on farmers' cash flows, mainly because unrealised income is not taxed.[52]

Most of the submissions, however, referred to the undesirable effects of the standard value system.[53] The comments to all intents and purposes concur with those advanced by the Steyn Committee in respect

of the cash basis method (RSA, 1951, pp.70-71). These are briefly discussed below.

(a)   High and unrealistic prices of animals

Some witnesses contended that the large, deductible write-downs from purchase price to low standard values contributed to some farmers, especially those on high marginal tax rates, paying unrealistic prices for certain livestock, particularly stud animals and bloodstock.[54] Obviously good quality, speculative investment and high demand and limited supply have also contributed to high or even excessive prices, but the tax advantages have regularly been proffered as a fillip to invest in stud animals or bloodstock (Haug & Mackenzie, 1986, pp.8-10).[55]

(b)   Degradation of pastures

Virtually all the submissions had argued that the standard value scheme had the effect of locking people into livestock farming, thus slowing diversification into some non-pastoral activities and contributing to the degradation of pastures. Deloitte Haskins and Sells (1987, p.11), for example, stated that " ..... the expensing of livestock could have been a factor - amongst others of course - for the sorry state of grazing in this country". The White Paper on Agricultural Policy (RSA, 1984) identified the optimal utilisation of natural resources as one of the overriding policy objectives, but overstocking has been one of many reasons why pastures have been in such a parlous state (RSA, 1985, p.4).[56] It was a Chief Director of the Department of Agricultural Economics and Marketing's conviction that

> "Alle pogings wat tot dusver aangewend is om boere tot optimale weiveldbenutting te oorreed gefaal het. Die vraag is waarom? Ek het dit reeds by herhaling voorheen gesê dat dit my oortuiging is dat solank die formule waarvolgens veeboere hulle inkomstebelasting bereken onveranderd bly, ons geen sukses, met watter vorm van oorredingsaksie, wat ookal, sal behaal nie. Boere sal, bloot vanuit 'n inkomstebelastingoogpunt gesien, voortgaan om hulle weiveld oor te belaai" (RSA, 1985, p.2).[57]

The same Director was convinced that the introduction of the reserve fund at the Land Bank, for livestock farmers, was only allowed because very large taxable incomes were generated when farmers were compelled to sell their livestock to meet the requirements of the livestock reduction scheme.[58]   To his mind this additional concession does not address the problem of overstocking, but only allows the farmer to defer his tax.

(c)   Inheritances

As a result of the large discrepancies between standard and market values, double or even treble deductions were often enjoyed when livestock passed from a deceased farmer to his estate and then to the heirs (Finance Week, June 23-29, 1983, pp.625-627).   When a farmer died livestock held at the date of death (closing stock) was valued at the standard value.   Livestock which entered the estate (opening stock) was valued at market value.   With the winding up of an estate all livestock held was valued at the standard value (closing stock). Farming heirs were entitled to value livestock for opening and closing stock purposes at market and standard values respectively.   The treble tax sheltering is illustrated in the following example.

Example

A farmer buys 500 oxen for R400 each on 1 July 1985.   He dies on 28 February 1986.   The estate is wound up on 28 February 1987 and the son inherits the livestock.   Standard value of oxen is R40.   Market values on 28 February 1986 and 1987 are R450 and R500, respectively.

(i)   Tax sheltering by farmer (R200 000 cost   R180 000
        price which is a tax deductible expense
        less R20 000 closing stock i.e. 500 x
        R40)

(ii)   Tax sheltering in estate (500 x R450   R205 000
        market value on 28.2.1986 = R225 000
        less 500 x R40 (R20 000) standard
        value on 28.2.1987).

(iii)   Tax sheltering in hands of heir (500 x   R230 000
        R500 market value on 1.3.1987 = R250 000
        less 500 x R40 (R20 000) standard value
        on 28.2.1988)

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Total tax sheltering implies a tax saving of R215 250 (assuming a tax rate of 35 per cent).

(d) Tax sheltering

In recent years and particularly prior to the release of the Margo Report, bloodstock became a popular tax haven (Finance Week, February 25-March 2, 1988, p.45; April 14-20, 1988, p.5; Financial Mail, February 19, 1988, pp.43,45; Finansies en Tegniek, April 15, 1988, p.16; April 22, 1988, p.16; Haug & Mackenzie, 1986, pp.8-10). Basically the bloodstock schemes worked as follows:

- A partnership buys a horse for breeding purposes.

- As breeding is a farming activity the partnership is able to claim a section 11(a) deduction of the cost of the horse, and includes the standard value of the horse in its closing stock for the year (R30 for mares and R40 for stallions).

- If the partnership had bought a mare, say, for R500 000, the partners would obtain a net deduction in the first year of R499 970 in respect of the cost of the horse.

- All revenue costs of the farming activities, such as keeping the mare and rearing the foals, are written off as and when incurred.

- When a profit is realised, however, the partners, as farmers, can opt for the averaging provisions in paragraph 19 of the First Schedule of the Income Tax Act.[59]

- The result is tax losses in the earlier years and a taxable profit (if any) in later years, or the classic deferral tax shelter.

Bloodstock schemes did not only hinge on low standard values, but gained added attraction by capitalising finance costs, for the duration of a typically ten-year scheme, into the first year's costs. Bloodstock schemes were normally sold with a "pure endowment" insurance policy allowing a "bullet payment" when the scheme expired.

The structure of the scheme allowed the investor to make massive first year cash gains.[60)]

The ingenuity of taxpayers was also illustrated by a suggestion to the Jacobs Committee that investors and livestock farmers should enter into partnerships to enable the financially stressed farmers to obtain capital by allowing partnership losses (created by write-offs to standard values) as a deduction for tax purposes for investors. The suggestion was obviously rejected.

The Margo Commission (RSA, 1987, p.231) fully appreciated that the standard values were far too low, but concluded that an attempt to introduce current values would fail, due to a number of reasons. First of all, it would be very difficult to adopt uniform current values, due to a wide range of farming circumstances. Secondly, catching up on values which had been frozen since 1955 would result in an enormous tax burden, which the State would be unlikely to forgive or waive. Thirdly, tax values equivalent to current costs of animals would obviously retard the development of young farmers building up their herds. Although the Commission recognised the force in arguments for adopting more current and representative costs, including the argument that low standard values have been a factor in the degradation of grazing, due to overstocking, it concluded that the present standard values should remain but that the resulting "artificial" losses should be ring-fenced, and only be available for set-off against farming income. It also recommended that the basis for valuing all livestock that passes from a deceased farmer to his estate and heirs should be standard values (RSA, 1987, p.231). These recommendations were accepted by Government (RSA, 1988, p.16).

IV. Ring-fenced stock basis

During 1988 two important changes were made to the Income Tax Act, 1962, in an attempt, firstly, to crack down on finance charges which have been claimed in respect of livestock acquired under suspensive sales and, secondly, to take away the unlimited write-off of livestock acquired by the "armchair" or tax farmer.[61)]

1.   Finance charges

A press release on 12 February 1988 publicised the intention of the Ministry of Finance to put an end to what it considered to be the abuse by taxpayers of incentive and other tax allowances (Income Tax Reporter, 1988, vol.27, part 2, p.41). On Sunday 14 February 1988 the Deputy Minister of Finance announced that with effect from 13 February 1988, section 11(bB) of the Act would be amended to ensure that no deductions would be able to be artificially or even genuinely increased through the addition of financing costs or other interest charges (Mitchell, 1988, p.50). Then on 22 February 1988 the Deputy Minister again issued a warning that potential investors in tax avoiding schemes using en commandite partnerships (i.e. a partnership whereby only limited liability rests on a silent partner) should ensure that such schemes meet the ordinary requirements of the Act (Deloitte Haskins & Sells, 1988, no.6, p.1). The Minister stated that:

> "In a great number of the tax avoidance schemes that are being marketed use is being made of a partnership referred to as an en commandite partnership. The Commissioner for Inland Revenue informs me that he has examined some of the avoidance schemes in which these partnerships have been used. The schemes have been structured in such a manner that no liability rests on the partner should the scheme fail. It is, however, contended by the consultants who market the schemes that the partners are entitled to a tax deduction of an amount substantially in excess of their contribution to the partnership and to what their true liability would be should the scheme fail. The Commissioner informs me that there is doubt as to whether it can be held that in these circumstances, expenditure has actually been incurred, as contemplated in sections 11(a) and (b) of the Income Tax Act, in an amount in excess of the sum of the partner's contribution to the partnership and the income actually derived by the partnership. Potential investors in these schemes are therefore cautioned to satisfy themselves that the schemes comply with the ordinary provisions of the Income Tax Act before they participate in them." (cited in Income Tax Reporter, vol.27, part 4, p.123).

In another press release on 30 May 1988 the Ministry of Finance indicated that the Act would be amended in such a way that the "deduction which taxpayers may claim in respect of any scheme or arrangement will be limited to the amount of his true liability should the scheme fail" (cited in Income Tax Reporter, 1988, vol.27, part.4, p.124).

These "threats" eventually culminated in the amendment of section 11(bB) in 1988 to cover farming and, specifically, the purchase of livestock.[62] This section provides for the deduction of any finance charges incurred in the acquisition of certain assets/goods used by a taxpayer for his trade. The deduction granted is in lieu of any other deduction available under the Act[63] and is intended to prevent taxpayers from capitalizing finance charges into the cost of the asset. The proponents of certain tax shelter schemes contended that the provision did not apply to farming. As forshadowed by the Ministry of Finance in the various press releases, the section has now been amended to apply to livestock acquired on or after 13 February 1988.

2.   Ring-fencing in respect of losses on livestock account

Although any taxpayer engaged in farming operations is entitled to a deduction of the full purchase price of livestock (including purchased breeding stock), he need only include in his income the "standard value" of any livestock held and not disposed of by him at the end of the year of assessment. In practically all cases, the standard value will be substantially less than the purchase price, giving rise to a "book" loss of the difference. This loss could in the past be set off against other non-farming income.

A new paragraph 8 was inserted in the First Schedule to the Act which gives effect to the Margo Commission's recommendation that losses on livestock account should only be available for set off against farming income. Paragraph 8, which applies in respect of the acquisition of livestock on or after 31 May 1988, provides that the deduction which may be allowed to a farmer under section 11(a) or (b) in respect of the cost price of livestock acquired by him is limited in accordance with the following formula (para 8(1)):

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> Allowable deduction = Income received from farming <u>plus</u>
> closing stock <u>less</u> opening stock

For example, assume that a taxpayer has R60 000 income from non-farming sources and R10 000 income from farming. The standard value of his stock on hand at the beginning of the year of assessment is R10 000 and the standard value of closing stock is R15 000. In addition, he purchases livestock for R20 000 during the year. Although he has incurred expenditure of R20 000 in respect of the acquisition of livestock, his allowable deduction is limited to:

Income from farming	R10 000
<u>Add</u> Closing stock at standard value	15 000
	R25 000
<u>Less</u> Opening stock at standard value	10 000
Allowable deduction	R15 000

Expenditure of R5 000 will therefore be disallowed in the current year of assessment. The amount disallowed may, however, be carried forward to the succeeding year and will be deemed to be expenditure incurred by the farmer in respect of the acquisition of livestock during such year (para 8(2)).

It will be observed that it is not that a genuine farming loss is "ring-fenced" in terms of the provision, but the cost price incurred in respect of the acquisition of livestock. Should the amount of allowable expenditure give rise to a loss from farming, such loss can still be set off against income earned from non-farming activities.

The change will impact those who, in the past, purchased breeding stock to produce large tax deductions. For example, if a person purchased a stallion for breeding purposes for R100 000 and he has no farming income, he will only be allowed to deduct:

Farming income	R 0
<u>Add</u> Closing stock at standard value	10
	R10
<u>Less</u> Opening stock at standard value	0
Allowable deduction	R10

This limitation will not apply:

- where it can be shown by the farmer that he no longer holds the livestock in question (para 8(3)(a));

- to so much of any expenditure which is to be disallowed in terms of the above provisions, together with the standard value of opening stock, as exceeds the fair market value of all the farmer's livestock at the end of the year (para 8(3)(b)).

The latter exclusion provides some relief where the market value of a farmer's livestock on hand at the close of the year of assessment has fallen, for example, as a result of drought. To illustrate, assume that the farmer in the earlier example is able to show that the market value of his livestock at the end of the year is R12 000. Then the amount of expenditure which has been disallowed will be reduced by:

Expenditure to be disallowed	R 5 000
Add value of opening stock	10 000
	15 000
Deduct market value	12 000
Allowable	R 3 000

Thus, of the R5 000 which was originally not allowable as a deduction, a further R3 000 may be deducted.

A farmer's income from farming for the purposes of the limitation appears to be his gross farming income before expenditure. Consequently the new provision will generally only hit the part-time or so-called "gentleman" farmer. It could, however, also affect a livestock farmer who incurs substantial expenditure on the purchase of livestock in a year in which his farming income is low. In most instances this will be the exception rather than the rule.

The following example illustrates the taxation of livestock according to the ring-fenced stock basis.

Example

An 'armchair' farmer, Mr A acquired a broodmare on 1 June 1988 under a ten-year, suspensive-sale agreement at a total cost of R211 160. This cost is made up of a (cash) cost of R50 000 and finance charges of R161 160 for the ten-year period. The broodmare was then sent to a stud farm where she was successfully covered. Her foal is expected to be born in August 1989. This is the first farming venture entered into by Mr A. He received no farming income in his current year of assessment ended 28 February 1989.

Finance charges	R161 160
Period of suspensive-sale agreement	120 months
Write-off per month (day-to-day basis)	R 1 343
During current year of assessment (nine months)	R 12 087
Cost of livestock	R 50 000
Deduction limited to (under para 8(1)):	
Farming income received or accrued	R -
Add: Closing stock of livestock at standard values	30
	R30
Less: Opening stock of livestock at standard values	-
Deduction limited to	R30

Overall tax position

Deduction under s 11(bB)	R12 087
Deduction under s 11(a) - limited per para 8(1)	30
Total tax deductions	R12 117
Gross income inclusion (closing stock of livestock)	30
Net tax deduction	R12 087

Had Mr A acquired this broodmare before 13 February 1988, the position may have been as follows:

Finance charges

Section 11(bB) not applicable	Nil
Cost of livestock (finance charges included)	R211 160
Deductible per s 11(a)	R211 160

Overall tax position

Deduction under s 11(a)	R211 160
Gross income inclusion (closing stock of livestock)	30
Net tax deductions	R211 130

Compare this figure with the net tax deduction of R12 087 under the new legislation.

Illustration of para 8(3)(b)

Assume that the broodmare had been sent to a stud farm and, after unsuccessful attempts to put her in foal, it was established that she was barren. Unfortunately for Mr A, the insurance policy that he had taken out on this broodmare did not cover this eventuality. Although she was offered for sale, no offers of purchase had been received by

28 February 1989. It was expected that she would sell for about R1 000.

Finance charges - as before:
 Deductible in the 1989 year of assessment — R12 087

Cost of livestock:
 Deductible under para 8(1) - as before — R30
Deduction under paragraph 8(3):
 Cost of livestock not deductible per para 8(1) — R49 970
'Further deduction' limited to:
 Cost of livestock not deductible per para 8(1) — R49 970
 Add: Standard value of opening stock of all livestock — -

 — R49 970
 Less: Market value of closing stock of all livestock — 1 000
       Maximum further deduction possible — R48 970

Overall tax position
Deduction under s 11(bB) — R12 087
Deduction for livestock purchased under s 11(a):
     Limited per para 8(1) — R30
     Limited per para 8(3) — R48 970 — R49 000
 — R61 087
Gross income inclusion (closing stock of livestock) — 30
       Net tax deductions — R61 057

Illustration of para 8(3)(a)
Assume that the broodmare has been sent to a stud farm, where she is struck by lightning and killed. Mr A received R45 000 from the insurers with whom he had insured her life. He settles his suspensive-sale debt on 28 February 1989 and receives a rebate of finance charges of R137 160 as a result of this early settlement.

Finance charges:
Suspensive-sale agreement does not (now) extend to a period of twelve months beyond the end of the year of assessment and entire finance charges may be written off — R161 160
The rebate of finance charges received is required to be included in the taxpayer's income - a recover of deductible expenditure — 137 160
       Net amount deductible — R 24 000

Cost of livestock purchased:

If Mr A is able to show that this livestock is no longer held and not disposed of by him the provision of para 8(1) will not apply. Since the broodmare was killed by lightning, Mr A should be able to discharge this onus. His entire (cash) cost would then be deductible under s 11(a) with no limit being set by para 8(1) — R50 000

Overall tax position
Deduction under s 11(bB) net of s 8(4)(a) recoupment — R24 000
Deduction under s 11(a) — 50 000
 — R74 000
Gross income inclusion - insurance proceeds — 45 000
       Net tax deductions — R29 000

Mr A has lost R29 000 on an unsuccessful trading venture. It would therefore seem reasonable that he obtain an unrestricted tax deduction of this R29 000 loss.

V. Alternative accounting and valuation methods

The preceding overview of the tax treatment of livestock leads one to conclude that accounting and valuation methods for the reporting of income from livestock should satisfy the following criteria:

(i)   simplicity and ease of administration;

(ii)   prevent undue exploitation of any tax relief;

(iii) achieve a more neutral tax treatment of agricultural investment and investment in other sectors;

(iv)   distinquish between trading and capital stock;   and

(v)   reduce the need for additional alleviating tax measures.

Both the Margo Commission and Government favoured the continuation of the system of nominal standard values together with the ring-fencing of losses on livestock account. By implication both gave preference to criteria (i) and (ii) above. This approach is, however, challenged for two reasons. Firstly, the present system requires that other mitigating measures, which do not really reduce simplicity and compliance costs have to be included in the Act.[64] Secondly, although tax sheltering opportunities for the armchair farmers have virtually been eliminated, such opportunities remain for "genuine" farmers. These opportunities will undoubtedly increase with a corresponding increase in the discrepancy between standard and market values.

Both the Commission's and the Government's conclusions can thus be contested. Deloitte Haskins & Sells (1988, p.12) argue that "There is nothing inherently impractical in adopting standard costs of stock, the only problem being that the standard costs have not been adjusted since 1955, when they were, in fact, realistic approximations of cost". Submissions to the Margo Commission suggested the following alternatives:

(i)   standard values should be adjusted annually;

(ii)   standard values should approximate average market prices or 80 per cent of market prices;

(iii)   purchased and bred livestock should be valued at cost and standard values, respectively.

In a research document for the Margo Commission, Van Rensburg (1985) suggested an "adjusted standard value (ASV)" scheme.   In certain respects the scheme corresponds with the Steyn Committee's recommendations.   It was, inter alia, proposed that ordinary and self-bred livestock be valued at adjusted standard values reflecting the average market values less 25 per cent for each livestock category.   Secondly, it was suggested that purchased stud livestock be identified as livestock which have been acquired at a price exceeding a certain benchmark.   Such livestock could be valued at cost less depreciation (20% straight line basis) over the useful life of such livestock, but should never be depreciated to a value less than the ASV.   The price levels suggested to differentiate between stud and ordinary livestock for the purpose of this proposal was five times the ASV for each category of livestock.   It was also proposed that livestock held and valued at standard values should be distinguished from new acquired livestock.   The former should be phased-out over a specified period while the latter should be valued at ASVs at the end of first tax year. A five-year FIFO-method of stock valuation, with an automatic transfer from the old to the new system, was effectively suggested.   This form of adjustment represents a compromise between a tax holiday (which government was not keen to grant) and a full recoupment (which would result in a substantial tax burden for some farmers).

The Margo Commission neatly side-stepped the issue of devising a sound scheme for taxing livestock and rather embarked on further regulating the generally regarded unsound and undefensible, albeit simple, system of standard values.   However, it is certainly possible to build an argument for the adoption of current cost standard values instead of ring-fencing.   To some extent the guidelines which have been suggested by the South African Institute of Chartered Accountants (SAICA) (1988)

already point in this direction.[65)] SAICA recommended that trading
livestock be valued in the financial statements of farming enterprises
at the lower of cost and net realisable value, while productive
livestock should be capitalised at cost at the commencement of their
productive lives and systematically amortised over their anticipated
productive lives to estimated net realisable value at the end of their
productive lives.

Rather than attempt to regulate further the undesirable effects of the
standard value scheme a complete reform of the system of taxing
livestock is suggested. This alternative reintroduces much of the
neutrality with other sectors, which had been lost in recent years.
It will allow for the repeal of some of the regulatory provisions of
the present system and will treat all livestock owners equally in its
on-going operation. Future investment in livestock, it is believed,
will be related to product prices rather than tax consequences, and
capital will be more mobile without the locked-in effect of the
present system.

VI. Proposed taxation system for livestock and game

It is proposed that a new livestock taxation system, very similar to
the one which was recently implemented in New Zealand, be introduced
in South Africa. The only practical change suggested is the different
basis of calculating livestock values. In future income years
taxpayers should have the choice of three schemes for valuing
"specified" livestock. They are the cost option, the trading stock
scheme and the herd scheme. A separate valuation scheme should apply
to high-priced purchased livestock, while special rules should also
apply to thoroughbred horses as well as game. Specified livestock
include cattle, sheep, goats, pigs, standard bred horses, donkeys,
mules, ostriches, poultry and chinchillas.

1. Cost option

Livestock farmers should have the right to value each livestock
species under a "cost option".[66)] The cost option should contain
two alternative systems for valuing livestock, namely, historical cost
or net realisable value as was suggested by the SAICA. Historical
cost includes direct costs of acquiring, breeding, maintaining and

improving the animals until they are ready for sale. Net realisable value is determined on the basis that the animal is sold to be slaughtered or is obtained from a livestock marketing agency.[67] Except where the herd scheme covers livestock classes, all livestock of that type should be valued under the cost option if it has been adopted. A combination of the cost option with the trading stock option should preferably not be allowed for one particular livestock type. In addition to these cost option alternatives, three further schemes should be available to farmers, namely the trading stock scheme, herd scheme and high-priced-stock scheme. Appendix 3 details all the classes of livestock for which herd values and trading stock values should be set annually.

2.   Trading stock scheme

The essential difference between the trading stock scheme and the present standard value system is that the closing value for each class of livestock will be revalued at market-related standard values. These can be termed trading stock values (TSV) and could be set at a certain percentage of a three-year moving average of the national average market value for each class of livestock. As in the case with cost price and market price, some correlation should exist between the "adjusted" standard value and the market price. TSV-values pitched at the average market value less 30 per cent is probably an acceptable basis maintaining this link.[68] Livestock less than 3 months of age at balance date should be included at values equal to 50 per cent of the TSV for rising one year classes. For stock classes predominantly sold through an auction system, average auction prices could be used. For stock classes predominantly destined directly for slaughter, average carcass values could be used. The Department of Agriculture or livestock organisations could assist Inland Revenue in developing a system for collecting data throughout each year. Increases in the total standard value between years should be treated as taxable income, and decreases as deductible losses. All replacement stock in any class should be fully tax deductible in the year of purchase (or breeding) up to the benchmark price level for high priced stock.

Purchases of additional stock (or the costs associated with breeding and rearing them) should be fully deductible up to the benchmark price level for high priced stock. This means that a writedown will be

allowed between purchase price and the TSV if the purchase price is greater. Stock purchased or bred for a cost lower than the TSV should be written up to that value if on hand at closing balance. This will result in an increase in assessable income in that year, which is not reflected in the cost of the stock.

Proceeds from the sale and non-replacement of capital stock (i.e. a decrease in numbers in any class between opening and closing balances) will be assessed for tax only on profits above opening standard value in the year of sale. Any loss on sale (i.e. stock sold below opening standard value) will be treated as a tax deductible loss which may be offset against other income. In other words, the difference between sale price and opening standard value will be assessed for tax purposes as either a profit or loss. This is the same treatment as occurs under the present standard value system (or indeed any inventory valuation system), and differs only in that standard values are more closely aligned to realisable market values. With regard to accounting systems, the most significant change from the present standard value system lies in the compulsory adoption of standard values set annually. In essence, the accounting system will not change and should be easily understood by taxpayers conversant with the old standard value system.

The trading stock scheme should apply to all classes of livestock and either operate as the sole valuation system for a livestock type or in combination with the herd scheme. For a particular livestock type it should not be used in combination with the cost option.

3. Herd scheme

An optional herd scheme should apply to mature (adult) livestock kept mainly for the sale of their produce or progeny as opposed to slaughter. These can be broadly referred to as capital stock, akin to a manufacturer's plant and machinery used in the production of a product range. Under the herd scheme opening and closing livestock on hand should be revalued annually to the same end of year values for each eligible livestock class. Herd values (by livestock class) should be set at 100 per cent of the average market price. In a sense there is some similarity with the present standard value scheme which has the same opening and closing values.

All other operational details applying to this scheme are in common with the trading stock scheme. With regard to the accounting system, the operation of the herd scheme in the financial accounts will be marginally more complex than the trading stock scheme. This increase in complexity arises because a dual valuation system must be adopted where livestock classes ineligible for inclusion in the herd scheme are owned. However, the complexity will be minimal in comparison with the cost option of valuation.

4. High-priced-stock scheme

This valuation scheme should be compulsory for any livestock purchased above a predetermined value. Since it will apply only to purchased livestock, high-valued stock bred and reared on-farm will have to be valued under the other valuation schemes, with a proviso that the offspring of thoroughbred horses be valued under the cost option only. Inherent in this scheme is the compulsory identification of the animals concerned. Stock included in the scheme must be individually identified and traced for their lifetime on the farm. The level of the bench-mark price for high-priced livestock is obviously very important, because a low level will result in too many stock having to be identified while a too high level will result in large and immediate write-offs of purchased stud stock. Specified benchmark prices or benchmark prices based on the average market values for the previous income year, multiplied by a predetermined factor (of say 4) is suggested. This should apply to each class of livestock for which a national average value is set (see example below).

Example: High-priced-stock scheme: Bench-mark values

Class	1989 Average market value	Multiplier	1990 bench-mark value for high-priced-stock scheme
Ewes	R120	x 4	R480
Beef cattle	R1000	x 4	R4000

Depreciation from cost should be allowed under this scheme, but only when stock are older than (say) two years for cattle, goats, thoroughbred horses, donkeys and mules; and older than one year for sheep, pigs and ostriches. Thus, write-downs commence from the point when a young animal reaches maturity or is first used for stud duties

and continue until the closing value of livestock equals the average market (herd) values. The suggested rates of depreciation are:

	% of cost price p.a.
Sheep, goats	25
Cattle, stallions, donkeys, mules	20
Pigs and ostriches	33 1/3

For broodmares the annual depreciation should equal an amount that will reduce the cost to R1 in the year the mare attains the age of 14, with a maximum rate of 33 1/3 per cent of cost price. It is achieved by application of the formula -

$$\frac{C}{15 - A}$$

where C represents the cost of the horse; and A = 12 or the age of the horse (in whole years) in the year the horse is first used by the taxpayer for breeding if that age is 11 or less.

For example, a broodmare purchased at a cost of R36 000 is first serviced by a stallion during the year ending 28 February 1990. She was aged 6 years, 9 months at that date. The value at which the horse should be brought to account is the cost price reduced by the following amount:

$$\frac{R36\ 000}{15 - 6} = \frac{R36\ 000}{9} = R4\ 000$$

The broodmare is brought to account at R32 000. Every year thereafter the value at which the broodmare is brought to account is reduced by R4 000 until it reaches the herd value for mares.

5. Transition

The new livestock valuation schemes should be fully operative in the 1992 tax year. Transition to the new schemes could therefore occur in the 1991 tax year. The following two options for this transition seem workable.

(a) Phase-in approach

As was illustrated above (p.291), the revaluation income of New Zealand livestock farmers was reduced by a write-off based on a base

number of animals. The residual revaluation income was eligible for spreading forward over 5 years. Under this approach only a fraction of the deferred income was thus taxed. Transition on this basis is relatively complex because a farmer has to calculate the following:

- assessable income from revaluation

- spreadable revaluation income

- the base number for each class of livestock

- income write-off

- the spreading of the residual revaluation income

(b) Nominal revaluation tax with phase-in

The Steyn Committee had suggested that revaluation income be taxed at a minimum flat rate (RSA, 1952, p.44). Section 40A of the Income Tax Act, 1962 provides for a ten per cent tax to be levied on accumulated realized revenue profits when an ordinary company is converted to a close corporation. This principle could comfortably be applied to the livestock revaluation income. However, the immediate implementation of the new schemes would result in a substantial tax burden for some farmers and to provide transitional assistance it is suggested that the tax due on the revaluation income be spread over a specified period (say five years). Under such an approach farmers will have to calculate the following:

- assessable income from revaluation

- tax due on the assessable income (at a rate of 10 per cent)

- the spreading of the tax due

The following example illustrates the transition under this approach in respect of the trading stock and herd schemes. The same base data have been used throughout, namely

1991 opening stock	500 sheep
1991 closing stock	600 sheep
Existing standard value	R6
Average market value	R100

Step 1: 1991 revaluation of stock (trading stock scheme)

Opening stock 500 @ R6 (old standard value)	R 3 000
Closing stock 600 @ R70 (70% of R100)	R42 000
Taxable increase in stock	R39 000

Alternative step 1: Revaluation of stock (herd scheme)

Opening stock 500 @ R6 (old standard value)	R 3 000
Closing stock 600 @ R100 (new herd value)	R60 000
Taxable increase in stock	R57 000

Step 2: Spreading of tax

Taxable increase x 10 per cent tax

R39 000 (or R57 000) x 10%   = R3 900 (or R5 700)

Tax payable each year from 1991 to 1995 = R780 (or R1140)

6.   General financial impact

The primary purpose of this section is to articulate clearly the differential financial impacts, in cash flow terms (termed cash flow differences) of these proposals. The cash flow differences are illustrated using individual animal examples. The examples cover different animal types to illustrate the sensitivity of the results to the magnitude of the difference between standard value and current market value. Also included are cases which determine whether the impact of the proposals differs firstly, as between animals with long as opposed to short farm lives and, secondly, animals purchased as opposed to bred. Finally, high priced stock are considered.

It must be pointed out that the purpose of the examples is to illustrate cash flow differences over a wide variety of livestock circumstances to assist assessment of the impact of the new schemes. The purpose is not to provide generalisation of the impact of each as

such generalisations are not available for the obvious reason that measurements of relevant variables vary markedly across different farming circumstances. Variables such as farm ownership structure, average tax rate and the existence of utilisable tax losses and livestock management policy are obvious examples.

Table 5.11 presents a summary of the cash flow differences calculated in the examples shown in Appendix 4. The examples clearly demonstrate that the trading stock scheme vis a vis the current scheme does not alter the net assessable income/deductible loss over the farm life of an animal. The timing of various deductions and items of assessable income are, however, significantly altered. The examples just as clearly demonstrate that the herd scheme vis a vis the current scheme does slightly alter the net assessable income/deductible loss over the farm life of the animal. The differences are simply the increases within standard value classes that for herd class stock in the herd scheme are not assessable income. The results are obviously sensitive to the magnitude of the difference between current market value and standard value, whether the animal has a long or short farm life, whether it was purchased or bred, and finally, whether the herd or

TABLE 5.11: SUMMARY OF CASH FLOW DIFFERENCES[1] ARISING FROM OPERATION OF THE OLD AND PROPOSED LIVESTOCK VALUATION SCHEMES

Type of live-stock	Long Farm Life				Short Farm Life - Bred Trading Stock Scheme[2]
	Purchased		Bred		
	Trading Stock Scheme	Herd Scheme	Trading Stock Scheme	Herd Scheme	
	R	R	R	R	R
Goats	- 6,94	-1,70	- 6,94	-1,70	-0,80
Sheep	- 8,96	-2,39	- 7,59	-1,03	-1,35
Cattle	-105,90	-30,06	-105,90	-30,06	-8,40

1) The negative cash flow differences show that a cost is associated with the suggested provisions.
2) Herd Scheme not relevant as applies to mature female breeding stock only.

trading stock scheme was adopted. In all cases there is a negative cash flow (cost) resulting from application of the new schemes. There are several factors relevant to the results which need to be recognised.

(i)   Assumption of price trend. The examples all assumed livestock market prices within a particular class to be rising over time. If such prices were assumed to be falling over time there are two implications for the results.

-   the consistent preference for the herd scheme over the trading stock scheme would be reversed. This is simply because the herd scheme, which produced tax-free holding gains during a period of rising prices, would now produce non-deductible holding losses in a period of falling prices.

-   the magnitude of the cash flow differences would be altered.

(ii) Purchase price and average market price. The purchase examples assumed purchase at the average market price for the relevant class of animal for the year. It will inevitably be the case that the price paid for stock unit purchases will differ from the average market price for the relevant class of animal for the year. Under both schemes the differences between actual price paid and standard value is assessable/deductible in the year of purchase. Such differences need to be systematically in one direction and of a consistently significant magnitude to alter the general pattern of cash flow differences in Table 5.11.

(iii) Use of 10 per cent discount rate. In calculating net present values, and therefore cash flow differences, a 10 per cent discount rate was used. To determine the sensitivity of the results to alternative discount rates the examples were reworked using alternative discount rates. It was found that the results were somewhat sensitive to changes in the rate of discount used. As the rate is increased the cash flow differences in Table 5.11 increase with the converse for rate decreases.

However, for discount rates between 5 per cent and 15 per cent the results in Table 5.11 remain useable.

(iv) Assumption of 30c in the rand tax rate. The cash flow differences in Table 5.11 were calculated on the basis of an average tax rate of 30 cents in the rand. The results are obviously very sensitive to the average tax rate assumed. It is reasonable to assume that, in the current farming economic environment, there will be some and perhaps many farmers who have a nil average tax rate at present, with the prospect of this position continuing in the short term. It is equally reasonable to assume that some farmers will have average tax rates exceeding 30 cents in the rand. Translating the cash flow differences in Table 5.11 which were calculated at a 30 cents in the rand average tax rate to cash flow differences assuming other average tax rates is a simple scaling process.

(v) Sufficient other income to offset losses. The examples assume in each case of a deductible loss that there is sufficient other income such that the tax saving associated with the loss is realised in the year of the loss.

If this is not the case, then the cash flow differences are affected. To illustrate, say the tax saving and payment related to an animal included:

Year 1 Tax saving of R150
Year 2 Tax payment of R180

The net present value of these two cash flows, at a 10 per cent discount rate, is R13,64. If however, the loss in year one was carried forward and offset against year two income (in other words there was insufficient other income in year one to enable realisation of the tax saving in that year) then the tax payments would be:

Year 1   R 0
Year 2   R30

The net present value of these two cash flows is R27,27, double that calculated above.

(vi)   Whole Farm Examples:

> The discussion above has considered only single animal examples, with a view to assisting assessment of the impact of the suggested livestock valuation schemes on individual farmers. "Whole farm" models have not been developed.

The new provisions concerning high priced purchased stock will also have a negative financial impact.

7.   Game farming

Although game is also regarded as livestock by the Receiver of Revenue it is for all practical purposes excluded from livestock inventory. In New Zealand all the valuation schemes apply to game such as red deer, wapiti, elk and related crossbreeds. The diversity of game species and the absence of a well developed and organised commercial market make this approach unpractical in South Africa. Another possibility would be to disallow expenditures on game as a deduction for income tax purposes and equally, not to tax receipts from the sale of game. However, since game farming is often integrated with other farming activities farmers would easily pool game-related expenditures with other farming expenditures. The third and preferred option is to require game farmers to capitalise the costs associated with game (as was suggested by the SAICA in respect of trading and productive livestock) and to claim these costs only when such game is sold. The net effect of this suggested change will be to end a particular form of tax shelter, to reduce uncertainty and to enable the Receiver to reach a hitherto untaxed sector without increasing compliance costs.

E.   CONCLUSION

It is generally believed that the concessionary treatment of livestock by way of the standard values approach has contributed to tax sheltering and the overstocking of pastures with a consequent degradation of the grazing. It has also biased investments towards livestock and thereby inordinantly increased their prices and gave most benefit to those on the highest marginal tax rates. The introduction of the Margo Commission's proposals would seem to address the symptoms of a outmoded livestock taxation system. The proposed

schemes for the taxation of livestock satisfy four of the five criteria against which any scheme should be measured (see p.85 above) and will ensure that investment is directed towards areas which have the highest market returns, rather than those which attract the largest tax concessions. The new schemes will easily accommodate the structural changes which are occurring in agriculture and do not require ancillary measures to accommodate the consequences of unforeseen circumstances or to snub so-called gentleman or armchair farmers. Furthermore, the new schemes achieve a more neutral tax treatment of livestock investment and investment in other sectors.

FOOTNOTES

1. Paragraph 28(1)(b) of the Canadian Income Tax Act, S.C. 1970-71-72, chapter 63, as amended.

2. Besides the cash and accrual methods of accounting, farmers are also allowed to utilise a combination of these methods or a crop method. See USA (1987e, pp.4-9; 1988a, pp.6-8).

3. Cash adjustments include expense items that are prepaid as well as income items that are postponed. With the accrual system, there is less opportunity to adjust taxable income through prepaid expenses or delayed sales. If the cash system with maximum adjustments is used, all possible sales are delayed and expenses prepaid in the earliest year feasible. Thus, taxable income may be nil or very low in some years because of these additional cash deductions. With the optimal adjustment cash accounting system, deductions and income are manipulated to equate annual marginal tax rates adjusted for the discount rate and future earnings on tax savings during the 5-year planning horison.

4. The term "preproductive period expenses" means any amount which is attributable to animals during the preproductive period of such property. The preproductive period for livestock begins at the time of acquisition, breeding, or embryo implantation. The preproductive period ends at the time the animal is ready to perform the intended primary function.

5. A farming syndicate may be a partnership, any other non-corporate enterprise, or an S corporation engaged in the trade or business of farming if:

    (1) Interests in the partnership or enterprise have ever been offered for sale in any offering required to be registered with any federal or state agency having authoritgy to regulate the offering, or

    (2) More than 35% of the losses during any period are allocable to limited partners or limited entrepreneurs.

A limited partner is one whose personal liability for partnership debts is limited to the amount of money or other property that the partner contributed or is required to contribute to the partnership. A limited entrepreneur is a person who has an interest in an enterprise other than as a limited partner and who does not actively participate in the management of the enterprise. (USA, 1988a, p.8)

6.   A tax shelter is a farming syndicate, or:

   (1) A partnership or other entity,

   (2) Any investment plan or arrangement, or

   (3) Any other plan or arrangement, if the principal purpose of the partnership, entity, plan, or arrangement is the avoidance or evasion of federal income taxes.

7.   This new rule applies to farmers who use the cash method of accounting to report their income and expenses, and whose prepaid expenses for feed, seed, fertilizer, other farm supplies, and the cost of poultry are more than 50 per cent of their other deductible farming expenses (including depreciation and amortization) for the year. Farmers may not deduct in the year of purchase the prepaid expenses that are more than 50 per cent of their other deductible farm expenses. These excess prepaid farm supplies are deducted in later years under the same rules that apply to farming syndicates.

8.   A proviso to section 32 of the Australian Income Tax Assessment Act 1936, as amended, provides that where a taxpayer satisfies the Commissioner that there are circumstances which justify the adoption by him of some value other than cost price or market selling value for the whole or part of his livestock he may, with the leave of the Commissioner, adopt that other value.

9.   An eligible horse is one that was acquired after 20 August 1985 (Mannix & Mannix, 1987, p.412).

10. The example assumed that, early in 1979-80, a grazier initially purchased a flock consisting of 800 breeding ewes, 200 ewe hoggets,

800 wethers, 200 wether hoggets and 20 rams. It is further assumed that an 80 per cent lambing rate is achieved, that losses are about 3 per cent a year, and that, apart from the purchase of replacement rams, the flock is closed. Sales of culled for age ewes and wethers and cull ewe and wether hoggets are made each year, to preserve the original composition of the flock. Sales of surplus sheep are at the average saleyard prices recorded in the years 1979-80 to 1983-84. Gross profit from the sheep livestock trading account is then calculated under two different methods: by valuing opening and closing stock at average cost, with natural increase being valued at 40 cents, and by adopting a market valuation in which the value of opening stock is adjusted upward by the rate of inflation (as measured by the consumer price index). For the average cost method, estimates are calculated for two cases: where the original flock was purchased in 1979-80 and where the average cost has reached a steady state value. For the latter case, the flock would need to have been purchased at least fifteen years before 1979-80.

11. Regulation 1802. Recently Blatt (1987, p.69) also suggested that farmers be allowed to value closing livestock on a simple average or unit cost basis i.e. the total of the cost of opening inventory, plus the cost of animals purchased during a particular year should be divided by the number of animals on hand at the beginning of the year plus the additions through purchase, live births and gifts. The resulting quotient would be the unit cost of closing inventory.

12. See in this regard the White Paper (Canada, 1987a, p.89) and Blatt (1987, pp.72-74).

13. The provisions of the Income Tax Amendment Act have been explained in a Public Information Bulletin of the Inland Revenue Department (NZ, 1987). Many of the matters dealt with in the Act were also outlined elsewhere (Butterworths, 1985, pp.118-119; 1986, pp.113-115, 293-294; 1987, p.181; Deloitte, Haskins & Sells (NZ), 1986; Ernst & Whinney (NZ), 1987; Fardell, 1986, pp.151-155; King, 1986, pp.283-286; 1987, pp.238-240; Mapp, 1986, pp.325-339; Russell, 1987b, pp.26-29; Russell & Christie, 1987, p.36-48). These publications have mainly been consulted for the Sections on New Zealand.

14. It has been termed the cost option because most taxpayers adopting this option use cost price as the basis of valuation. Taxpayers using actual cost have to satisfy the Commissioner of Inland Revenue that they have maintained sufficiently detailed records to determine unit costs. The Inland Revenue Department's requirements as to cost records are set out in their Public Information Bulletin (NZ, 1987, Appendix B). Market value is the value which livestock would fetch on the open market if they were available for sale in the normal course of business to an arms-length party at balance date. The replacement price of livestock is the price the taxpayer would pay at balance date for livestock of the same class and quality as the livestock on hand at the balance date.

15. According to Russell (1987a, p.4) the average write-off amounted to nearly $400 per livestock unit. The Twelfth Schedule of the Income Tax Act 1976 as amended sets out the various types and classes of specified livestock, including herd livestock classes and non-specified livestock. The former includes sheep, cattle, pigs, goats and deer while the latter includes rabbits, fitch, alpacas and llamas.

16. Pursuant to a new section 86(a) of the amended Income Tax Act 1976 the standard value is determined according to the formula

$$\frac{value}{3} \times \frac{70}{100}$$

where -

"value" = the sum of

(i)   the average market value declared for that income year for that class of livestock

(ii)   the average market value declared for the previous income year for that class of livestock

(iii) the average market value declared for the income year immediately preceding the previous income year for that class of livestock. Each year two sets of values will be announced in respect of each class of livestock, namely an average market value (100 per cent) and the standard value (70 per cent of 3 year average).

17. In the Consultative Document (NZ, 1986, p.4) it was argued that "If livestock were valued at cost, it would be necessary to separate their breeding and rearing costs from the costs of producing current- year income. This would be difficult and costly since many costs serve both purposes. Complex record-keeping would be required to identify the costs of animals which enter and leave each livestock class. These problems mean that it is impracticable to value livestock at cost".

18. There were exceptions to this rule. Firstly, where the taxpayer elected to adopt the herd scheme for the 1988 income year the relevant classes of livestock were revalued to the average market value (100 per cent) that had been declared for the 1987 income year. The second exception is where the taxpayer was subject to a three year write-down in respect of purchases of specified and non-specified livestock in the 1987 income year. In such cases the 1987 closing value was the new (70 per cent) standard values increased by a "deductible excess" (two-thirds of the difference between the purchase price and the standard value). Thirdly, if the 1986 closing value of specified stud and pedigree livestock exceeded the 1987 average market value the taxpayer continued to use the 1986 closing value until those livestock were sold or until the income year in which the declared standard value met that closing value.

19. Taxpayers who sold livestock during the 1983 to 1985 period as a result of adverse events could choose the opening number of livestock in any of those three income years as the base number.

20. Some of the complexity of the transitional provisions could have been avoided had the legislation been both announced and implemented within the same income year. However, that may have been difficult in the New Zealand context, because the taxation law provides for taxpayers to complete their annual balance at a date other than the national balance date (31 March) with some individuals balancing as early as 1 October 1986 (an early 1987 balance date) and other individual balancing as late as 30 September 1987 (a late 1987 balance date).

21. See sections 5, 19-24 and 40 of the Income Tax Amendment Act (No.2) of 1987. These sections broadly correspond with the South African provisions in respect of ordinary leases and lend-leases of livestock

(paragraph 3 of the First Schedule of the Income Tax Act 1962 as amended). For details of the New Zealand and South African provisions see King (1987b, pp.238-240) and Silke, Divaris & Stein (1982, pp.1031-1038) respectively. In New Zealand the provisions only affect bailees or lessees of specified livestock.

22. See NZ (1987, pp.64-71).

23. See footnote 17.

24 Cost usually means (i) the inventory value (for goods on hand), (ii) the invoice price less discounts, plus transportation or other necessary charges incurred in acquiring possession of the goods (for purchased goods), or (iii) the cost of raw materials, labour and indirect expenses incident to production of goods (for goods produced). See O'Byrne & Davenport (1984, pp.599-600).

25. Market value means the current bid price prevailing at the date of stock-taking.

26. According to O'Byrne & Davenport (1984, p.601) farmers' tax advisers were well pleased with valuation of inventories at "cost or market, whichever is lower" because they never let a farmer pay tax on something that he may not receive and that as far as purchased animals are concerned, the accrual-basis farmer is in approximately the same position as the cash-basis farmer since the animals will usually be valued at cost. They were further impressed by the difficulty of challenging an inventory valuation based upon cost.

27. See Schedule 5 of the Income and Corporation Taxes Act 1988.

28. Immature animals are not regarded as forming part of the herd. There is one exception where (as in the case with acclimatised hill sheep) the land on which the herd or flock is kept is of such a kind that replacements of animals cannot be made except from animals bred or reared on that land. In that case immature animals bred in the herd are treated as part of the herd.

29. For an exposé of the herd basis see Butterworths (1983, vol. B, pp.1694-1704), Channon (1974, pp.90-93), Dunn & Koppel (1982), Ireland

(1982, pp.594-596), National Farmers' Union (1979, pp.15-17), Parker
(1989, pp.291-293), Stanley (1984, pp.43-48) and United Kingdom
(1984a).

30. The normal basis of valuation used is cost or market value, whichever
     is the lower. Where the cost of livestock bred on the farm is not
     known, a percentage of market value would be accepted as a reasonable
     estimate of the cost. The relevant percentages are 60 per cent for
     cattle and 75 per cent for other livestock. This rule of thumb method
     of arriving at a "notional cost" was agreed on between the National
     Farmers' Union and the Inland Revenue as long ago as 1942. Before 30
     September 1972, the percentage for cattle was 75 per cent. See Stanley
     (1984, pp.41-42).

31. For the purposes of the herd account, cost means:

     (a) in the case of an animal purchased when mature, the purchased
          price;
     (b) in the case of an animal purchased before maturity, the purchase
          price plus the cost of keeping to maturity;
     (c) in the case of a home-bred animal, the cost of breeding, rearing
          and keeping to maturity or, where actual cost cannot be
          established, an appropriate percentage of market value.

     If an animal which is added to the herd has previously been treated as
     part of the farmer's trading stock, the cost of breeding and buying
     it, together with the cost of rearing it to maturity (which will
     already have been deducted as an expense) will be included as a
     receipt when it is added to the herd.

32. Being tangible moveable property which is a wasting asset as defined
     in Section 36 of the Capital Gains Tax Act 1979 farm animals are
     exempted from tax by Section 127 of the same Act.

33. See section 180 of the Income and Corporation Taxes Act 1970.

34. Note that the "herd value" is the average market value declared for a
     particular income year - this differs from the standard values set for
     the trading stock scheme which are based on an average taken over
     three income years. Section 86(A)(3) of the Income Tax Act 1976 also

provides that the opening and closing value of herd livestock should be the same for a particular year.

35. For a thorough discussion of the application of Section 1231 see O'Byrne & Davenport (1984, pp.164-204). Before 1951 animals actually used for draft, dairy and breeding purposes, and owned for more than six months before sale were entitled to be treated as section 1231 assets. In the 1951 Revenue Act the holding period was changed to twelve months. Also, instead of used in the business, the animals could be held for the purpose of being used in the business at some time. In 1969 "sporting" animals were added and the holding period for cattle and horses were extended to 24 months.

36. For detailed discussions on casualties and the bunching of income see Butterworths (1988), Commerce Clearing House (1989a, p.195), Mannix & Mannix (1987, pp.417-425), O'Byrne & Davenport (1984, pp.198, 246-248), UK (1984a, pp.4-5) and USA (1988a; pp.50-53).

37. For the purposes of this study tax farming has been defined as the use of agricultural taxation concessions to reduce taxation liability on income earned outside of agriculture. Tax farming is discussed in detail in Chapter 7.

38. According to the South African Institute of Chartered Accountants (1988, paras. 4-7) livestock means animals farmed or dealt in for profit. It includes trading livestock, productive livestock and stud animals. Trading livestock comprises animals held primarily for realisation or towards which the enterprise has yet no specific intention. Productive livestock comprises animals held primarily to produce livestock products and/or progeny, while stud animals comprise productive livestock held primarily for breeding potential and include both male and female animals.

39. Divaris and Stein (1988, p.A71) referred to the limitation as the "livestock ring-fence". The "ring-fenced stock basis" derives from this discription.

40. In an early case Maritz J, President of the Special Court for Hearing Income Tax Appeals described the purpose of standard values as follows: "The object of applying standard values seemed to be to

obtain a fair average value per head of stock which could be applied
at any time to the whole herd or flock, and so give a comparison of
its value between any two dates, which ignored all market fluctuations
in value. This method made it easy to obtain a fair estimate of the
increase of wealth which had accrued to the farmer from the natural
increase of his livestock and the growth of his previous year's
increase to maturity. If the value of each head of stock on hand at
each end of the tax year were kept the same, then the two figures
balanced each other, and the annual profit or loss on unsold stock was
due to the increase or decrease of the numbers. It was true that
every farmer must know the number of his sheep or cattle, if only to
guard himself against loss, but it was not every farmer who could give
a value to his sheep or cattle at any given date. By the standard
values he was saved from the trouble of trying to do so." (cited in
Silke, Divaris & Stein, 1982, p.1014).

41. The mortality allowance could not be made in respect of the value of
livestock held and not disposed of at the end of the period of
assessment terminating at the death or insolvency of the farmer.

42. The Van Hulsteyn Committee (RSA, 1919, p.5) reported that in 1919
about 90 per cent of farmers had utilised the cash basis.

43. The Committee (RSA, 1951, p.73) also recommended that if the
Commissioner was satisfied that the circumstances of the case
warranted it, the tax due on the amount resulting from the stock
adjustment be spread over three years.

44. For a more comprehensive explanation of the 1955-changes to the tax
treatment of livestock see The Farmers Weekly (25 August 1954,
pp.14-17), The Deciduous Fruit Grower. (August 1954, pp.180-182) and
Silke (1955, pp.18-21).

45. See Government Notice No. 845, published in the Government Gazette,
No. 5452, 22 April 1955.

46. Whereas for individuals the value of livestock on hand at the end of
the 1954 tax year ranked as a debit for the 1955 tax year, it was
included in income of companies either in the 1955 tax year or in
subsequent years depending on the value of the livestock sold during

those years.   The aggregate amount which had to be included in income in respect of livestock could not exceed the difference between the value of the livestock on hand at the end of the 1954 tax year and -

(i)   any expenditure incurred by the company in the purchase of livestock which had not been allowed as a deduction in previous years;

(ii) the value of any livestock held or not disposed of by the company on 30 June 1953, or on the date (not later than 30 June 1954) on which it had commenced or recommenced farming whichever was the later.

The excess was taxed each year as sales of livestock were made to the extent of the value of the livestock sold each year until such excess was completely absorbed in taxable income. See Silke (1955, p.21).

47.   In the Income Tax Reporter (1976, vol.15, part 4, p.122) it was argued that "The result of [these] provisions was that natural increases in livestock caused companies to pay tax on the market value of "trading stock" that had not yet been realized in cash, and was especially onerous where progeny of livestock were to be used as breeding stock or as a dairy herd. These unfortunate effects are now avoided, to the extent that the standard value of natural increases in livestock is less than the market value of those increases."

From the 1977 tax year companies were again allowed to use standard values (Silke, Divaris & Stein, 1982, p.1015).

48.   Proviso to para. 13(b) of the Third Schedule to the Income Tax Act, 1941. See also para 6(2) of the First Schedule of the present Act.

49.   See footnote 21 above.

50.   Silke, Divaris & Stein (1982, p.1010) question the fact that no distinction is made between livestock which can be regarded as floating capital or fixed capital assets.

51.   Historical cost of livestock is the aggregate of all costs incurred in bringing the animal to its present location and condition while net

realisable value is the estimated market value less all selling costs, such as freight and commissions (South African Institute of Chartered Accountants, 1988, para. 8 & 10).

52. The most prominent submission in this regard was that of the SAAU (1985).

53. See Margo Commission submissions 254, 287, 409, 460, 479, 613 and 738.

54. In a letter to the Jacobs Committee (RSA, 1985, p.2) in 1985 the Chief Director: Economics of the Department of Agricultural Economics and Marketing referred to the huge write-offs in respect of stud livestock and concluded that "Weer eens was die doel hiermee, behalwe om administratiewe redes, om die beginner-boer te help. Die resultaat was egter dat stoetvee in Suid-Afrika van die duurste indien nie dié duurste ter wêreld is."

55. In correspondence with the author a New Zealand accountant from Deloitte Haskins & Sells reported that the large write-offs encouraged their farmers to pay as much as NZ $4000 - NZ $5000 per head for breeding deer. Soon after the announcement that the tax treatment of livestock would be changed, prices began to drop to the present average values of NZ $1200 (breeding stags) and NZ $865 (breeding hinds). According to the accountant these values correspond with the long term productive capacity of the animals.

56. According to the Department of Agriculture the number of livestock in the RSA exceeded the long term grazing capacity of its pastures by approximately 5 million LSU's.

57. See footnote 54.

58. See Chapter 6, p.396 Under the drought assistance schemes livestock farmers may also receive incentive payments to reduce livestock from the carrying capacity of a farming unit to one-third or less of this carrying capacity. See RSA (1989a & 1989b).

59. See Chapter 6, pp.388.

60. In the <u>Financial Mail</u> (February 19, 1988, p.43) it is illustrated that for a cash outlay of R91 199, the taxpayer received a first-year tax write-off of R250 667 and gains R19 805 in net after-tax cash terms, while the Receiver gets nothing. The <u>Beeld</u> (February 10, 1988, p.2) estimated that R55 million would be invested in bloodstock before the Minister delivered his Budget Speech for that year (1988/89).

61. For details of the 1988 changes, see Divaris & Stein (1988, pp.A55-A57, A71-A73).

62. Section 8(1)(a) of the Income Tax Act, 1988.

63. Owing to the manner in which section 11 (bB) was amended in 1988, uncertainty prevailed as to whether a deduction could be claimed under both this section and any other section of the Act providing for a similar deduction.

64. See, for example, paragraph 13A of the Act.

65. See also AC 205 - Valuation of Livestock (1988, p.296) and McDonald (1988, pp.273,275).

66. The accounting guideline AC 205 of the South African Institute of Chartered Accountants (1988) gives full details and examples of the calculation of standard costs for livestock.

67. There is, in general, an established market for livestock and organisations such as Vleissentraal, Karoo Ochse, BKB and the breeding associations have indicated that a market related value can easily be obtained (or will soon be obtainable) for most animals at each stage of the animal's development.

68. As was the case in the UK (see footnote 3), a "notional cost or value" could also be agreed on between the SAAU and Inland Revenue. It is believed that the 70 per cent basis suggested here largely addresses the issue of discrepancies in values in different areas as well as the taxation of unrealised profit.

CHAPTER 6

AVERAGING MEASURES FOR FLUCTUATING FARM INCOMES

A.   INTRODUCTION

Instability is an inherent and well documented feature of the agricultural sector and has long been recognised as one of the most complex problems facing farmers. Variability of farm incomes causes cash flow problems and leads to a special type of horizontal inequity, sometimes referred to as period inequity. Farm incomes will continue to be variable due to climatic and therefore market uncertainties, hence methods of reducing farm income fluctuations are concerned with influencing the manner in which income is received by farmers. Indirect measures which modify price and/or quantity variation will have varying and usually indeterminate effects on farm income variability. Because of this the potentially most effective approaches to the specific objective of reducing farm income fluctuations are likely to be confined to those which operate directly on income. Obviously there is a wide range of direct measures but the emphasis in this chapter is on averaging schemes (period equity measures) which are designed to help reduce both farm income fluctuations and tax inequities arising from fluctuations.

Certain general issues such as the need for averaging, desirable characteristics of averaging schemes and policy variables are discussed in section B. A wide array of tax averaging schemes have been analysed in the literature but in section C the focus is on the basic types of averaging schemes which have either been proposed or implemented. Section D evaluates the features and implications of those measures which have been or are in operation in Australia, Canada, Ireland, New Zealand, United Kingdom and United States. Averaging and anti-bunching measures in South Africa are considered in Section E. The chapter is concluded by an evaluation of alternative averaging schemes which could be considered for South Africa.

B.   GENERAL ISSUES

I.   Need for Averaging

An unintended effect of the use of a progressive income tax on income
defined for an annual accounting period is to raise the tax liability
of individuals with fluctuating incomes above that of individuals with
the same average, but stable, incomes. This obviously unequal
treatment of economic equals is often referred to as period inequity
(Jeffery, 1981, p.2). An example may best illustrate how period
inequity comes about. For the purposes of the example five taxpayers,
A, B, C, D and E with the same taxable income over five years of R170
000 (average R34 000) but with different time sequences are
considered. Over the five year period, A's and B's taxable incomes
vary between R20 000 and R65 000; C's taxable income trends upwards
from R20 000 to R65 000; whilst D's taxable income trends downwards
from R65 000 to R20 000. Taxpayer E earns a constant income of R34
000. The respective situations of the five taxpayers and the tax
payable by them over a five year period are summarised in Table 6.1.

It is shown that taxpayers A, B, C and D pay equal amounts of tax over
the five year period; and, that the individual amount of tax paid by
A, B, C, and D is R3 480 more than that paid by taxpayer E. The
increased tax payment occurs regardless of whether taxable income is
fluctuating (A and B), trending upwards (C), or trending downwards
(D). The distribution of E's total taxable income of R170 000 is such
that a constant marginal rate of tax (38,0 cents per rand) applies to
the last rand of taxable income each year. By contrast, the taxable
incomes of taxpayers A, B, C, and D, is so distributed that the
marginal rate of tax, applicable to taxable income each year, changes
from 28,0 to 45,0 cents per rand at least once during the five year
period - giving rise to the increased tax payments of R3 480 which, if
the proposition that the assessment period of one year is too short
for tax equity purposes is accepted, violates the principles of
horizontal and vertical equity.

TABLE 6.1: PERIOD INEQUITY RESULTING FROM VARIATIONS IN POSITIVE TAXABLE INCOME - CONSTANT TAX RATE SCHEDULE[1]

			Year 1	Year 2	Year 3	Year 4	Year 5	Total	Difference in tax payable relative to E
Taxpayer									
A	Taxable income	R	15 000	65 000	40 000	30 000	20 000	170 000	
	Tax payable	R	2 340	21 560	10 660	6 560	3 560	44 880	+ 3 480
B	Taxable income	R	40 000	15 000	20 000	65 000	30 000	170 000	
	Tax payable	R	10 660	2 340	3 560	21 560	6 760	44 880	+ 3 480
C	Taxable income	R	15 000	20 000	30 000	40 000	65 000	170 000	
	Tax payable	R	2 340	3 560	6 760	10 660	21 560	44 880	+ 3 480
D	Taxable income	R	65 000	40 000	30 000	20 000	15 000	170 000	
	Tax payable	R	21 560	10 660	6 760	3 560	2 340	44 880	+ 3 480
E	Taxable income	R	34 000	34 000	34 000	34 000	34 000	170 000	
	Tax payable	R	8 280	8 280	8 280	8 280	8 280	41 400	-

1) The 1987/88 South African tax rate schedule for married persons was used to calculate tax payable.

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Period inequity will not arise if taxable income varies between the lower and upper limits of a marginal tax rate bracket. For example, if taxable income varies between R35 000 and R40 000 (the lower and upper limits of the 40,0 cents per rand marginal tax rate bracket), increased tax payments will not be incurred. By contrast, if taxable income varies about the upper limit of a marginal tax rate bracket (for example, about R40 000 and varying between R38 000 and R42 000) increased tax payments will be incurred. Thus, period inequity is not dependent on, as stated in a number of previous studies, the degree of variation in taxable income (Chisholm, 1971, pp. 36-50; McArthur, 1969, pp.68-73; Trebeck & Barker, 1975, p.1). Rather, period inequity occurs when taxable income fluctuates over two or more marginal tax rate brackets resulting in a heavier tax burden.

Period inequity imposed on variable incomes therefore derives from the fact that under a progressive tax rate scale combined with an annual accounting period, the additional tax paid on income deviations above the average annual taxable income is always greater than the tax savings accruing from equal sized income deviations below average taxable income when taxable incomes fluctuate across two or more tax brackets. This implies that period inequity will also arise as a consequence of changes to the marginal rates of tax of the tax rate schedule. However, the discussion on the various averaging measures in subsequent paragraphs assumes a constant tax rate schedule[1]. From the identified fundamental cause of period inequity, the definition of period equity may be derived and defined as the full utilisation of the marginal tax rate brackets, applicable in each normal period (year) of assessment of the averaging or tax equity period, to such an extent that it ensures the constancy of the tax liability on a given total taxable income earned within the tax equity period, regardless of the original distribution of that total taxable income between assessment periods.

Those individual taxpayers whose taxable incomes do not fluctuate across two or more tax brackets will not experience period inequity. All other individual taxpayers, however, will experience period inequity in varying degrees. For these taxpayers the amount of personal taxation paid is not in accordance with their ability to pay personal taxation. Thus, the accomplishment of the objective of tax equity necessitates the introduction of averaging measures, or **period**

equity measures, to avoid period inequity. The introduction of averaging measures, on equity grounds, is widely supported in the literature (Blough, 1945, p.86; Australia, 1921, p.17; Australia, 1975, pp.12-15, 197; Canada, 1966, vol.3, pp.241-283).

Closely related to the necessity for period equity measures to accomplish overall tax equity, is the necessity to accomplish society's desired distribution of income and wealth. Generally, a progressive tax rate schedule is used to effect society's desired distribution of income and wealth. The effect of period inequity is to increase the rate of tax applicable to a given taxable income, relative to the rate which would have applied had the taxable income been more evenly distributed. In effect, period inequity increases the degree of progression from that which is embodied in the tax rate schedules. However, period inequity can only increase the degree of progression of the tax rate schedule up to the lower limit of the highest marginal tax rate bracket. When taxable income of individual taxpayers is always greater than this lower limit, they will not experience period inequity. Hence by merely increasing the actual degree of progression of the tax rate schedule up to the lower limit of the highest marginal tax rate bracket, the effect of period inequity is to reduce the overall degree of progression of the tax rate schedule.

Thus, by altering the degree of progression from that embodied in the tax rate schedule, period inequity will prevent the accomplishment of society's desired distribution of income and wealth. To ensure that the actual degree of progression is that which is embodied in the tax rate schedule, it is essential to introduce averaging measures.

Period inequity may give rise to two distinct non-neutral effects: (a) a non-neutral effect on the timing of realisation of taxable income (including the timing of expenditure on tax-deductible items); and, (b) a non-neutral effect on resource allocation. Consider the first non-neutral effect. If individual taxpayers are able to manipulate the receipt of their taxable incomes - known as "do it yourself averaging" - to coincide with what would otherwise be a low taxable income year and/or a low tax rate year, the degree of period inequity can be reduced. Thus, period inequity provides an incentive for taxpayers to manipulate the receipt of their taxable incomes.

Such manipulations result in the interference with business decisions by the provisions of the personal taxation system; that is, period inequity has a non-neutral effect on the timing of realisation of taxable income. For example, to reduce variations in taxable income, farmers may adopt selling and purchase policies for livestock which differ from the policy suggested by such factors as condition of livestock, market price, grazing conditions and/or feed availability.

Similar interference with business decisions will arise if the timing of expenditure on tax-deductible items is influenced by the rate of tax which will apply to the resulting deduction. To reduce taxable income in high income years, farmers tend to undertake expenditure on tax-deductible items - often major items of plant and equipment (Campbell, 1958, pp.93-103). The effect of timing such expenditure to coincide with a high taxable income year, is to reduce the after-tax cost of the purchased item. But, if other factors in the business decision are considered, the timing of such expenditure, in order to minimize the after-tax cost of the purchased items, will not necessarily be warranted. Furthermore, the ramifications of such tax-induced expenditure is not restricted to farmers. Their collective expenditure on tax-deductible items in periods of high farm incomes can cause a destabilising effect on the agricultural service sector - an adverse effect which is well documented in the literature (Industries Assistance Commission, 1978, p.25-26; Trebeck & Barker, 1975,pp.6-7).

The introduction of period equity measures will ensure that the rate of tax applicable to total taxable income earned during the tax equity period, will not be influenced by the distribution of that taxable income between individual assessment periods and that the rate of tax applying to tax-deductible expenditure will be the same, regardless of the assessment period in which the expenditure is incurred. Thus, averaging measures are required to ensure neutrality with respect to both the timing of realisation of taxable income and the timing of expenditure on tax-deductible items.

Consider now, the second non-neutral effect of period inequity. Period inequity, which may arise from variations in taxable incomes, will reduce the after-tax returns from activities yielding unstable returns - generally the more risky investments. Hence, in the

absence of averaging measures, individual taxpayers may be discouraged from investing in activities yielding unstable returns; whilst investment in activities yielding more stable returns may be encouraged (Bureau of Agricultural Economics, 1985, p.76). For the personal taxation system to be neutral with respect to resource allocation, that is, to maintain the pre-tax conditions for investment (resource allocative) purposes, averaging measures are required.

According to Jeffery, (1981, p.128) relaxation of the asumption that there are no primary inequities (i.e. taxable income is a precise and consistent index of equality), and or rejection of the proposition that the normal assessment period of one year is too short for tax equity purposes, removes the unequivocal justification for period equity measures on both equity and distributional grounds. Nevertheless, the introduction of period equity measures can still be justified on efficiency grounds, but support for the introduction of such measures is not universal. An argument frequently used against their introduction is that such measures are "unavoidably complex" (Goode, 1964,p.255; Steuerle, McHugh & Sunley, 1978, p.32). But, even if averaging measures are complex, this does not mean that their introduction is not warranted. If the benefits of improved equity and efficiency are greater than the increased costs of administration and compliance, then there remains justification for averaging measures.

Currently, various averaging schemes exist, but their use is normally confined to farmers and some much smaller groups of taxpayers.[2] The option of allowing taxpayers other than farmers access to averaging provisions is usually not considered practical. Such an option would require substantial changes in tax schedules to maintain revenue.[3] Other arguments advanced for restricting averaging to farmers emphasise the "special" problems which they face (Australia, 1934, p.110). The main justification given for such a restriction is that farmers' incomes are subject to greater variation and for different reasons than any other income class. However, the desirability of extending such schemes to other taxpayers is not considered here since the emphasis is on averaging measures available to farmers only.

II.   Desirable characteristics of averaging measures

The Carter Commission (Canada, 1966, vol.3, p.256) favoured averaging provisions which are available on an optional basis, neutral among types of income, can be administered with relative ease, and allow forward as well as backward averaging. Chisholm (1971, pp.36-50) suggested that averaging procedures should:

(i)   improve equity by reducing the relatively greater tax burden incurred by taxpayers with fluctuating incomes;

(ii)   improve the stability of post-tax income;

(iii) not impair the efficiency of the income tax system as an instrument of discretionary fiscal policy;

(iv)   not lead to tax avoidance; and

(v)   be administratively feasible.

Salyzyn (1974, pp.12-13) argued that an averaging scheme should be available to a taxpayer on an optional basis, be well understood by the taxpayer and be well integrated with all other features of tax law. It is frequently argued that any proposed averaging scheme should be acceptable to policy-makers, politicians and other groups or individuals having an influence on the decision to implement such a scheme (Australian Rural Adjustment Unit, 1980, p.6). It would seem likely that any scheme meeting the objectives of equity, efficiency and simplicity will gain more political acceptability than schemes not meeting any one or all of these objectives.

Jeffery (1981, p.142) suggested that, for the compatibility of period equity measures with the overall objectives of personal taxation, the manner by which period equity is accomplished must comply with the following five constraints:

(i)   Constraint One: The amount of taxation payable in any year under averaging must not exceed the tax liability calculated according to the tax rate schedule applicable in that year;

(ii) <u>Constraint two</u>: Averaging measures should be simple in design and operation;

(iii) <u>Constraint three</u>: Averaging measures should be compatible with other tax provisions which also affect the calculation, and payment, of the tax liability on a given taxable income;

(iv) <u>Constraint four</u>: Averaging measures should not interfere with the objectives of marginal tax rate changes and tax rate schedule structural changes;

(v)   <u>Constraint five</u>: Averaging measures should be able to avoid period inequity in the period in which it is incurred.

These constraints, also known as the constraints of consistency, simplicity, compatability, rate-neutrality and immediacy respectively, together with the objective of averaging measures (the avoidance of period inequity), provide suitable criteria for an evaluation of the different averaging measures.

III. <u>Policy Variables</u>

Given the desirable characteristics of an averaging system and the constraints placed upon it, what variables can a government manipulate in order to bring a scheme in operation? The following major choices have been suggested by David, Groves, Miller & Wiegner (1970, p.278):

(i)   Type of average
(ii) Number of tax year records
(iii) Measure of past experience
(iv) Weight to be given to current income
(v)   Level of "substantiality"

Additional variables can be suggested. For example, a limit must be set on the proportion of current income that can be used for tax purposes, the conditions of entry and exit must be resolved, and the amount of current income that can be reduced in forward averaging must be specified. Most of these policy variables have been considered by Lamont (1982, chapters 5-8).

(a)   Type of average

Although numerous averaging measures have either been proposed or implemented, most derive from one, or a combination of three basic techniques:

(i)   the use of an average income to determine taxable income;

(ii)   the use of an average income to determine the rate of taxation to apply to taxable income ;   and

(iii) the transfer of portions of taxable income between assessment periods. Sometimes the first two and the latter are classified as backward and forward averaging schemes, respectively.

(b)   Number of years

The number of years taken into account in the averaging formula is generally a compromise between equity and administrative costs. Administrative considerations seem to have limited averaging periods to approximately five years.

(c)   Measure of past experience

There are several different ways to measure past income experience for use in backward averaging, that is, schemes based on historic income. These take the form of one type of statistical average or another. The simplest is the arithmetic average. Weighted averages could also be used. These can place more or less emphasis on particular years or incomes, but they greatly complicate the operation of any averaging system. Even more complex alternatives are possible but they either impose undue strain on administration or depart from the original objectives of averaging. Past income experience plays a lesser role in forward averaging and need not be taken into account explicitly.

(d)   Weight given to current income

Normally the weight will be the same for all years in order to reduce complexity, increase understanding and minimize administrative costs.

(e) Level of substantiality

This refers to the threshold between insignificant changes in taxes arising from the use of an averaging formula and those changes that are viewed as being of material or substantial size. The Carter Commission (Canada, 1966, vol.3, p.264) recommended that ".....the right to average should only be available when the income in the lowest income year of the averaging period is less than 75 per cent of the income in the highest income year of the period". Such principles have been or are utilized in, for example, Canada, the United Kingdom and the United States,[4] but the level of substantiality usually is set as a compromise among administrative costs, compliance cost, loss of government revenue and the relative income needs of taxpayers.

C. BASIC TYPES OF AVERAGING SCHEMES

Alternative averaging procedures may be classified according to whether they are based on the historic income of a taxpayer, his expected future income, or both. Relief can be achieved by backward averaging of income with both income and tax payments involved in the calculation (illustrated by the cumulative and block averaging methods or a combination of both) or with only income used in the formula (illustrated by the income average). Relief can also be attained by means of rate changes based on income alone (illustrated by the rate change methods) or on income and taxes paid (illustrated by the average rate method). And, finally, income can be averaged forward by postponing current taxable income to the future. These averaging schemes are discussed below while their tax results are summarised in Tables 6.2 to 6.4. The progressive tax rate structure and five-year income patterns used in Table 6.1 are again utilised.

I. Cumulative averaging

It is useful to begin with the cumulative or progressive averaging approach originally proposed by Vickrey (1947, pp.164-197) because under this scheme the tax burden is unaffected by the way income is allocated to the various years.

Cumulative averaging (CA) is based on the principle that total taxes paid over the averaging period should be equal to the total taxes that would have been paid had the income been received in equal amounts over that period. Tax liability in the current year is computed by multiplying the cumulative average income by the tax rate applicable in each year of the averaging period, adding the separate calculations, and then substracting the total taxes already paid. The period for averaging may be lifetime or something shorter. A variant of CA, namely a system of cumulative assessment was developed by Jeffery (1981, pp.172-192).[5]

It can be ascertained from Table 6.2 that the total tax payable by all taxpayers is the same, regardless of the time distribution (or variability) of their taxable incomes.

Although the cumulative averaging method depends upon both the amount of income and the amount of taxes paid, it avoids the need for any recalculation of income tax for previous years or the need for keeping records of past years. Furthermore, an individual averages income according to his/her own particular cycle of income. The scheme is sensitive to changes in marginal rates, but has the advantage of reducing taxes when ability to pay drops.

However, the cumulative approach which was offered as a cure-all plan suffers from three main drawbacks. Firstly, it is questionable whether inequities can be adequately adjusted under this plan for changes in tax rates and other aspects of tax law. Secondly, cumulative averaging relies on "excessive tax" paid in high income years being refunded in low income years.[6] This is a possibility tax authorities will always try to avoid. Finally, cumulative averaging is administratively complex and tax computations become voluminous if tax rate schedules with a large number of brackets are used. It is primarily because of complexity that cumulative averaging has never been used or even seriously considered (Ireland, 1982, p.283).[7]

II. Block averaging

Block Averaging (BA) is conceptually the simplest form of averaging (Industries Assistance Commission, 1975, p.27). Taxes are paid

annually upon each year's income. At the end of the averaging period the total income for the averaging period is distributed equally over the period. The tax of each year is then recomputed, at rates applicable in each year, and these taxes are totalled. The total is then subtracted from the total tax actually paid in respect of the averaging period and the difference assessed against, or refunded to, the taxpayer in the last year of the averaging period, that is, a balancing calculation is made in the final year. The years to be averaged are taken in blocks of, say five or seven years. Succeeding blocks do not overlap and each year is included in the averaging computation only once. Prior to 1988 block averaging was available in Canada on an elective basis to individuals whose chief source of income was farming or fishing (Commerce Clearing House, 1989a, p.477).

III. Income averaging

The amount of tax payable each year, under income averaging measures, is determined by calculating the tax payable on an average taxable income, according to the current tax schedule applicable in that year. Either a moving or weighted moving average of past and current taxable incomes, may be used to calculate average income. The rate of tax applicable to current taxable income is changed according to the relative magnitudes of average and current taxable incomes. If current taxable income is greater than average taxable income, the rate of tax applicable to current taxable income is less than that which would apply under the current tax schedule. By contrast, if current taxable income is less than average taxable income, the rate of tax applicable to current taxable income will be greater than the rate which would apply under the current tax schedule.

This form of averaging has a very long history. From 1799 to 1931 the United Kingdom and Ireland assessed portions of income tax on this basis (Blough, 1945, pp.87-88; Spaulding, 1927, pp.216-228 and Willis, 1951, pp.39-44). A moving average scheme also received a brief test in Wisconsin (USA) between 1927 and 1934 (Atlas, 1938, pp.127-130; Vickrey, 1939, p.379). One of the serious drawbacks of the moving average scheme is that taxpayers are often subject to a burdensome tax liability in years when they have relatively little or no income. Although this aspect was the main reason for these

schemes being discarded, the United Kingdom and Ireland nevertheless introduced income averaging schemes for farmers in 1978 and 1981 respectively (Dunford, 1978, p.2; Ireland, 1982, p.280).

IV. Rate adjustments

Most rate change approaches have been deliberately designed to retain the advantage of the moving average while avoiding, to a certain extent, the disadvantages of extremely high tax payments during low income years. Under the so-called average adjustment procedure (AAP) the tax rate is determined with reference to the taxpayer's average income over a specified period, but only applied to the current year's income. This procedure applied to farmers in Australia prior to 1978 and again as from 1984 and in South Africa prior to 1979.

A scheme which is derived from AAP is the one-way rate change method (OWAAP). If taxable incomes in a given year is greater than average taxable income, tax payable for that year is calculated as under the rate change method. If instead, taxable income is less than average taxable income, tax payable is calculated directly from the tax rate schedule; that is, the averaging procedure is only invoked for one-way movements (upwards) in taxable income. Examples of this procedure are the Australian scheme prior to 1983 and the general averaging scheme in South Africa.

Other variants of the AAP were the Canadian and American averaging schemes which were repealed in 1982 and 1986 respectively. These averaging procedures only applied in certain instances, **viz**., if current taxable income was greater than the average taxable income for previous tax years. Fairly complex calculations were involved for the determination of tax payable under these averaging schemes.

Averaging schemes based on troughs in income have also been suggested. In a scheme suggested by Downing (Industries Assistance Commission, 1975, pp.31-32) a taxpayer whose income in a given year falls 20 per cent or more below his average income in the past five years would be permitted to claim a rebate. Another variant is the marginal adjustment procedure (MAP) which was originally developed by Holt (1949, pp.344-361). Subsequently, it has been recommended as a replacement for the Australian averaging scheme by Chisholm (1971,

p.45) and in the Green Paper on rural policy (Harris, Crawford, Gruen & Honan, 1974, para. 4.104-4.110). The scheme proposed by Chisholm and the Green Paper, differed slightly from Holt's original proposal, in that it utilised a five year moving average, rather than a weighted moving average.

Chisholm advocated strongly the advantages of a MAP as a more meritorious form of tax averaging than the Australian scheme (AS) prior to February 1978 and the Green Paper endorsed Chisholm's advocacy of the advantages.

The MAP derives the current tax payment from two components. The first component is the tax payable on the moving average income at the current tax rate; the second component involves an adjustment factor which is determined by multiplying the marginal tax rate on the average income by the difference between the average income and the current year's income. The adjustment is used to augment the first component to derive the current tax payment when the current year's income exceeds the moving average income. The reverse applies when the current year's income is less than the moving average income - the first component is then reduced by the amount of the adjustment. Consequently tax rebates may be given under MAP in years when income is significantly below average. The formula for determining tax-liability therefore is as follows:

$$T = a Y + m (Y - Y)$$

where T is the tax liability, Y is taxable income in the current year and Y is average taxable income. The coefficients a and m refer respectively to the average and marginal rates of tax on the average taxable income.

V.   Average rates

Tax rates can be set on the basis of both past income and past tax payments. This approach is particularly useful in dealing with extremely irregular or once-and-for-all lump-sum receipts. For example, for taxpayer A in Table 6.1 one may assume that income only in year 2 involves an extremely irregular receipt of R20 000. The tax in year 2 is then calculated as follows: regular rates apply to R45 000 and a special rate which is determined by the ratio of total

taxes paid in previous years to total income in those years is used with regard to the R20 000 receipt.

VI. Forward averaging

Forward averaging refers to any method that permits the postponement of any portion of current taxable income to the future. Unlike backward averaging schemes which use historic incomes in determining current tax liability, forward averaging schemes take account of likely future income streams in determining such liability. They allow a taxpayer to transfer portion of his current income to an account (which may be interest-bearing) and redeem it at some time in the future. The amount transferred is deducted from taxable incomes in the year of deposit and added to taxable income in the year of redemption. Currently a forward averaging scheme for farmers operates in New Zealand. Prior to 1984 a similar scheme was available to Australian farmers. Since 1982 certain Canadian individuals also qualify for forward averaging provisions.

D. AVERAGING SCHEMES IN SELECTED COUNTRIES

I. Country overview

The features and implications of averaging schemes which have been or are in operation in Australia, Canada, Ireland, New Zealand, United Kingdom and United States are outlined in this section. The tax results and performance of these schemes, together with those discussed in section C, are summarised in Tables 6.2, 6.3 and 6.4 below.

1. Australia

The Australian averaging scheme was initially introduced by the State of New South Wales in 1912. Following recommendations of the Royal Commission on Taxation (Australia, 1921, p.10), the scheme became applicable to all individual taxpayers in 1923. But, the scheme was again restricted in application to farmers in 1938. Modifications were introduced in 1951, the most important being the introduction of an income ceiling of $8 000 for averaging purposes.

In 1967 the limit was raised from $8 000 to $16 000. In effect the full benefits of averaging applied only to farmers whose current taxable income and average income over a five year period were both less than $16 000. Where both the average and taxable income exceeded $16 000 the tax liability was calculated without reference to the average income. Where taxable income exceeded $16 000 and average income was less than $16 000 the benefits of averaging were effective on the first $16 000 of taxable income; the balance was taxed at general rates. Where taxable income was less than $16 000 and average income was greater than $16 000 the rate of tax payable on taxable income was that appropriate to a taxable income of $16 000.

The Australian Government announced significant changes to the averaging provisions with effect from February 1978. Firstly, the $16 000 ceiling on incomes eligible for averaging was abolished.[8] The second change was the introduction of the so-called "automatic in-out option" or one way rate change method. Under this option the tax liability of a farmer was automatically the lesser of either that calculated on the basis of ordinary tax rates or that calculated on the basis of averaging. Operationally, an individual's tax liability was calculated on the basis of ordinary rates, less an averaging rebate, if taxable income exceeded average income. The averaging rebate was the difference in the tax liability between using averaging and ordinary scales. Since July 1983, however, a further supplementary tax is payable by a farmer whose taxable income is less than his average income. This amount of tax is known as a "complementary tax".

The present averaging scheme consequently works in the following way. Where the taxable income exceeds the average income, the taxpayer is granted a rebate calculated with reference to the difference between tax on the taxable income at ordinary rates and tax on the taxable income at the average rate. In the converse case, where the average income exceeds the taxable income, the taxpayer is required to pay a complementary amount of tax to bring the tax on the farming income up to the level of tax at average rates. The averaging system applies to the whole of the taxable income from farming but is restricted in its application to income from non-farming sources. The general effect is that, subject to various

shading-in rules, a taxpayer whose taxable income includes $10 000 or more of non-farming income will be subject to averaging only on his income from farming activities.

As a result of recommendations of the Asprey Committee (Australia, 1975a, p.204) and the Industries Assistance Commission (Industries Assistance Commission, 1975, p.43) the Australian Government also introduced income equalisation deposits (IEDs)[9] in 1976 with the aim of encouraging farmers, whose incomes fluctuated above the $16 000 limit, to stabilise their incomes. They were in fact intended to provide farmers with a "self-help" means of handling income instability.[10] IEDs developed from the Drought Bonds scheme, but unlike Drought Bonds they were not confined to particular groups of producers or specified situations which caused instability.[11] With the introduction of IEDs, Drought Bonds ceased to be issued. The scheme provided for the allowance of deductions for monies deposited with the Commissioner of Taxation and for the inclusion in assessable income of proceeds received on withdrawal of deposits. Deposits were limited to 60 per cent of gross income (up to A$250 000 per person) and earned interest at 9,5 per cent.[12]

However, beside its small usage[13], a number of developments, some of which are discussed below, have reduced the attractiveness of IEDs and resulted in the introduction of a new scheme on 1 September 1983. Unlike the old scheme, the new one has no taxation consequences except that interest earned on deposits is, of course, assessable. The new scheme is also intended to provide an incentive for farmers to set aside in good years money for use in bad years. The incentive, however, is not the tax deductibility of deposits but the rate of interest offered - 2 per cent above the short-term bond rate.

For the 1977/78 and prior income years all income, whether from primary production or other sources, was taken into account in calculating average income with the result that a taxpayer with a small amount of income from farming but a larger income from other sources could obtain a substantial benefit from the averaging system.

Another feature of the averaging scheme prior to February 1978 was that tax payments were greater in low income years and lower in high income years than they would have been in the absence of averaging. Compared with the normal progressive system, therefore, the averaging system accentuated the peaks and troughs in post-tax income (Industries Assistance Commission, 1975, pp.25-27).

The introduction of the in-out option and the lifting of the $16 000 limit had a number of consequences which contributed to the repeal of the IED scheme.

(i)   The averaging provisions meant that farmers were favoured by the taxation system. In any single year, farmers could never pay more tax than other taxpayers and would pay less whenever taxable income was greater than average income. Chisholm (1979, p.2) isolated the in-out option as the "most objectionable" part of the tax legislation while the Industries Assistance Commission (1978, p.58) stated that ".... the new averaging provisions go well beyond the pursuit of tax equity and neutrality" and ".....provide an incentive for some individuals to obtain primary producer status for taxation purposes." In addition, two important points emerge from a study by the Bureau of Agricultural Economics (1985, p.81) on, **inter alia**, the impact of the averaging provisions. First the in-out option provided a concession to those whose incomes rose steadily. However, for the sample used in the analysis, this was a small group of farmers. By far the largest source of concession arose because of the operation of the automatic 'in-out' option.[14] The removal of that option should have improved the achievement of period equity but increased the disadvantage faced by those taxpayers with declining incomes.

(ii)   More importantly, the tax averaging and IED provisions were no longer appropriate in terms of either tax equity or stability of post-tax income. The interaction of the averaging arrangements and the IED scheme produced anomalous results. A tax benefit could be gained from IEDs if they were used to destabilise taxable income by lodging deposits in low income years and withdrawing them in high income years (Brown, 1980, pp.757-765; Jeffery, 1978, p.12). A further tax advantage

could be gained from IEDs if they were used to manipulate taxable and/or average income to below the upper limit of the zero tax bracket. However, the need for an adequate cash flow to operate a farming business, added to the extreme difficulty of predicting future income streams mitigated against the likelihood of using IEDs in this manner (Australian Rural Adjustment Unit, 1980, p.11).

(iii) Since monies deposited in IEDs could be derived from any source (other than investment income), methods existed that enabled some weaknesses in the then averaging scheme to be exploited. This particularly applied to the non-farm income provisions. The averaging provisions enabled individuals to include up to $5 000 of non-farm income under farm income for tax averaging. When non-farm income exceeded $10 000 it could not be averaged. Since averaging provisions reduced the tax liability that would have been incurred in the absence of averaging, great incentive existed for individuals with rising non-farm incomes to seek primary producer status and become eligible for averaging. In addition, it was possible to use IEDs as a means to circumvent the averaging provisions as they applied to non-farm income, especially where it exceeded $10 000 because individuals could deposit non-farm income in IEDs and withdraw deposits (excluding interest) as part of their farming income stream. In addition, such transfers could result in substantial tax savings.

(iv) Finally, the Industries Assistance Commission's (1975, p.62) suggestions to pay a commercial interest rate on only the investment component of IEDs was ignored, and for practical reasons it was paid on the whole deposit, i.e. on both the tax deferral and investment components. Although it was administratively feasible it also meant that the effective return for a depositor was positively tied to the level of the taxpayer's taxable income. The higher the taxable income, the higher the rate of return, which was clearly inequitable.[15]

2.   <u>Canada</u>

Canada's first experience in the use of averaging came in 1950 when Block Averaging (BA) was introduced for the incomes of farmers and fishermen. An early assessment of BA in Canada was that it "... cannot ...easily be extended to all taxpayers with fluctuating or irregular incomes" (Willis, 1951, p.52). The Carter Commission (Canada, 1966, vol. 3, pp.262-263) recommended the extension of BA to all taxpayers but this was not accepted.[16]

Currently individuals whose chief source of income is farming or fishing may average income from all sources over a five-year block averaging period, but only if the five-year block commenced prior to 1988. This provision involves a calculation whereby the taxpayer recalculates tax liability as if one-fifth of his or her total income over the period had been earned in each of the five years. An election to block average is made in the last year of the five-year period and may reduce taxes payable in that year or result in a refund of taxes paid in the earlier years of the period.

BA basically has three main disadvantages. First, refunds are only paid at the end of the block. Therefore, less funds are available during the block to taxpayers with fluctuating incomes than to those with more stable incomes. Unequal cash flows may, consequently, still present problems for those taxpayers operating businesses typified by a degree of uncertainty. Additionally, the real value of any refund will be eroded by inflation under such a scheme. Second, there is no systematic relationship between the refund at the end of the block period and the income level at that time. The balancing calculation in year 5 could result in a taxpayer receiving a refund in a high income year or a notice of tax payment due in a low income year. The effect on post-tax income stability is therefore unpredictable. Third, if tax rates are progressively lowered during periods of high inflation BA may actually result in higher tax liabilities than in the absence of averaging.

In addition to the five-year BA two other forms of income averaging existed essentially unchanged between 1971 and 1982. First, a general averaging system provided relief to individuals with fluctuating incomes and was available to all taxpayers. If an

eligible individual's income for a taxable year exceeded the greater of either 120 per cent of his average income for the four preceding years or 110 per cent of his income for the immediately preceding year ("base period income"), the effective tax rate applicable to such excess income ("averaging excess") generally was the rate that applied to one-fifth of the averaging excess. The individual's tax liability was an amount equal to the sum of (i) the tax on either 120 per cent of the four-year base period income or 110 per cent of the income of the immediately preceding year, plus (ii) five times the extra tax from stacking one-fifth of the "averaging excess" on top of the base period income utilized in (i).

Although the general averaging provisions gave significant benefits to individuals with rising incomes, these benefits were not distributed on a neutral basis between types of rising incomes. Furthermore, not only did the averaging formula yield different levels of "averaging excess" in a haphazard way, but equal amounts of averaging excess bestowed varying amounts of tax relief. And finally, the provisions did not apply when incomes were falling. This serious defect was criticised from several quarters (Canada, 1966, vol 3, p.269; David, Groves, Miller & Wiegner, 1970, p.279).

Second, a mechanism to permit forward averaging through the use of income averaging annuity contracts (IAACs) allowed individuals to defer certain types of income to future years in order to benefit from lower anticipated tax rates. This deferral advantage was enhanced and abused by individuals who borrowed to make contributions to IAACs and by issuers of IAACs that provided loans to individuals for a substantial portion of the IAAC contribution (the so-called wrap-around IAAC). In this way, individuals were able to obtain full use of tax deferral funds.

New forward averaging rules were introduced in 1982 in conjunction with the repeal of general averaging and IAACs. From 1982 to the end of 1987 individuals whose income in a year exceeded 110 per cent of their average adjusted income of the preceding three years could choose to average the excess. Averaged income was deductible in computing taxable income and gave rise to a special tax at the highest marginal rate in the year. In a future year, the averaged amount could be brought back and taxed as regular income with a

refundable credit provided at the top marginal rate in that year.[17]

The following is a summary of the implications of the existing forward averaging provisions:

(i)   Taxes had to be paid at the highest rates for the benefit of forward averaging. Although this did not increase the tax burden for individuals who were taxed at the highest marginal rate, it resulted in an immediate additional tax cost to all other taxpayers who utilised the averaging mechanism.

(ii)   Tax benefits arose in the future only if the tax rate of the individual declined below the rate that would otherwise have applied to the averaged income in the year of averaging.

(iii)   As a result of the indexation of the system, the future benefit was not eroded by inflation. The benefit in the future was equal to the future value of the tax rate differential applicable times the current dollar amount being averaged. That is, the benefit was the difference between the tax rate that would have applied to the income in the current year if averaging were not elected and the tax rate applied in the year in which the income was actually drawn into income under the averaging option.

The complex nature of the forward averaging rules, the need for professional advice, and the requirement to pre-pay tax discouraged many from using the averaging measure (Canada, 1987a, p.96).

As a consequence of the lowering of tax rates and moving to fewer tax brackets, the Canadian Government has eliminated forward averaging for 1988 and subsequent years and BA for any five-year block that commenced after 1987 (Canada, 1987a, p.96).

3.   Ireland

For many years incomes in Ireland were averaged on a three-year basis, but because of the complications and other difficulties to which it gave rise, the system was not favoured by taxpayers and it was abandoned as from 1930/31.

The question of averaging was considered by the Commission on Income Taxation (cited in Ireland, 1982, p.280) which recommended that "When a person's total income for any year is less by at least 30 per cent than his total income for the previous year he may have the income of the two years averaged for sur-tax".

With effect from 1981/82, a system of averaging was introduced for the taxation of farming profits. Averaging enables a farmer's profits for tax purposes to be computed by reference to his average profits or losses for the three preceding years. Where an election for averaging is made, it remains in force until the individual either ceases to be a qualifying farmer or opts out of the system. An election for averaging may be made only where the farmer was taxed on the preceding year basis for the two years prior to the year for which the election is made. A farmer may opt out of averaging only if he was taxed on the average basis for each of the three years of assessment immediately preceding the year for which he wishes to revert to the normal basis. If he wishes to revert to the normal basis of assessment, the assessment for each of the two years prior to the last year based on averaging are reviewed. If the existing assessment for either or both of these years is less than the assessment for the last average year, an additional assessment for the difference is made. Where the farmer completely ceases farming, the normal cessation provisions are applied, irrespective of an election for averaging basis.

Averaging was introduced for farmers because of the cyclical nature of farming (Ireland, 1982, p.281). However, the system may be applied in situations in which the profits are not cyclical but trending upwards. In such instances it provides a benefit to farmers because, when the rate of increase in income is regular, averaging effectively results in farmers being assessed for the current year on the amount of nominal income earned over two years ago. Because of this the O'Brien Commission (Ireland, 1982, p.287), recommended that averaging be confined to fluctuations in real income determined by reference to the consumer price index. The major difficulty encountered by earlier schemes still exists, namely that taxpayers are often subject to higher tax liabilities in low income years.

4.   New Zealand

In New Zealand an IED Scheme was introduced in 1965 with three principal aims, namely:

"(a)   to reduce fluctuations in farmers' taxable incomes;

 (b)   to make tax savings through these reduced fluctuations; and

 (c)   to provide finance for programmes of farm development in years when farm incomes fall" (Hinkley & Taplin, 1966, p.194).

Although the IED scheme in New Zealand resembles the Australian IED scheme in many ways, it has always been the only "express" averaging provision available to farmers. The main features of the scheme are straightforward (Commerce Clearing House (NZ), 1987, pp.64,144-64,156). A portion of farming income (usually the full amount of assessable forestry or farming income) may voluntarily be deposited in an IED account. The deposit is allowable as a tax deduction in the current year. The minimum deposit is $200 and interest at 3 per cent per annum is paid on all amounts left on deposit for 12 months or more.

In general, amounts are available for refund after 12 months, but all deposits are automatically refundable on expiration of 5 years. Refunds are also made on a first-in-first-out basis. Special provisions cover the refund and assessment of deposits where the taxpayer ceases farming, dies, is adjudged bankrupt or in the event of a company being wound up. A special rebate is allowed, where necessary, to ensure that a refund does not attract more tax than was saved in the year in which the deposit was allowed as a deduction. Where only part of a deposit is refunded, the allowable rebate is adjusted accordingly.

In addition to the IEDs, the New Zealand Government introduced a scheme of "Adverse Event Bonds" as part of the 1974 Budget (NZ, 1974, p.7). This scheme was analogous to the Australian Drought Bond Scheme, except that it was slightly more flexible. Bonds were available to individuals, companies and partnerships in multiples of $100 and attracted 3 per cent interest per annum. They were tax

deductible in the year of purchase and assessable in the year of redemption.   As with Drought Bonds they were redeemable (i) if the area in which a farm is situated, was declared to be in need of relief from adverse climatic conditions, or (ii) in the case of death, bankruptcy, sale of a farm or retirement from farming. Redemptions for any other reason attracted penalties amounting to the first three years' interest.   This scheme was, however, repealed in 1979.

In the early years of the scheme it was not used as widely as some expected and McArthur (1971, p.12) concluded that "The scheme is not worth using unless incomes are highly variable."   A factor which the Green Paper (Harris, Crawford, Gruen & Honan, 1974, par 4.119) considered as being partly responsible for farmers' lack of interest, was the non-interest bearing nature of the IED accounts.   Today IEDs earn interest at 3 per cent per annum but the erosion by inflation of the capital invested still seems to render the investment unattractive, despite the tax benefits.   In 1973/74 there was a dramatic increase in deposits, coinciding with abnormally high income from wool and meat sales.   Farmers thus regarded the scheme as beneficial only when income was unexpectedly high.   The Ross Committee (NZ, 1967, p.294) stated in this connection:

> "Our view is that it (IEDs) has not been a success and probably has given some tax relief only to the farmer who was fortunate enough to possess significant cash resources. In a sense, therefore, the scheme may have created inequities even within the farming community."

A New Zealand accountant, in correspondence with the author, made the following remarks about IEDs and the loophole which a tax rate reduction has created:

> "The Scheme is reasonably widely used, although at the present time much of the benefit of using the Scheme has been eroded by a progressive reduction in marginal rates of tax.   If you refer to the schedule of tax rates you will see that, during the 1984/85 income year, taxable incomes in excess of $38 000 attracted a top rate of tax of 66 cents in the dollar.   A farmer encountering a high level of income as

a result of some rather abnormal circumstances could derive significant tax benefits by making a Deposit against that high income year and withdrawing the funds in a subsequent when he was assured of having a much lower level of income. Alternatively, when there had been a preannounced fall in tax rates farmers used the Scheme to advantage by depositing against a high marginal rate of tax in one year and withdrawing a year or two later when the tax rates were lowered. <u>A number of my clients used this particular technique in respect of the 1986 income year</u>. For that year the top marginal rate of tax was 66 per cent and by making a Deposit against the 1986 income year as late as 12 February 1987 they were able to derive a tax saving of 66 per cent on the funds invested. They will uplift those Deposits during the first week of April 1988 at which stage the income will be recognised as being 1988/89 income where it will attract a top rate of tax of 48 per cent. To this extent then the legislation created some sort of a loophole enabling taxpayers to reduce their tax by amounts greater than that which was originally intended through the legislation." (emphasis added)

V.   <u>United Kingdom</u>

From 1799 to 1926 trading and professional incomes in the United Kingdom were assessed on the basis of a moving average (Blough, 1945, pp.87-88; Spaulding, 1927, pp.216-228; Willis, 1951, pp.39-44).

The period of averaging was variously three, five or seven years according to the kind of income being assessed. This form of averaging appears to have originated as a device to assist in the estimation of current income and the prevention of tax evasion in cases where taxpayers made up their accounts for irregular periods. Only indirectly was it used to reduce the tax liability on fluctuating income (Willis, 1951, p.40).

The major difficulty encountered was that taxpayers were often subject to a burdensome tax liability in years when they had relatively little or no income. Although averaging schemes were recommended by the Tucker Committee (UK, 1951, paras. 21, 84-93, 140-143) and the

Radcliffe Commission (UK, 1955, par. 203) a two-year income averaging scheme for farmers (and market gardeners) was only introduced in 1978.[18]

The basic principles involved are straightforward (Barrett, 1987, pp.34-37). Any person (not company) carrying on a trade of farming or market gardening may elect to average and this election must be made within a period of two years from the end of the second year of assessment. Profits are averaged as follows:

(i)   70% rule: if profits of either year are nil or less than 70% of the other, the profits may be equalised;

(ii) 75% rule: if profits for one year are between 70 and 75% of profits for the other year marginal relief is available according to the formula 3 x (H - L) - 3/4 H where H = higher profit and L = lower profit. This amount is added to L and deducted from H.

The averaging provisions do not apply to either the first year of assessment on the commencement of farming or to the last year assessment on the cessation of farming. Losses are regarded as nil profits and may be carried forward in the usual way.

Although the utilisation of averaging provisions often provide substantial tax saving, other aspects need to be considered. First, an important point to bear in mind is that the profits available for averaging are those computed **before** taking account of capital allowances, stock relief and loss relief. The incidence of these items will materially affect the tax liability for the years of assessment concerned.

Second, the argument has frequently been advanced that farmers in the United Kingdom would benefit from averaging. The contents of the National Economic Development Council's (NEDO) report (Agriculture EDC, 1977, p.6) on the impact of taxation on farmers indicate that, on average over the assessment years 1969/70 to 1972/73, more than 98 per cent of the farm and horticultural businesses assessed as sole traders had net true incomes (that is assessable incomes less capital allowances and allowable interest and losses) of less than £5 000 . It seems, therefore, that in practice the effects of averaging are far

less far reaching than anticipated. Dunford (1978, p.1) also argued that any form of averaging would be unlikely to result in a substantial reduction in the incidence of tax at the levels of net incomes assessed in the case of many farmers in the United Kingdom. According to him the averaging scheme must rather be seen ".... as an alternative to, and not as a reinforcement of, existing procedures which already provide a means whereby changeable income fluctuations can be substantially dampened" (1978, p.20). Rather significantly, the NEDO report (Agriculture EDC, 1977, p.8) suggested an IED scheme:

".... consideration should be given to the adoption of a voluntary income equalisation scheme for tax purposes similar to those already operating in a number of countries. These schemes, which are less complex than full averaging enable farmers to set aside a portion of their pre-tax income in a year of high profit for future use in the business".[19)]

6. Underline: United States

The moving average received a brief test in the United States in 1927 when the Wisconsin State Legislature changed the base of income tax to a three-year moving average (Atlas, 1938, pp.124, 127-130; Blough, 1945, pp.85, 89; Vickrey, 1939, p.379). The major fault of the scheme became apparent with the onset of the Depression which caused a large number of taxpayers to be subject in a period of little or no income, to relatively high tax liabilities based on average income. In 1931, legislation was enacted to effect a gradual transition from averaging. This transition was completed in 1934.

In 1964 a general income averaging scheme was again introduced. According to the Carter Commission (Canada, 1966, vol.3, p.253) the president of the United States had the following to say about the introduction of a general averaging scheme:

"I have instructed the Secretary of the Treasury to present to the Congress as part of this program an income averaging provision. It will provide fairer tax treatment for those who receive in a single taxable year unusually large amounts

of income as compared to their average income for preceding years. The proposal will go beyond the narrowly confined and complex averaging provisions of the present law and will permit their elimination from the Internal Revenue Code. It will provide one formula of general application to those with wide fluctuations in income. This means fairer treatment for authors, professional artists, actors and athletes, as well as farmers, ranchers, fishermen, attorneys, architects and others".

Under these provisions, if an eligible individual's income for a taxable year exceeded 140 per cent of his average income for the three preceding years ("base years"), the effective tax rate applicable to such excess income ("averagable income") generally was the rate that applied to one-fourth of the "averagable income". In effect it stretched the rate brackets for income in excess of the base period moving average. The individual's tax liability was an amount equal to the sum of (i) the tax on 140 per cent of the three-year base period income, plus (ii) four times the extra tax from stacking one-fourth of the "averagable income" on top of 140 per cent of base period income.

Three basic eligibility requirements restricted the availability of income averaging. First, the individual had to be a citizen or resident of the United States during the current year and each of the base years. Second, the individual (and the individual's spouse) generally had to provide at least 50 per cent of his or her support each of the three base years. Third, for a number of years averagable income had to exceed $3 000 to qualify for averaging.

The United States scheme reduced tax liability when income was rising, but when income was falling, averaging simply did not apply.[20] However, such taxpayers were affected indirectly in that low income years were included in subsequent base periods used to determine average income. The eligibility tests also went some way to exclude low income taxpayers. Changes to the tax rate structure recommended by Treasury II (USA, 1985a, p.110) and implemented by the Tax Reform Act of 1986 (TRA'86) (USA, 1987g, p.6) reduced the need for income averaging in two respects. First, with fewer and wider tax brackets, taxpayers are able to experience greater fluctuation in income without becoming subject to higher progressive tax rates. Second, with the

overall reduction in marginal tax rates, the additional tax paid as a result of large income fluctuations are considerably less.

According to Rossi (1988, p.8) eleven per cent of all farm sole proprietorships had used income averaging before the TRA'86 for an average saving of $810. Its elimination under the TRA'86 had a noticeable impact, adding $327 million to the tax liability. The highest percentage increase in tax liabilities occurred in respect of dairy, pig, sheep and chicken farming and those farmers with taxable incomes below $45 000 (Rossi, 1988, pp.9 and 12).

II. Casualties and the bunching of income

Generally relief measures cater for cases where the sale or loss of a farmer's livestock or part thereof is forced upon him by some adverse event such as flood, fire, drought, stock disease, soil or environmental contamination or where the farmer has to leave a farm because his land has been acquired by government or other specified bodies (CCH, 1989a, p.195; Mannix & Mannix, 1987, pp.417-425 & USA, 1988a, pp.51-52).

The relief measures can be divided into three categories; i.e.:

(i)   profits arising from certain adverse events may be spread to subsequent years, ranging from one year (Canada) to five years (Australia);

(ii)   proceeds derived from the forced disposal or compulsory destruction of livestock may be applied to reduce the cost of replacement animals or farm property which qualify as replacement property. Sometimes the compensation or insurance money included as a receipt are limited to the cost of "new" replacement animals if the latter are inferior to the "old" animals; and

(iii)   deductions for losses of livestock may be taken by omitting these items from closing inventory.

III   Evaluation

In the foregoing discussion it was argued that particular constraints
with   which   averaging   measures   must   comply,   together   with   the
accomplishment of period equity, provide the necessary criteria for an
evaluation of different averaging measures.   Another criterion which
is often added is the extent to which averaging schemes succeed in
reducing the variability of post-tax incomes.

Consider again the respective situations of the five taxpayers as
shown in Table 6.1.   The tax payable by the five taxpayers, under each
of the averaging procedures discussed above (except for the average
rate scheme) and according to the ordinary tax rate schedule   is
summarised in Table 6.2 (tax payable amounts have been rounded to the
nearest ten rand).   For comparison purposes, the coefficient of
variation of the total amount of post-tax income and the difference in
tax payable relative to taxpayer E, under each of the averaging
procedures, are shown in Table 6.3.

It can be ascertained from Tables 6.2 and 6.3 that, in most instances,
the amount of tax payable by the case study taxpayers differs under
each averaging procedure;   and, that the amount of tax payable under
most averaging procedures is influenced by the distribution of a given
total taxable income (R170 000) between assessment periods.   Most of
the averaging procedures thus are unable to remove the influence of
the distribution of a given taxable income, between assessment periods
of the tax equity period, from the amount of personal taxation
payable; that is most schemes are unable to effect period equity.
Although CA and BA are able to accomplish period equity, relief under
BA comes tardily while CA relies on "excessive" tax paid in high
income years being refunded in low income years.

From Table 6.3 it is also clear that the averaging schemes are not
able to achieve a great measure of stability in post-tax incomes.

TABLE 6.2: TAX PAYABLE[1] (R) BY FIVE TAXPAYERS UNDER VARIOUS AVERAGING SCHEMES[2]

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
TAXPAYER A						
Taxable income	15 000	65 000	40 000	30 000	20 000	170 000
Tax payable:						
AUSTR/AAP	2 340	17 320	10 660	7 730	4 870	42 920
CANADA: BA	2 340	21 560	10 660	6 760	80	41 400
: CFA[3]	2 340	24 000	10 660	5 810	1 320	44 130
IRELAND[4]	2 340	10 660	10 660	12 760	6 760	43 180
NZ/FA[5]	2 340	8 660	10 660	10 660	10 660	42 980
UK	10 660	10 660	10 660	5 040	5 040	42 060
USA	2 340	18 560	10 660	6 760	3 560	41 880
CA	2 340	18 980	10 660	6 660	2 760	41 400
IA	2 340	10 660	10 660	9 660	8 280	41 600
MAP	2 340	20 660	10 660	6 660	2 960	43 280
OWAAP	2 340	17 320	10 660	6 760	3 560	40 640
ORDINARY	2 340	21 560	10 660	6 760	3 560	44 880
TAXPAYER B						
Taxable income	40 000	15 000	20 000	65 000	30 000	170 000
Tax payable:						
AUSTR/AAP	10 660	3 200	4 030	16 080	7 310	41 280
CANADA: BA	10 660	2 340	3 560	21 560	3 280	41 400
: CFA[3]	10 660	2 340	3 560	22 040	5 810	44 410
IRELAND[4]	10 660	5 870	5 040	8 030	8 660	38 260
NZ/FA[5]	5 040	6 760	3 560	14 910	12 760	43 030
UK	5 870	5 240	12 100	9 350	9 350	41 910
USA	10 660	2 340	3 560	20 860	6 760	44 180
CA	10 660	1 080	3 380	19 520	6 760	41 400
IA	10 660	5 870	5 040	8 660	8 280	38 510
MAP	10 660	1 620	3 440	20 660	6 760	43 140
OWAAP	10 660	2 340	3 560	16 080	6 760	39 400
ORDINARY	10 660	2 340	3 560	21 560	6 760	44 880
TAXPAYER C						
Taxable income	15 000	20 000	30 000	40 000	65 000	170 000
Tax payable:						
AUSTR/AAP	2 340	3 340	5 580	8 300	15 830	35 390
CANADA: BA	2 340	3 560	6 760	10 660	18 080	41 400
: CFA[3]	2 340	3 560	6 760	10 660	21 560	44 880
IRELAND[4]	2 340	2 920	4 030	6 760	12 760	28 810
NZ/FA[5]	2 340	3 560	6 760	10 660	21 560	44 880
UK	2 340	5 040	7 710	14 730	14 730	44 550
USA	2 340	3 560	6 640	10 560	21 270	44 370
CA	2 340	3 500	6 240	9 700	19 620	41 400
IA	2 340	2 920	4 030	5 450	8 280	23 020
MAP	2 340	3 520	6 030	10 130	20 060	42 080
OWAAP	2 340	3 340	5 580	8 300	15 830	35 390
ORDINARY	2 340	3 560	6 760	10 660	21 560	44 880

TABLE 6.2 (Continued):

	Year 1	Year 2	Year 3	Year 4	Year 5	Total
TAXPAYER D						
Taxable income	65 000	40 000	30 000	20 000	15 000	170 000
Tax payable:						
AUSTR/AAP	21 560	12 200	8 510	5 240	3 650	51 160
CANADA: BA [3]	21 560	10 660	6 760	3 560	-1 140	41 400
: CFA [4]	22 510	10 660	5 810	2 260	1 340	42 580
IRELAND [5]	21 560	16 010	12 760	6 760	4 030	61 120
NZ/FA	8 280	8 280	8 280	8 280	8 280	41 400
UK	16 010	11 190	6 700	4 360	4 360	42 620
USA	21 560	10 660	6 760	3 560	2 340	44 880
CA	21 560	10 460	6 260	2 360	760	41 400
IA	21 560	16 010	12 760	10 160	8 280	68 770
MAP	21 560	10 510	6 460	2 660	1 060	42 250
OWAAP	21 560	10 660	6 760	3 560	2 340	44 880
ORDINARY	21 560	10 660	6 760	3 560	2 340	44 880
TAXPAYER E						
Taxable income	34 000	34 000	34 000	34 000	34 000	170 000
Tax payable:						
All schemes	8 280	8 280	8 280	8 280	8 280	41 400

1.   According to the 1987/88 South African tax rate schedule for married persons.

2.   Abbreviations used for averaging schemes:

   AUSTR/AP - Australian scheme and average adjustment procedure

   BA - Block averaging (Canada)

   CFA - Canadian forward averaging scheme

   IRELAND - Irish averaging scheme

   NZ/FA - New Zealand forward averaging scheme

   UK - United Kingdom averaging scheme

   USA - United States averaging scheme

   CA - Cumulative averaging

   IA - Income averaging (5 years)

   MAP - Marginal adjustment procedure

   OWAAP - One-way average adjustment procedure

   ORDINARY - Tax payable calculated without averaging, ie normal tax

TABLE 6.3: CASE STUDY TAXPAYERS: TOTAL TAX PAYABLE (R) RELATIVE TO TAXPAYER E AND COEFFICIENT OF VARIATION OF AFTER-TAX INCOME (%)

TAXPAYER		AUSTR/AAP	BA	CFA	IRELAND	NZ/FA	UK	USA	CA	IA	MAP	OWAAP	ORDINARY
							AVERAGING SCHEMES						
A	R	+ 1 520	-	+ 2 730	+ 1 780	+ 1 580	+ 660	+ 480	-	+ 200	+ 1 880	- 760	+ 3 480
	%	55,3	45,1	42,9	69,1	74,4	73,3	51,8	50,4	68,2	48,8	53,2	48,4
B	R	- 120	-	+ 3 010	- 3 140	+ 1 630	+ 510	+ 2 780	-	- 2 890	+ 1 740	- 2 000	+ 3 480
	%	56,6	47,0	47,4	71,0	66,5	77,2	49,2	48,9	70,0	48,3	54,6	48,4
C	R	- 6 010	-	- 3 480	- 12 590	+ 348	+ 3 150	+ 2 970	-	- 1 838	+ 680	- 6 010	+ 3 480
	%	53,6	52,4	48,4	55,2	48,4	59,8	48,7	50,2	59,3	49,7	53,6	48,4
D	R	+ 9 760	-	+ 1 180	+ 19 720	-	+ 1 220	+ 3 480	-	+ 27 370	+ 850	+ 3 480	+ 3 480
	%	53,4	44,0	44,1	60,1	65,7	58,4	48,4	44,7	72,1	45,6	48,4	48,4

Source: Table 6.2

TABLE 6.4: PERFORMANCE OF AVERAGING SCHEMES AGAINST CERTAIN EVALUATION CRITERIA

CRITERIA	AVERAGING SCHEMES								
	AUSTR/AAP	BA	CFA	IRELAND UK/IA	NZ/FA	USA	CA	MAP	OWAAP
Consistency	No	Yes	No	No	No	Yes	Yes	Yes	Yes
Simplicity	Yes	Yes	No	Yes	Yes	No	No	No	No
Compatibility	Yes	Yes	No	No	Yes	Yes	Yes	No	Yes
Rate-neutrality	Yes	Yes	No	Yes	No	Yes	Yes	Yes	Yes
Immediacy	No	No	No	No	No	Yes	Yes	Yes	Yes
Problems	Overpayment of tax in some years.	Relief comes tardily. Refunds necessary.	Complexity. Benefit tax-payers only in limited circumstances.	Overpayment of taxes in some years. Relief comes tardily.	Difficulty predicting future income streams. Scope for tax sheltering.	Favours taxpayers with rising incomes.	Complexity if tax schedule has many brackets. Refunds necessary.	Broad banding tax schedules create avoidance opportunities. Taxpayers with high stable incomes better off.	Inequity of in-out option.

Source: Lamont (1982 and 1985).

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This aspect compelled the Industries Assistance Commission (1975, p.56) to conclude that forward averaging measures such as IEDs should complement backward averaging schemes to improve tax equity and post-tax income variability. It would seem from Table 6.3 that tax rate adjustment measures and forward averaging or income transfer measures achieve a greater level of stability in post-tax incomes. However, these meritorious features are in many instances neutralised by an inability to achieve period equity.

Finally, the performance of the various averaging schemes on the basis of the evaluation criteria which were suggested by Jeffery (1981, pp.139-140) is depicted in Table 6.4. Income averaging schemes (IA, Ireland and UK) are relatively simple, but they do not provide relief from period inequity in the year in which it is incurred. In fact, taxpayers are often subject to burdensome tax liabilities in years when they have relatively little or no income. Tax relief also comes tardily. On the other hand, tax rate adjustment measures (Austr/AAP, USA, MAP and OWAAP) make the amounts of tax payable more responsive to current taxable income. However, under the Australian/AAP scheme overpayment of tax often occurs. The in-out option of the OWAAP is considered to be extremely inequitable, while the USA scheme only favours taxpayers with rising incomes.

Forward averaging or income transfer measures (BA, CFA, NZ/FA and CA) effect the transfer of amounts of taxable income between assessment periods. In doing so, the rate of tax applicable to the transferred amount is altered. These mechanisms are able to effect period equity (BA and CA) and stability in post-tax income (CFA and CA), but the following factors discourage many authorities from either implementing or using these mechanisms:

-       the complex nature of the forward averaging rules (CFA);

-       the difficulty in predicting future income streams (CFA and NZ/FA);

-       the requirement to pre-pay tax at high tax rates (CFA); and

-       the need to pay refunds (BA and CA).

E.   SOUTH AFRICA

The present income tax legislation contains basically two types of averaging measures designed to reduce the extra tax burden on farmers receiving erratic or certain types of "lumpy" income: those involving general averaging and those that "ignore" exceptional income for tax purposes - also referred to as "anti-bunching" measures. The latter are only briefly discussed as they usually cease to apply if a farmer elects to be taxed under the general averaging formula.

I.   General averaging and anti-bunching measures

1.   Background

The general averaging provision outlined in paragraph 19 of the First Schedule of the Income Tax Act 58 of 1962 (the Act hereinafter) was introduced in 1968 and was very similar to the Australian averaging scheme prior to 1978.[21)] The then Minister of Finance, in the 1967/68 Budget (RSA, 1967, pp.8-9), had the following to say about the proposed introduction of the averaging provisions:

> "... the vicissitudes of the elements, stock diseases and
> the like have an adverse effect on the income of a farmer.
> He may perhaps enjoy an unusually high income in one year,
> which is then followed by years of adversity. Briefly, as a
> result of the progressive rates of tax on individuals, those
> fluctuations may cause a farmer to pay a much greater amount
> in taxation over a period of years than another person whose
> total income over the same period is the same amount but is
> more evenly spread. Representations were received for the
> introduction of a system of equalising income. A system of
> this nature was carefully considered but, on account of the
> problems and anomalies which it involves, it was not found
> to be practicable. It was realised, however, that something
> had to be done to assist the farmer and, after discussions
> with representatives of the farming community, it was
> decided to change to a system of equalising tax rates rather
> than income. In broad outline this means that the average
> of the taxable income for the year of assessment and the
> preceding four years will be used as a standard to determine

the rate at which the tax for the relative year of
assessment will be calculated. If, for example, the taxable
income for that year is R20 000 and the average for the five
years is R7 000, the R20 000 will be taxed at the rate
applicable to an income of R7 000".

The averaging provision thus permitted a taxpayer to pay tax on his
taxable income derived from farming at the rate of tax applicable to
his average taxable income from farming within the current and four
immediately preceding years of assessment. However, it was a
difficult decision for a farmer to opt for the averaging provision
because although it would save him tax in years when his actual
farming income was higher than his average, it would also cost him tax
in (bad) years when his actual farming income was lower than his
average.

Once the principle of averaging out fluctuations is accepted, it is a
small step to the argument that it is unfair that a farmer should in a
bad year pay more tax than is in fact attracted by his actual taxable
income. In the face of this hardship it is easy to forget the fact
that in the good years the farmer paid less tax than anyone else would
have on the same taxable income. Also not so obvious is the
consideration that a bad year need not have been so bad at all.[22]
In fact, it might have been an exceptionally profitable year, in which
the farmer used his profits to improve his farm, claimed deductions on
account of the improvements and ended with an apparently poor taxable
income.

Nevertheless, the hardship, apparent or real, was sufficient as an
incentive for the introduction in 1980 of a new proviso to paragraph
19, which limits the tax payable to a maximum of the amount that would
have been payable if paragraph 19 were inapplicable. In effect, a
farmer is automatically released from his election to be subjected to
tax under paragraph 19 in any year in which it suits him to be
released. The scheme is, therefore, similar to the so-called "in-out
option" which was available to farmers in Australia and completes "...
the protection afforded to farmers against the unfortunate effects of
the progressive system of taxation on a fluctuating income, a
protection that regrettably is not afforded to other taxpayers"
(Income Tax Reporter, Vol.18, Part 2, April 1979, p.42).

As in Australia, the amendment aroused a great deal of criticism. Divaris and Stein (1982, p.308) noted that "... para 19(1) is not a true averaging provision but a means of extending to farmers a lower overall effective rate of tax than is borne by other taxpayers." The new averaging scheme was also called "... an ingenious gloss on the generosity of an earlier year (1968) ..." and a "straightforward subsidy" (Farming Operations, 1979, pp.146-147). However, it should be noted in relation to the Minister's announcement that at the time the new proviso was announced (March 1979), it was called an "extremely generous concession to farmers" (RSA, 1979a, p.9150).

2. Features

A farmer who is a natural person or certain representatives of such a person [23] may elect [24] to be taxed according to a rating formula. The formula effectively gives the farmer the benefit of averaging his taxable income from farming over the years for the purposes of the determination of the rate of tax to which he is liable unless such an averaging does not suit him. Once the farmer has elected to average, his total taxable income in any relevant period of assessment is taxed on the following formula:

$$\text{Tax payable (Y)} = \frac{\text{Tax on denominator(A)}}{\text{Average farming income(B) + other income(C)}} \times \text{Full taxable income (F)}$$

Paragraph 19(2) sets out the basis of determination of the taxpayers' average taxable income from farming in relation to the relevant period, that is the current year of assessment.

If the taxpayer carried on farming operations **before** the relevant period of assessment, then the average taxable income from farming for that period is an amount representing the taxpayer's annual average taxable income from farming and which fall within the period of five years ending on the last day of the relevant period **and** during which farming operations were carried on or farming income was derived by the taxpayer.

So, for example, if the taxpayer farmed continuously from 1980 and elects to be assessed for the 1985 year on the formula, all his taxable income from farming during the years 1981 to 1985 is

aggregated and divided by five to determine the average taxable income from farming. If the farmer had not carried on farming operations in, say, 1982 and 1983, his taxable income would be aggregated for the 1981, 1984 and 1985 years and divided by three to determine his average taxable income from farming.[25] It is also provided that averaging provisions relate only to taxable income from farming. All other non-farming taxable income and excess farming profits [26] are not subject to averaging.

Where the taxpayer did not carry on farming operations before the relevant period[27] the taxpayer's average taxable farm income for the relevant period is:

(a)   the taxpayer's taxable farm income if it does not exceed R3 000;

(b)   R3 000, if taxable farm income exceeds R3 000 but not R4 500;

(c)   two-thirds of taxable farm income if it exceeds R4 500.[28]

If in any year falling within the averaging period a loss on farming operations is recorded, that loss and that year are brought into the determination of the average without regard to any set off of that loss against other income. Thus, if for the averaging period a farmer derived profits of R20 000, R30 000 and R50 000 and losses of R30 000 and R40 000, the average taxable income from farming is 1/5 (R20 000 + R30 000 + R50 000 - R30 000 - R40 000) = R6000. If the annual average results in a loss, then the average for the purpose of the formula is nil.

3.   Operation of the scheme

The following two examples illustrate the working of the rating formula. For the purposes of the examples the 1987/88 tax rates for married persons are used.

Example 1

A farmer who is married, under 60, and is entitled to only the primary rebate commenced farming in tax year 1. His results were as follows:

	Total taxable income	Farming taxable income	Other taxable income
	R	R	R
Tax year 1	30 000	20 000	10 000
Tax year 2	60 000	40 000	20 000
Tax year 3	60 000	30 000	30 000
Tax year 4	150 000	120 000	30 000
Tax year 5	110 500	70 000	40 500

For tax year 5 the taxpayer elected to have the normal tax chargeable determined under para 19(1).

Normal tax for tax year 5, that is, item 'Y':

B   (average taxable income from farming) $\dfrac{R280\ 000}{5}$ = R 50 600

C   (current taxable income from sources other than farming ....   = R 40 500

F   (total taxable income for tax year 5) ....   = R110 500

A   (normal tax chargeable on a taxable income equal to B + C that is, on R96 500 (based on 1987/88 tax rates)   R960

$$Y = \frac{A}{B + C} \times F$$

$$= \frac{35735}{96500} \times R110\ 500$$

$$= R40\ 920$$

Tax payable = R40 920 - R920 (primary rebate)
          = R40 000

Notes:

(1) If the taxpayer commenced farming for the first time during tax year 3, 'B' (average taxable income from farming) would be 220000/3 = R73 333. If he commenced farming during tax year 4, 'B' would be 190000/2 = R95 000, and if he commenced farming for the first time during tax year 5, 'B' would be two-thirds of R70 000.

(2) If the taxpayer's liability for tax calculated without regard being had to par 19(1) were less than his liability as calculated above, the provisions of par 19(1) would effectively have to be disregarded, in terms of the second proviso to par 19(1).

Example 2

For tax year 5 a taxpayer (married and under 60) elected to average. In terms of the second proviso to paragraph 19(1), even if he elects to have paragraph 19(1) apply, his liability for tax in each year will be the lesser of the figures in the last two columns below.

Tax year	Farming taxable income or loss	Non-farming taxable income or loss 'C'	Taxable income for year 'F'	Average taxable income from farming 'B'	Normal tax on B + C [1] 'A'	Normal tax on F if election made [1] 'Y'	Normal tax on F if no election made or if election made and less than 'Y'
1	R10 000	R 4 000	R14 000	-	-	-	-
2	12 000	3 000	15 000	-	-	-	-
3	8 000	2 000	10 000	-	-	-	-
4	4 000	1 000	5 000	-	-	-	-
5	16 000	5 000	21 000	R10 000	R 2 340	$\frac{R2\ 100}{15\ 000}$ x 21 000 = R3 276	R3 840
6	loss 10 000	loss 2 000	assessed loss 12 000	6 000	On R 4 000 = R 600	$\frac{R\ 600}{4\ 000}$ x Nil[2] = Nil	Nil[3]
7	loss 3 000	24 000[4]	9 000[5]	3 000	On R25 000[4] = R 5 040	$\frac{R5\ 040}{25\ 000}$ x 9 000 = R1 814	R1 350[3]
8	23 000	7 000	30 000	6 000	On R13 000 = R 1 960	$\frac{R1\ 960}{13\ 000}$ x 30 000 = R4 523	R6 760
9	31 000	loss 16 000	15 000	11 400	On R1[6] = R 0,15	$\frac{R\ 0,15}{1}$ x 15 000 = R2 250	R2 340
10	loss 46 000	50 000	4 000	Nil[7]	On R50 000 = R14 910	$\frac{R14\ 910}{50\ 000}$ x 4 000 = R1 193	R 600[3]

Notes:

(1)   The rates of tax for years 5 to 10 are based on 1987/88 rates of tax. The primary rebate of R920 has not been deducted, but must be deducted from the tax payable as finally determined, that is, from Y. Cents have been ignored.

(2)   In tax year 6 there is an assessed loss, that is F = 0. Thus Y = 0, and the formula is not applicable.

(3)   In tax years 7 and 10 the taxpayer will be liable for the amounts of tax reflected in the last column, since these amounts are less than the amounts in the first column Y. The second proviso to para 19 provides that the tax payable may not be determined under para 19(1) at an amount exceeding the amount of tax that would have been payable had no election been made under para 19.

(4)   The assessed loss of R12 000 carried forward to tax year 7 relates to non-farming trading to the extent of R2 000 (see tax year 6). Presumably, C, in tax year 7, must be taken to be R22 000 (R24 000 less R2 000) so that B + C is R25 000 (R3 000 + R22 000). Alternatively, the balance of assessed loss carried forward to tax year 7 would be apportioned between farming and non-farming income in the ratio which the taxable income in tax year 7 from farming bears to the non-farming taxable income in tax year 7 (both before making any provision for the loss).

(5)   The taxable income of R9 000 in year 7 is arrived at by deducting the tax year 6 assessed loss of R12 000.

(6)   Where B + C results in a negative amount, it must be taken to be R1 (proviso to para 19(2)). This rule applies in tax year 9 where B + C is - R4 600 (R11 400 - R16 000). The rate of normal tax on a taxable income of R1 is 15 per cent.

(7)   Where B (average taxable income from farming) is a negative amount, it must be taken to be zero. In relation to tax year 10 the average taxable income from farming results in an average

loss of R1 000 (over the five years there were profits of R54 000 and losses of R59 000). Thus B is zero.

4.   Anti-bunching measures

The anti-bunching provisions in the First Schedule of the Act, the thrust of which is to ignore abnormal receipts in the calculation of the rate of tax, are as follows:

(i)   paragraphs 13 and 13A (forced sale and drought relief provisions)

(ii)   paragraph 17 (sugar cane)

(iii) paragraph 15(3) (plantations)

(iv)   paragraph 20 (profit in consequence of acquisition of land by the State and other bodies)[29]

(a)   Forced sales

Paragraph 13 entitles a farmer, firstly, to elect for a concessional basis of taxation arising from the disposal of livestock due to drought, stock disease or damage to grazing by fire or plague and if the livestock is replaced within four years after the end of the year of assessment in which they were sold (paragraph 13(1)(a)). In these circumstances the farmer has the option of deducting the cost of the new livestock from his income in the original year of assessment or deducting it from the current year's income. Secondly, if the farmer purchases livestock to replace stock which he sold in terms of a Government livestock reduction scheme, the same provisions as above apply, except that he has nine years after the close of the current year to replace the livestock and he may not elect to use this paragraph if he is taxed under the general averaging formula (paragraph 13(1)(b)).

Under the first option above, the claim for a deduction must be made within 5 years after the close of the year of assessment during which the livestock was sold, and in the second case, within 10 years.

(b)   Drought relief

If, after February 1982 a farmer has sold his livestock because of
drought and has deposited the proceeds or some of the proceeds with
the Land and Agricultural Bank of South Africa, then the proceeds so
deposited, will not be included in the farmer's gross income. If, at
any time within 6 years after the end of the year of the sale, the
farmer withdraws the money from the Land Bank, he will be taxed on the
withdrawal which includes interest. If he leaves the money on deposit
for 6 years or more, it will be deemed to be his gross income on the
last day of the 6-year period. If he dies or goes insolvent within
the 6-year period, the money still on deposit will be deemed to be
gross income on the day before his death or insolvency. The total
amount invested with the Land Bank under this provision/category
amounted to R39,4 million on 31 December 1988 (Land Bank Annual
Report, 1988, p.64).

(c)   Plantation farming

If a farmer (other than a company) derives income from the disposal of
plantations or forest produce, and this income exceeds the annual
average taxable income from plantations for the preceding 3 years,
then according to paragraph 15(3), the excess (actual minus annual
average) is subject to tax in terms of the rating formula in section
5(10) of the Act. The formula reads as follows:

$$Y = \frac{A}{B - C} \times B$$

Y = Normal tax (before rebates)
A = Normal tax (before rebates) calculated for taxable income of "B -
C".
B = Taxable income for the year.
C = Excess plantation income (actual less previous 3 year's average).

If there was no such taxable income in the preceding three years, then
all current plantation income will be taxed per the formula. If there
was taxable income in only one or two previous years, the total is
divided by three. If the average is a loss, then all of the current
year's plantation income will be taxed as excess subject to the
formula in section 5(10). The provisions of paragraph 15(3), however,

cannot be used if the farmer has been taxed under general averaging, in the same year.

Example:

An unmarried farmer has taxable income from trade of R8 000 and a taxable income from plantation farming of R5 000, for 1988.

His taxable income from plantation farming for the preceding three years was as follows:

1985 : R1 000
1986 : R2 000
1987 : R3 000

The farmer will be taxed as follows:

B: Total taxable income (R8 000 + R5 000) = R13 000.

C: Excess plantation income -
    Actual plantation income for 1988   = R 5 000
    Annual average; (1 000 + 2 000 + 3 000) / 3 = R 2 000
    Excess (C)   R 3 000

B - C: R13 000 - R3 000   R10 000

Normal tax before rebates (per tax tables) (A)   R 1 500

$$Y = \frac{1\ 500}{10\ 000} \times 13\ 000 \qquad\qquad = R\ 1\ 950$$

(d)   Sugar cane farming

Paragraph 17 of the Act provides that where sugar cane has been sold by a farmer (other than a company) because the sugar cane fields have been damaged by fire, the taxable income from such sale shall be taxed in accordance with section 5(10). In this instance "C" in the formula in section 5(10) is equal to so much of the taxable income to have been derived from the disposal of sugar cane as a result of fire in the cane fields, which but for such fire would not have been derived

by the farmer in that year. If the farmer is taxed on his annual average income per paragraph 19 in that year, paragraph 17 will not apply.

(e)   <u>Sale of land to the State and other bodies</u>

Paragraph 20 provides that if a farmer's land is acquired or expropriated by the State or any other specified body and as a result discontinues his farming operations, he may apply to be subjected to tax on a special basis on the abnormal profits he derives in the year of the acquisition/expropriation of his farm or in the two tax years succeeding the year of acquisition. If the farmer qualifies, his excess farming profit is taxed at a rate of 9 per cent (12 per cent if he is unmarried). The excess farming profit may consist of excess livestock profit or excess plantation profit. The excess livestock profit is an amount by which current livestock profit exceeds average livestock profit for a period not exceeding five years. Excess plantation farming profit represents abnormal plantation profit, but is limited to the difference between the total taxable income from plantation farming and the average taxable income from plantation farming for the three years prior to the current year.

5.   <u>Margo Commission Report and White Paper</u>

Most submissions to the Commission favoured the existing averaging measures and requested their retention.[30)]   The South African Agricultural Union (SAAU) (1985, p.8) stated that "Hierdie stelsel dien derhalwe om die uitwerking van wisselende inkomstes op die skaal van belasting te nivelleer en lewer 'n belangrike bydrae om die nadelige uitwerking van wisselende inkomste in die landbou te oorkom". Another witness (Submission No. 254, par. C) argued that "Nivellering versprei die belastingdruk op boerdery-inkomste meer egalig en dit help mee om die boer se kontantvloei situasie (die grootste knelpunt in die landbou) te bestendig".[31)]   Only the SAAU (1985, pp.10-11) referred to the anti-bunching measures and requested the retention thereof, but suggested that paragraph 20 should apply to farming companies as well.

The Margo Commission (RSA, 1987, p.235), after an evaluation, concluded that the general averaging scheme had the following advantages:

(i)   "the scheme is well understood by taxpayers and is administered with relative ease";

(ii)   "It is well integrated with other features of the tax law and, to a large extent, avoids inequity in the assessment period to which it relates"; and

(iii) "... It confers substantial benefits upon farmers in that they can never pay more tax than other taxpayers with the same taxable income and often pay less".

The Commission also referred to certain drawbacks of general averaging stating, inter alia, that "Not all farmers are benefited, since only those whose incomes fluctuate gain assistance. In a sense, therefore, the scheme creates inequities within the farming community, and it is indeed seen by many groups in the community as unequitable" (RSA, 1987, p.233). The Commission, in conclusion regarded the system of general averaging as a suitable model for a general system of averaging - a view shared by Government (RSA, 1988, pp.16,61). The Commission consequently recommended the scrapping of certain anti-bunching measures (paragraphs 13 to 17), but the retention of the provisions of paragraphs 13(1)(b), 20 and 13A, as these are events over which the farmer does not have any control. These recommendations were also accepted by Government, but it was suggested that the rates of tax specified in paragraph 20 (viz. 9 and 12 per cent) be reviewed (RSA, 1988, p.61).

6. Evaluation

The generosity of the current averaging scheme is clear from example 2 above. Total normal tax on F in the tax years 5 to 10 is R14 890 while the "averaged tax" is R11 999. If the taxable income for tax years 5 to 10 were evenly distributed the tax liability amounts to R10 050. The taxpayer thus pays R2 891 less tax than the "normal" situation.

Consider again the respective situations of the five taxpayers as shown in Table 6.1. The tax payable by each taxpayer, under the averaging scheme prior to the introduction of the in-out option (referred to as old SA), the current averaging scheme (referred to as new SA) and according to the ordinary tax rate schedule (referred to as ordinary) is summarised in Table 6.5. Tax payable was calculated according to the 1987/88 tax rate schedule for married persons. For comparison purposes, the total amount of tax payable by each taxpayer and the difference in tax payable relative to taxpayer E, under each of the averaging procedures are shown in Table 6.6.

It can be ascertained from Tables 6.5 and 6.6 that the amount of tax payable under the two averaging procedures, is influenced by the distribution of a given total taxable income (R170 000) between assessment periods. Thus, the current and the old averaging schemes are unable to remove the distribution of a given taxable income between assessment periods of the tax equity period, from the amount of personal taxation payable, that is, they are unable to effect period equity.

The compatibility of the current averaging scheme with the constraints of consistency, simplicity, compatibility, rate-neutrality and immediacy requires evaluation.

Consistency. The old averaging scheme violated constraint one because in some years the tax liability exceeded the normal tax liability. However, the introduction of the "in-out option" eliminated this problem. In any single year farmers can never pay more tax than other taxpayers and will pay less whenever taxable income is greater than average income. The current averaging scheme therefore satisfies constraint one.

Simplicity. To calculate tax payable each year entails the carrying forward of information on taxable income and assessed losses for the previous four years, the calculations of average taxable income, the calculation of tax on the rating amount which is used to ascertain the tax rate applicable to the current taxable income (if average taxable income is less than the current taxable income) and the determination of the tax payable on current income. Such calculations directly increase the compliance cost. Furthermore, as previously noted,

TABLE 6.5: TAX PAYABLE BY THE FIVE TAXPAYERS UNDER SOUTH AFRICAN
GENERAL AVERAGING MEASURES - CONSTANT TAX RATE SCHEDULE

	Year 1*	Year 2	Year 3	Year 4	Year 5	Total
TAXPAYER A						
Taxable income	15 000	65 000	40 000	30 000	20 000	170 000
Tax payable:						
New SA	2 250	17 322	10 660	6 760	3 560	40 552
Old SA	2 250	17 322	10 660	7 728	4 870	42 830
Ordinary	2 340	21 560	10 660	6 760	3 560	44 880
TAXPAYER B						
Taxable income	40 000	15 000	20 000	65 000	30 000	170 000
Tax payable:						
New SA	8 380	2 340	3 560	16 083	6 760	37 123
Old SA	8 380	3 202	4 032	16 083	7 306	39 003
Ordinary	10 660	2 340	3 560	21 560	6 760	44 880
TAXPAYER C						
Taxable income	15 000	20 000	30 000	40 000	65 000	170 000
Tax payable:						
New SA	2 250	3 337	5 575	8 297	15 829	35 288
Old SA	2 250	3 337	5 575	8 297	15 829	35 288
Ordinary	2 340	3 560	6 760	10 660	21 560	44 880
TAXPAYER D						
Taxable income	65 000	40 000	30 000	20 000	15 000	170 000
Tax payable:						
New SA	18 090	10 660	6 760	3 560	2 340	41 410
Old SA	18 090	12 198	8 507	5 244	3 653	47 692
Ordinary	21 560	10 660	6 760	3 560	2 340	44 880
TAXPAYER E						
Taxable income	34 000	34 000	34 000	34 000	34 000	170 000
Tax payable:						
New SA	4 320	8 280	8 280	8 280	8 280	37 440
Old SA	4 320	8 280	8 280	8 280	8 280	37 440
Ordinary	8 280	8 280	8 280	8 280	8 280	41 400

* Assume all taxpayers had no farming operations prior to year 1;
that is, the average income of all taxpayers in year 1 is 2/3 of
taxable farm income.

TABLE 6.6: TOTAL TAX PAYABLE BY THE FIVE TAXPAYERS UNDER THE OLD AND NEW SOUTH AFRICAN GENERAL AVERAGING PROCEDURES - CONSTANT TAX RATE SCHEDULE

Taxpayer	Averaging procedure	
	Old SA	New SA
	R	R
A	42 830	40 552
	+5 390	+3 112
B	39 003	37 123
	+1 563	-317
C	35 288	35 288
	-2 152	-2 152
D	47 692	41 410
	+10 252	+3 970
E	37 440	37 440
	-	-

certain favourable tax measures cease to apply when a farmer elects to average. Decisions when to use averaging or not entail high compliance costs. The complexity of such decisions would necessitate most individual farmers to seek professional advice and this can only increase the cost of compliance. Thus, it is argued that, because of the high costs of compliance associated with averaging, the scheme violates constraint two.

Compatibility. Since the averaging scheme does not interfere with any other tax procedures constraint three is not violated.

Rate-neutrality. The amount of tax payable in each year is calculated, directly or indirectly, according to the tax rate schedules which have applied each year. This means that the averaging

scheme will not interfere with the objectives of either marginal tax rate changes or tax rate schedule structural changes.

Immediacy. Because the current averaging scheme provides relief from period inequity in the year in which it is incurred, constraint five is not violated.

The inability of the averaging scheme to effect period equity and to comply with constraint two tarnishes the attractiveness of the scheme.[32)] However, the scheme satisfies the majority of the constraints and is, as mentioned before, a very generous scheme. These characteristics naturally impede any endeavour to introduce a more equitable scheme because the tax authorities may consider the generosity of the scheme to be more important than equity considerations. As was noted above, this was the conclusion of the majority of the members of the Margo Commission (RSA, 1987, p.237).

Nevertheless, especially since the averaging scheme is regarded as being inequitable and does not necessarily alleviate the cash flow problems of farmers by stabilising post-tax incomes, a reassessment and consideration of alternative period equity measures would seem appropriate.

II. Possible alternatives

Alternative averaging measures could cover a wide range, for example:

(i)   repeal averaging measures;

(ii)   retain the current system which is clearly inequitable, but make it available to other taxpayers;

(iii) retain the current system but remove the "in-out" option, that is, go back to the old averaging scheme;

(iv)   introduce a reserve fund similar to the IED scheme in either Australia or New Zealand to complement the general averaging scheme; or

(v)   introduce a completely new form of averaging for farmers.

1.   Repeal averaging

Fewer, but wider tax brackets, and lower marginal tax rates will
enable taxpayers to experience greater fluctuations in income without
becoming subject to higher progressive rates. Whenever government is
able to effect changes of the magnitude achieved in countries such as
the USA averaging measures should be repealed. Present fiscal
circumstances indicate that such changes seem unlikely over the short
term. The top marginal tax rate will probably be lowered to 40 per
cent but revenue generated by further base broadening is likely to be
used for education and other social services. Even a country such as
Australia, which has six tax brackets, has not considered the
scrapping of averaging.

2.   Extend averaging to all taxpayers

Some countries, such as Canada and the USA, have made averaging
measures available to all taxpayers. However, despite eligibility
requirements having been quite strict, complex tax law could not
succeed in restricting the benefits of averaging to taxpayers with
widely fluctuating income. This option was, however, ruled out by the
Margo Commission (RSA, 1987, p.235) who stated that "The option of
allowing taxpayers other than farmers access to similar provisions is
not considered practical. Such an option would require substantial
changes in the tax schedule in order to maintain revenue". The
presence of an averaging scheme for farmers similar to those in Canada
and the USA may have persuaded the Commission to take a different view
particularly because such a scheme would have made it possible to do
away with all anti-bunching measures as well.

3.   Return to "old" (income) averaging scheme

Some Margo Commissioners and others believed that the in-out option of
general averaging was inequitable and should be abolished, that is,
the "old" (income) averaging scheme should be re-introduced. It was
noted above that because taxpayers are often subject to a burdensome
tax liability (usually in low income years), countries such as
Australia, the United Kingdom, and South Africa have discarded income
averaging. The re-introduction of such a scheme, therefore, seems
unlikely.

4. <u>Income equalisation deposits (IEDs)</u>

The Steyn Committee (RSA, 1951, p.77) in 1951 received submissions for the introduction of IEDs for farmers. The Committee recommended against their introduction because other forms of industry were also subject to income fluctuations and such a concession could consequently not be confined to farmers.

In 1960 the De Swardt Study Group on agricultural credit (RSA, 1960, p. 45) recommended the introduction of IEDs as a means to counter excessive capital expenditures and consequent financial difficulties. According to the Study Group such a scheme would have had the following benefits:

"(a)   the farmer will have a more stable income

  (b)   he will pay fair income tax and not be tempted to effect unnecessary improvements; and

  (c)   the Land Bank will receive considerable amounts on deposit which it may use for financing agriculture" (RSA, 1960, p.45).

Although this recommendation was not accepted, the Jacobs Committee, in 1979 (RSA, 1979b) approved the principle that a **bona fide** farmer be allowed to build up a tax-free reserve fund [33] in good (high income) years and that the farmer be assessed for income tax purposes on the income deposited in this fund only in the (bad or low income) years in which it is withdrawn. The Committee's (RSA, 1979b, p.240) recommendation reads:

> "Die Komitee is in beginsel ten gunste daarvan dat 'n boer (per belastingbetaler) toegelaat moet word om in goeie jare 'n reserwefonds belastingvry op te bou en dat 'n boer eers op die inkomste hierin gestort vir inkomstebelasting-doeleindes aangeslaan word in die jaar waarin hy dit onttrek. Die Komitee beveel die instelling van so 'n reserwefonds vir **bona fide** boere aan.

> Aangesien die Komitee egter nie oor die nodige kundigheid beskik om die implikasies verbonde aan so 'n stelsel te evalueer nie word verder aanbeveel dat die praktiese implementering van die aangeleentheid deur die Minister van Finansies na die Staande Belastingkommissie vir ondersoek en aanbeveling verwys word".

Naturally, the agricultural sector seized the opportunity to proclaim the advantages of such a scheme (SAAU, 1980, pp.48-49; 1981, pp.55-56). However, the Minister of Finance referred the matter to the Standing Commission of Taxation for investigation and recommendation. The Standing Commission and the Commissioner for Inland Revenue found that the proposed scheme was open to serious objections. The Government (RSA, 1982, pp.4288-4289) accepted the Standing Commission's recommendations that the proposed scheme should be rejected. During its investigation the Margo Commission again received many submissions which urged the introduction of IEDs to either replace or complement general averaging.[34] The following paragraphs highlight some of the arguments for and against the proposed scheme for farmers together with some discussion on certain points.

The main advantages of IEDs that were suggested by witnesses and others were as follows:

(i)   Stability - the implementation of IEDs would result in larger stability in the agricultural sector, which due to the nature of its production circumstances is subject to production and income fluctuations from year to year.

(ii)   Voluntary - IEDs will enable the farmer to overcome crises and setbacks on his own, which will improve the extent of independence and the image of agriculture in general.

(iii)   Welfare - the greater degree of stability which the system will effect together with the fact that farmers will be able to help themselves to a larger extent during bad times, will reduce the extent of assistance rendered to agriculture by the government.

(iv)   Efficiency - IEDs will smooth not only income fluctuations but also the bunching of farm investment expenditures.

(v)   Administration - if funds are deposited with the Land Bank, the scheme will be easy to administer. The Land Bank could issue "IED certificates" when deposits are made and supply the Department of Inland Revenue with duplicates for record-keeping purposes. IEDs could also be a source of funds to agriculture via the Land Bank[35] but it may not be a very stable source of funds, because it could be affected by fluctuations in rural income.

On the other hand, IEDs have certain major inadequacies:

(i)   Favour the rich - It has been argued that an IED scheme will only favour a few farmers with the means to make such deposits. Hattingh (1986, p.22) for example argued that:

> "Sonder om afbreuk te wil doen aan die voordele wat so 'n maatreël inhou, moet ons onsself ook egter in alle billikheid afvra wie die eintlike bevoordeeldes gaan wees. Die klein boer wat alles wat hy besit en elke rand wat hy te lene kan kry moet benut, ten einde sy onderneming aan die gang te hou terwyl hy met die huidige stelsel van nivellering nie juis belastingprobleme het nie, of die kapitaalkragtige boere met groot beleggings binne en buite die landbou?"

Furthermore, if one assumes that 70 per cent of the estimated 60 000 farmers contributed only 25 per cent of net farm income of about R5 000 million in 1987/88, the average net farm income of the 42 000 farmers would have been R29 762. And if 80 per cent of the farmers owed the R13 000 million debt outstanding (ignoring new production credit of R1 000 million), the average debt of these 48 000 farmers would have been R270 833.[36] Average net farm income is therefor not only below the Department of Agriculture's norm for a reasonable livelihood, namely R35 000, but would in addition only cover about two thirds of the interest due but no capital for roughly 75 per cent of farmers in the RSA.[37]   One could therefore make a strong case that farmers should first attempt to reduce their

heavy debt load before offering them alternative investment avenues.

(ii) Tax principle - the proposed scheme seriously impinges on the sound principle that revenue should be taxed in the year in which it accrues. It is usually argued that the purpose of IEDs is to allow the taxpayer to spread his income more evenly to escape the high marginal rates that would apply in years of unusually high income and that taxpayers will defer but not escape tax on the deposited income. In 1966 the Carter Commission (Canada, 1966, vol.3, p.269), for example, commented that: "On equity grounds we think there is as much reason to allow a taxpayer to take his expected future income into account in determining his current tax liability as to allow him to take his past income into consideration". However, as was shown in Chapter 3, tax deferral can confer substantial benefits on taxpayers. It was precisely this deferral advantage and the difficulty to counter related tax sheltering which compelled the Canadian Department of Finance to repeal the provisions relating to income averaging annuity contracts (Williamson, 1982, p.184).

(iii) Other sectors - there are many other sectors of the economy which suffer vagaries of fluctuating markets, sales and income. To make an exception for farming would be indefensible if others were refused. Farmers are not the only taxpayers confronted by variable income streams, but the variability of income streams in the farm sector is likely to be greater than that in other sectors of the economy.[38] Additionally, farmers are also prone to the adverse effects of climatic conditions.

(iv) Current averaging - current averaging schemes lend themselves very well to enable a farmer in a good year to make provision for poorer years by means of tax saving.

(v) Estate duty - the IED scheme could under certain circumstances have adverse effects particularly on the death of a taxpayer; that is, an exceptionally high tax burden could result because of estate duty.[39]

(vi) Misuse of scheme - in a bad year when a loss is experienced a farmer might withdraw deposits to increase this negative taxable income up to nil and thereby avoids paying tax. Also the deferral advantage could be enhanced by farmers who borrow to make IEDs or if farmers are allowed to borrow against IEDs (so-called "wrap arounds"). In addition, the New Zealand experience illustrates that farmers may derive substantial tax benefits if deposits which were made in years with high tax rates are withdrawn in years when tax rates trend downward.

It was proposed that IEDs should complement the present averaging measures, mainly because those farmers who, despite income fluctuations, are constantly taxed at the top marginal tax rate and never benefit from averaging (SAAU, 1985, p.8). However, a study by Lamont (1982, pp.238-242) found that such a combination produced the same anomalous results as those experienced in Australia. The current averaging provisions therefore provide a disincentive to introduce IEDs and tarnish their attractiveness. The Margo Commission (RSA, 1987, p.237) firmly recommended against IEDs. Government also agreed that an IED and an averaging system cannot be applied simultaneously and if there must be a choice between them the latter is the better, since it benefits more farmers, particularly those without the cash for deposit purposes (RSA, 1988, p.16).

IEDs are also incompatible with most of the selected constraints for equity measures. In a given year, IEDs can only affect the magnitude of taxable income, not the rate of tax applying to that taxable income. Thus, IEDs are compatible with the constraint of consistency. In using IEDs to effect period equity, decisions regarding when to make an IED deposit, how much to deposit, and when to withdraw the deposit, entail high compliance costs. The complexity of the decisions concerning the use of IEDs, would necessitate most individual taxpayers to seek professional advice. The need to seek professional advice can only increase the cost of compliance associated with IEDs. And the need for the taxation authorities to maintain records of the net-deposits of individual taxpayers, for an unspecified period, will increase the costs of compliance and administration. Thus, it is argued that the high costs of compliance and administration associated with IEDs, greatly reduce the attractiveness of IEDs.

IEDs have the potential to be incompatible with other provisions which also affect the calculation, and payment, of the tax liability on a given taxable income. This is illustrated by the conflict which existed between the Australian averaging scheme and IEDs (Brown, 1980, pp.758-760).

Since the use of IEDs by individual taxpayers is totally discretionary, IEDs may be used to defeat the objectives of marginal tax rate changes. If marginal taxation rates are decreased the collective use of IEDs by individual taxpayers, to firstly avoid the present high rates of tax and secondly benefit from lower future tax rates, it may defeat the objectives of tax rate schedule structural changes. Taxable income earned in a period, in which particular values concerning ability to pay personal taxation apply, may be transferred, through the use of IEDs, to another period in which different values apply. Hence, it is argued that IEDs are not in compliance with the constraint of rate neutrality.

The inability of IEDs to effect period equity in all instances, means that IEDs may not be able to avoid period inequity in the period of occurrence. And, because IEDs enable the transfer of taxable income from one tax equity period to another, the accomplishment of overall tax equity in each tax equity period cannot be determined. IEDs, therefore, do not comply with the constraint of immediacy.

5.   Block Averaging and IEDs

The use of Block Averaging (BA) in combination with IEDs have also been proposed as an alternative to the present averaging scheme (Lamont, 1982, pp.242-250; National Party Parliamentary Agricultural Study Groups, 1985, pp.5-6). BA, like the present averaging scheme in South Africa, is based on historic income and is a relatively simple form of averaging. Assuming features for BA and IEDs as discussed above, the tax payable, the effect of BA/IEDs on post-tax stability and the balancing calculation of BA will be as illustrated in Table 6.7 below. For comparison purposes the tax payable, post-tax incomes and the differences relative to a steady taxable income situation under BA/IEDs, current averaging and the normal situation are shown in Table 6.8

TABLE 6.7:   TAX PAYABLE[1] AND POST-TAX INCOME UNDER A BA/IED SCEHME - CONSTANT TAX RATE SCHEDULE

Year	Taxable income	IED[2]	Taxable income after IED	Tax payable	Pos-tax income
	R	R	R	R	R
1	30 000	-	30 000	6 760	23 240
2	60 000	- 30 000	30 000	6 760	23 240
3	10 000	+ 20 000	30 000	6 760	23 240
4	40 000	-	40 000	10 660	29 340
5	20 000	+ 10 000	30 000	6 660[3]	23 340

Notes: 1) According to 1982 South African tax rates for married persons.

2) Interest payments ignored.

3) Balancing calculation: Step 1: R160 000 (total taxable income)
Step 2: R160 000 - 5 = R32 000 (average income
Step 3: Tax on R32 000 x 5 = R37 600 (total average tax)
Step 4: R41 500 - (R6 760 x 3 + R10 660) = R6 660 (current tax)

TABLE 6.8: TAX PAYABLE[1] AND POST-TAX INCOMES UNDER BA/IEDs CURRENT AVERAGING AND NORMAL SITUATION - CONSTANT TAX RATE SCHEDULE

Year Normal	Tax payable				Post-tax income			
	Steady Averaging	Normal BA/IEDs		Averaging[2]	BA/IEDs		Steady	
	R	R	R	R	R	R	R	R
1	7 520	6 760	5 340	6 760	24 480	23 240	24 660	23 240
	-	-760	-2 180	-760	-	-1 240	+180	-1 240
2	7 520	19 310	17 010	6 760	24 480	40 690	42 990	23 240
	-	+11 790	+ 9 490	-760	-	+16 210	+18 510	-1 240
3	7 520	1 500	1 500	6 760	24 480	8 500	8 500	23 240
	-	- 6 020	- 6 020	-760	-	-15 980	-15 980	-1 240
4	7 520	10 660	9 900	10 660	24 480	29 340	30 100	29 340
	-	+ 3 140	+ 2 380	3 140	-	+ 4 860	+ 5 620	+4 860
5	7 520	3 560	3 560	6 660	24 480	16 440	16 440	23 340
	-	- 3 960	- 3 960	-860	-	- 8 040	- 8 040	-1 140
Total	37 600	41 790	37 310	37 600				
	-	+ 4 190	-290	-				

Notes: 1) According to 1987/88 South African tax rates.

2) Assuming taxpayer had no farming operations prior to year 1.

It can be ascertained from these tables that a taxpayer using the BA/IED scheme pays the same amount of tax over the period of five years as a taxpayer with a steady income. Another positive feature of the scheme is that post-tax incomes are smoothed to a greater degree than is currently achievable. One consideration that is not taken account of in the above examples, is the transfer of IEDs between blocks of years. This will have the result that taxpayers who may use IEDs will not have the same total taxable income over the five year period as other taxpayers. However, this inequity will be corrected to a large extent in the tax year when all the IEDs, which were previously deposited, were withdrawn and a balancing calculation was made. This is illustrated in Table 6.9 below. The data indicate that over the 10 year period a taxpayer pays more or less the same total tax as a taxpayer with a stable income. However, the tax liability under the current averaging scheme is nearly R2 545 less than the tax liability on a stable income. Although this tax saving may seem very generous, the BA/IED scheme produces the most stable post-tax income.

Consequently farmers will find themselves in a better cash-flow position. Furthermore, the use of IEDs can serve to smooth the bunching of farm investment expenditures which typically occurs in high income years, while supplying industries might also gain some "flow-on" benefits from this smoothing of farm expenditures. Additionally, the ability of the BA/IED scheme to avoid period inequity in nearly all instances, will enable other tax provisions such as the immediate write-off of certain capital expenditures to be repealed. The repeal of this provision would simplify the Income Tax Act and enable farmers to handle financial hardships better. It could also relieve pressure on the Government for financial support, but this would be minimal.

The compatibility of the BA/IED scheme with the constraints of consistency, simplicity, compatibility rate neutrality and immediacy is discussed in the following paragraphs.

Consistency. In a given year IEDs can only affect the magnitude of the taxable income, not the rate of tax applying to that taxable income. Therefore, because tax payable each year cannot exceed the tax payable on taxable income for the year, according to that year's tax rate schedule, BA/IEDs satisfies constraint one.

TABLE 6.9:   TAX PAYABLE[1] UNDER BA/IEDs WHEN AN IED IS TRANSFERRED BETWEEN BLOCKS OF YEARS

Year	Taxable Income A	IEDs[2] B	Taxable income after IED C	Tax payable D	Tax on 5 year average E	Tax on 10 year average F	Difference D-E	Tax payable under current averaging[3]
	R	R	R	R	R	R	R	R
1	60 000	-30 000	30 000	6 760	7 520	7 900	-760	15 990
2	10 000	+20 000	30 000	6 760	7 520	7 900	-760	1 500
3	30 000	-	30 000	6 760	7 520	7 900	-760	6 760
4	20 000	+10 000	30 000	6 760	7 520	7 900	-760	3 560
5	40 000	-10 000	30 000	6 760	7 520	7 900	-760	9 400
Sub-total	160 000	-10 000	150 000	33 800	37 600	39 500	3 800	37 210
6	60 000	-	60 000	19 310	8 280	7 900	+11 030	14 100
7	20 000	+10 000	30 000	6 760	8 280	7 900	- 1 520	3 560
8	30 000	-	30 000	6 760	8 280	7 900	- 1 520	6 760
9	50 000	-20 000	30 000	6 760	8 280	7 900	1 520	13 325
10	10 000	+20 000	30 000	5 710	8 280	7 900	2 570	1 500
Sub-total	170 000	+10 000	180 000	45 300	41 400	39 500	+ 3 900	39 245
Total	330 000	-	330 000	79 100	79 000	79 000	+ 100	76 455

Notes: 1) According to 1987/88 South African tax rates.

2) Ignoring interest payments

3) Assuming taxpayer had no farming operations prior to year 1.

<u>Simplicity</u>. Information required to calculate tax each year is
current taxable income and the tax rate schedule of the year.
However, to calculate the period equity adjustment at the end of the
block entails the carrying forward of information on total taxable
income earned and total tax paid during the block; the calculation of
average taxable income; the recalculation of tax payable on average
taxable income for each year of the block; and, the determination of
the standard tax payable. Such calculations would involve a direct
increase in the cost of administration and compliance. Further,
decisions regarding when to make an IED, how much to deposit, and when
to withdraw the deposit, would necessitate most farmers to seek
professional advice and entail high compliance costs. And the need
for the tax and other authorities to maintain records of deposits and
withdrawals will increase the costs of compliance and administration.

<u>Compatibility</u>. The BA/IED scheme does not interfere with the normal
assessment and payment of taxation but has the potential to be
incompatible with other provisions, particularly the anti-bunching
measures. However, the cost of administration and compliance will be
reduced if these measures were to be eliminated.

<u>Rate-neutrality</u>. Since the use of IEDs by individual taxpayers is
totally discretionary, IEDs may be used to defeat the objectives of
marginal tax rate changes. This was tellingly illustrated by the New
Zealand experience.

<u>Immediacy</u>. Because IEDs enable the transfer of taxable income from
one tax equity period to another, the accomplishment of perfect equity
in each tax equity period cannot be determined. However, over the
long run near perfect equity is achievable. But, although BA used in
conjunction with IEDs does not achieve perfect equity in each block or
equity period it is clearly superior to the current averaging system.

F. CONCLUSION

Current averaging provisions in South Africa are rather straight-
forward and extremely generous with regard to tax savings, and with
the acceptance of the Margo Commission's recommendations the
provisions have been partially streamlined, but they do not alleviate
the cash-flow problem of many farmers by stabilising post-tax

incomes. Various alternatives have been considered or suggested although no particular averaging scheme meets with all the evaluation criteria. Three points therefore need to be taken cognisance of. The first is overall acceptability. It seems likely that any scheme meeting the criteria of equity, simplicity and compatability will gain more acceptability than any scheme not meeting any one or all of these objectives. The second point is that stabilising provisions should be voluntary because income patterns are unique to every individual farm. The third point is that averaging provisions should not be considered in isolation from other taxation provisions.

If the objective is simplicity, the BA or the present averaging scheme is recommended. However, the former entails refunds and delayed relief whilst the latter is clearly inequitable. Both do not easily accommodate anti-bunching measures.

If post-tax income stability features high on government's priority list BA and IEDs would seem the likely candidates. Theoretically, IEDs have at least three major advantages. First, they work directly on the unique income situation of every individual farmer who is either taxed at or below the top marginal tax rate. Second, they are not specific to any inputs or outputs and should therefore allow market signals to operate effectively on producer resource allocation decisions. Third, they are voluntary and allow each individual to choose the extent to which he wants his farm income smoothed. However, any IED scheme has operational difficulties of which tax sheltering, tax arbitrage opportunities and the difficulty of forecasting future income levels are the most important.

Finally, if the merging of general averaging and anti-bunching measures is the objective, the American/Canadian averaging schemes with or without the Downing-option may be suitable. A reduction in the averaging options would simplify tax law and averaging may easily be extended to all taxpayers.

FOOTNOTES

1. The acknowledgement of period inequity resulting from variations in positive taxable incomes and/or changes to the marginal tax rates of the tax rate schedule, is dependent on the acceptance of the proposition that the normal assessment period of the year is too short for tax equity purposes; that is, it is not possible, on the basis of the results of one year, to judge if people are in equal situations and able to pay equal personal taxation. The acceptance of this proposition implies that a longer assessment period, known as a tax equity period, is required for tax equity purposes. The acknowledgement of period equity is also dependent on the assumption that taxable income is a precise and consistent index of equality. Jeffery (1981, p.101) argued that "Unless the manner of measuring taxable income effects a precise and consistent index of equality, the introduction of averaging will not necessarily result in an equitable distribution of the burden of taxation; that is, one cannot speak of equity in a personal income tax system unless taxable income is a precise and consistent index of equality."

2. However, the Carter Commission (Canada, 1966, vol.3, p.277), the Industries Assistance Commission (1975, p.71) and the O'Brien Commission (Ireland, 1982, p.284) recommended that averaging be made available to all taxpayers.

3. The general averaging schemes in Canada and the United States did apply to, all taxpayers, but only after their incomes fluctuated more than a predetermined minimum amount. The averaging schemes were also structured in such a way that the relief given was modest.

4. See Section D(I)(2), D(I)(5) and D(I)(6) below.

5. The essential feature of cumulative assessment is that tax payable each year is calculated as if the averaging period is to be terminated at the end of that year either because of changes to the structure of the tax rate schedule, or according to predetermined averaging

periods, for example, every five years. Tax payable each year is determined by the cumulative taxable income earned since the commencement of the averaging period, the cumulative amount of taxation paid as at the beginning of the current year, and the tax rate schedules which have applied in each year since the averaging period commenced. The tax rate schedules are cumulatively aggregated to form cumulative assessment schedules.

6. Barker (1981) proposed an Income Tax Credit scheme that would have the same effect on equity as CA, but would not involve tax refunds. The scheme is, however, based on a tax rate schedule which has a zero tax bracket. See Lamont (1982, pp. 195 - 201).

7. The Balderstone Working Group (Australia, 1982, p.63) would seem to be an exception. The Group recommended that cumulative averaging ".... be more closely examined by the Government, with a view to (its) general introduction in any major review of the tax system".

8. This change had been recommended by the Asprey Committee (Australia, 1975, p.202) and the Industries Assistance Commission (1975, p.76)

9. The "battle" for a name was, for a while, quite a spirited one with the following synonyms being proferred: Income Adjustment Accounts, Farm Income Reserve Fund, Rural Investment Bonds, Tax Reserve Certificates and Income Equalisation Scheme. The suggestion for Income Equalisation Deposits appears to have prevailed - probably the most accurate description.

10. The Australian Minister of Finance (Australia, 1981, p.2045) stated that the aim of the scheme is ".... to provide a means whereby primary producers can act themselves to smooth out their income flows for taxation purposes by making deposits in high income years and withdrawals in low income years. In this way they can reduce the adverse effects on their taxation liabilities which would result from

the interaction of a progressive tax rate scale and fluctuating incomes."

11. The Drought Bond scheme, introduced in 1969, was designed to provide sheep and cattle farmers with an opportunity to build up cash reserves in good years to reduce the impact of drought, fire or flood. Individuals, who derived at least 90 per cent of their gross farm receipts from grazing sheep or beef cattle, were permitted to deduct from assessable income in any year the expenditure on the purchase of Drought Bonds. The deductions was limited to $50 000 and/or 20 per cent of sheep and beef cattle receipts in the particular year in which the investment was made. The bonds were redeemable and taxable at maturity or in the event of drought, fire or flood or in cases of financial hardship, death or bankruptcy. See Glau (1970, pp.121 - 130).

12. IEDs included a tax deferral component which meant that the effective rate of interest was higher than the face value rate of interest. This aspect and the fact that the effective interest rate for a depositor was positively tied to his or her taxable income level persuaded the Industries Assistance Commission (1975, p.65-66) to recommend the splitting of an IED into an investment and tax deferral component. However, it has always been regarded as administratively impracticable.

13. According to a statement by the Minister for Primary Industry in July 1983 only 3 per cent of farmers participated in the IED scheme.

14. The Balderstone Working Group (Australia, 1982b, p.63) noted that the extent of the assistance afforded by the in-out option amounted to A$100m in 1979/80.

15. For a discussion of the inequities, see Lamont (1982, pp.162-167).

16. The Carter Commission (1966, vol. 3, pp.278-279) which dealt extensively with the need for and various forms of income averaging, recommended another principle form of averaging namely a system of "income adjustment accounts" that would permit individuals to reduce their income subject to tax by depositing an elected portion of income in a non-interest- bearing account with the government.

17. To a certain extent the forward averaging procedures are based on the IAAC concept of the Carter Commission, with modifications to allow for the effects of inflation and to require that only the tax on the elected income be deposited with the government, and not the income amount itself.

18. The two-year averaging scheme was designed "... to relieve the exceptional incidence of high income taxation created by ... The weather ..." and not to "discourage investment (Stanley, 1984, p.29).

19. The O'Brien Commission (1982, p.283) also regarded an IED scheme as being workable.

20. As noted earlier tax averaging schemes based on troughs in income have also been proposed.

21. For commentary on and a discussion of the "old" averaging measures see Jordaan (1979, pp.25 - 27); Kassier (1967, pp.11 - 13); Shrand (1968, pp.51 - 52) and Skinner (1968a, pp.70 - 71; 1968b, pp.38 - 39).

22. It should be noted that the low taxable income earned in a bad year following the four good years will in any event pull down the average taxable income from farming as determined for that year and the succeeding four years. Consequently, the "average rate of tax" calculated in respect of the farming income in the bad year and the four succeeding years will also be reduced.

23. Artificial persons such as companies and trusts are excluded and it would seem that where a trust carries on farming, the beneficiaries are not entitled to the benefit of averaging since they are not farming. It is considered, however, that where such a beneficiary is also farming on his own account, he will be entitled to make the election and in that case the farming income derived through the trust will be added to his other farming income for purposes of determining the average. The trustee of an insolvent estate is not liable for tax. See Thorne and Molenaar NNO v Receiver of Revenue, Cape Town, 1976 (2) SA 50 (c), 38 SATC 1.

24. A person who elects is bound by his election for every succeeding year of assessment thereafter. Same anti-bunching measures which are discussed below cease to apply of such an election has been made.

25. The South African legislator is more lenient than his Australian counterpart, because an Australian farmer, for example, must start completely afresh to qualify for averaging if he does not carry on farming operations in a particular year.

26. See paragraph 4(e) below.

27. Relevant period refers to the current year of assessment.

28. See paragraph 19(2)(b). It must be stressed that paragraph (b) does not include a farmer who ceased farming more than five years prior to the end of the relevant period and who again commenced farming during the relevant period. It covers only the case of a "new" farmer, that is, a person who has never farmed.

29. Except for paragraphs 13A and 20 all the paragraphs were initially part of the Act of 1962. Paragraph 20 and 13A were inserted in the Act in 1975 and 1983, respectively.

30. See, for example, the following submissions: Nos 254, 261, 409, 460, 566, 611, 612, 613, 683 and 738.

31. Although the tax burden is spread more evenly most averaging schemes, including the general averaging scheme of South Africa, do not stabilise post-tax income or the cash-flow situation of farmers.

32. The Margo Commission's view that the scheme is well understood by taxpayers and administered with relative ease obviously contradicts this statement.

33. Section 23(e) of the Act in effect prohibits the introduction of IEDs.

34. The following submissions advocated IEDs: Nos. 460, 566, 683 and 738. On 22 August 1989 the Transvaal Agricultural Union at their Annual Congress again advocated IEDs.

35. See Lamont (1982, p.229). South African commercial banks have expressed their opposition to the suggestion that funds be deposited with the Land Bank only. One bank argued that it would be inequitable while another was of the opinion that banks may eventually lend money only to those who deposited funds with them.

36. The basic statistics were obtained from RSA (1989c) and SAAU (1984).

37. Calculations based on Land Bank debt statistics (ie mortgage loans and section 34 loans only) indicate that the average debt per farmer is approximately R134 206. The average interest per annum per farmer at 15,5% per annum would then be R20 800 leaving R8 960 with which to service capital owing, tax due, household expenses and the wage of the manager.

38. See Industries Assistance Commission (1975, PP.16-17).

39. In New Zealand a refund is generally made to the trustees of an estate on the same basis as refunds on retirement from farming i.e. any balance in the IED account is automatically refunded and assessed as income in the year of death. However, trustees have a further right of election to spread the deposit, or part of it, forward into any of the three years after death, but limited to the balance of the original five-year maximum period. The amount spread forward remains deposited with the scheme.

CHAPTER 7

TAX FARMING

A.   INTRODUCTION

Policy makers have long been concerned with the distinction between farming and non-farm businesses and between full-time and part-time farming in establishing taxation policies. A number of terms are in common use in various parts of the world to describe agricultural production undertaken as a part-time activity by individuals or businesses engaged mainly in non-farming industries. The most commonly used terms are hobby farming, sideline farming, Sunday farming, gentleman farming or tax farming.[1)] All these terms refer to the use of agricultural taxation concessions to reduce taxation liability on income earned outside of agriculture.

The following aspects of tax farming are discussed in this chapter. Firstly, the extent of and revenue losses associated with tax farming as experienced in Australia, Canada, United States and South Africa. Secondly, the economic consequences of tax farming and, thirdly, measures which have been or are being considered to reduce tax farming.

B.   THE EXTENT OF TAX FARMING

Few countries have actually analysed the use of agricultural tax concessions by taxpayers with multiple sources of income, but some idea of the extent of tax farming can be obtained from studies in this regard in Australia, Canada and the United States (Bureau of Agricultural Economics, 1973; Canada, 1985a; Rossi, 1988). A tentative appraisal is made for South Africa.

I.   Australia

A study by the Bureau of Agricultural Economics (BAE) (1973, p.7) shows that over the period 1965-66 to 1969-70 the absolute number of business and professional taxpayers earning some farming income has

risen from 16 300 to 21 000. Business and professional taxpayers accounted for close to 8 per cent of all taxpayers with some farming income in 1969/70.

Another indication of the extent of tax farming is given by the amount of deductions allowable under Sections 75 and 76 for expenditure undertaken by persons who are not classified as farmers.[2] The BAE study shows that while capital expenditure under these Sections by farmers has fluctuated from year to year without showing any marked trend, for persons in other industry groups it has risen by approximately 30 per cent per annum (1973, p.9). Company expenditure deductible under Sections 75 and 76 amounted to $15 million in 1968/69 and $14,4 million in 1969/70. The amounts of these deductions attributable to companies engaged mainly in industries other than farming were $4,2 million in 1968/69 and $4,5 million in 1969/70 (Bureau of Agricultural Economics, 1973, p.10). Taking into account deductions both by companies and individuals it would appear that the proportion of Sections 75 and 76 expenditures undertaken by investors whose earnings do not primarily come from activities in the rural sector has been about 20 per cent of the total for the six years ended 1969/70. Recent statistics for taxable individuals show that Sections 75A - 75D deductions[3] attributable to investment by persons in the non-farming industry group amounted to 23,4 per cent (Australia, 1986b, p.102).

The BAE study concluded that the involvement in farming of persons who earn the bulk of their income from non-farming sources may tend to overstate the extent of tax farming because some individuals would still purchase farms (either for profit or as a hobby) even if attractive tax concession were not available (1973, p.11).

II. Canada

A Canadian study on tax issues in agriculture shows that, in 1981, 452 404 individuals reported farming income (Canada, 1985a, p.24). Of this total, nearly 39 per cent were classified as part-time farmers. Among the part-time farmers 71 per cent reported farming losses while only 17,5 per cent of full-time farmers reported losses. Total farming losses in 1981 were over $1 000 million, of which 59 per cent were reported by part-time farmers. There is evidence, however, that

many part-time farmers "self-restrict" by restraining their use of tax incentives to keep their reported losses below the permissible limits (Canada, 1985a, p.25).

Although part-time farmers accounted for only 8 per cent of total farm sales in 1981 those with higher non-farm income claimed farming losses more often than did others (Canada, 1985a, pp.20 - 27). Table 7.1 below shows that for those with average non-farm incomes greater than $50 000 (in 1979 dollars) 91,3 per cent reported farming losses in at least half of the years and 56,5 per cent reported losses in all of the years. For those with average non-farm incomes of $5000 or less, just 12 per cent reported farming losses in at least half of the years and only 5 per cent reported losses in all years.

TABLE 7.1: CANADA: NON-FARM INCOME AND FREQUENCY OF FARM LOSSES AMONG THOSE REPORTING FARMING ACTIVITY, 1967-1979

Average annual non-farming income in constant 1979 dollars	Percentage of individuals reporting farming losses	
	At least half of the years	All of the years
$ 5 000 and under	12,1	5,0
$ 5 001 - $10 000	38,9	15,0
$10 001 - $20 000	66,2	40,4
$20,001 - $50 000	76,7	56,2
Over $50 000	91,3	56,5

Source: Canada (1985a, p.26)

The Canadian study also compared the average size of farming losses with average non-farm incomes for full-time as well as part-time farmers. Table 7.2 shows that while non-farm income and the size of farming losses are positively related for both full-time and part-time farmers, the situation for full-time farmers is significantly different in important ways. Firstly, average gross farm sales in each category are much higher and are never exceeded by the average farming loss. Secondly, the average non-farm incomes are much lower. Thirdly, the incomes of full-time farmers after farming losses are very low, and in two categories actually negative, implying a zero or

TABLE 7.2: FARM AND OFF-FARM INCOME BY PART-TIME AND FULL TIME CANADIAN FARMERS REPORTING FARM LOSSES, 1981 ($'000)

Farming loss	Part-time farmers					Full-time farmers				
	Number of returns	Average non-farm income	Average farming loss	Average total income after farming loss	Average gross farming sales	Number of returns	Average non-farm income	Average farming loss	Average total income after farming loss	Average gross farm sales
Over $100 000	105	406	-187	219	121	206	124	-198	-88	621
$50 001 - 100 000	507	249	-73	176	41	896	79	-65	12	213
$25 001 - 50 000	1 031	107	-32	75	22	2 420	33	-35	-4	106
$10 001 - 25 000	6 611	42	-15	27	13	6 447	18	-16	1	71
$5 001 - 10 000	12 496	27	-7	20	9	9 293	14	-7	6	41
$2 501 - 5 000	52 306	34	-4	30	7	9 818	12	-4	7	49
$0 - 2 500	49 698	23	-1	22	7	18 851	9	-1	8	31

Source: Canada (1985a, pp.27-28)

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very low tax value of the losses. This suggests that the farming losses of full-time farmers are real losses, not those generated with cash-basis accounting for tax deferral purposes. Finally, although not shown in the Table, 75 per cent of non-farm income of full-time farmers is "passive" investment income, while over 60 per cent of non-farm income of part-time farmers is other business or employment income.

A study on a minimum tax for Canada has shown that high income individuals (with income in excess of $50 000) paying less than 10 per cent of income in tax in 1982 reported income from _farming_, rentals and business more frequently than those paying more than 10 per cent in tax (Canada, 1985b, p.8). High income farmers and fishermen, for example, had the highest proportions paying tax below 10 per cent, namely 21 per cent (Canada, 1985b, p.9). The total amount of farming losses claimed by high-income low-taxpaying filers was $41 million for 1982 - an average amount of about $18 000 (Canada, 1985b, pp.15-16).

III. Underlined States

In a recent study Rossi (1988) examined the effects of the Tax Reform Act of 1986 (TRA'86) on farm sole proprietorships in a tax accounting simulation model of over 15 000 farm tax returns. The effect of TRA'86 on tax-motivated farming activities undertaken by non-agricultural taxpayers is addressed to the extent possible with the available data. By examining tax liability stratified by non-farm income, some interesting observations about the effect of tax reform on these activities can be made. Three classes of non-farm income were examined. Over half of the tax liability is borne by taxpayers with less than $10 000 in non-farm income. Tax reform has the largest effect on this group, causing a decline in aggregate tax liability of 7 per cent. In contrast, taxes decline about 3 per cent from pre-TRA'86 levels for the high non-farm income group, while there is virtually no change for the middle group.

Table 7.3 highlights the contribution of each tax provision to tax liability for various classes of non-farm income. The most important result is the marked difference between taxpayers with more than $50 000 in non-farm income and those with less than that amount. In particular, marginal tax rate reductions account for almost 90 per

cent of tax reductions for taxpayers with the highest level of non-farm income. This result supports the contention that taxpayers with high levels of non-farm income remained in high tax brackets despite the benefit of special tax preferences. Marginal tax rate reductions for taxpayers with less than $50 000 in non-farm income represent a little less than a third of tax reductions attributed to TRA '86. If taxpayers with more than $50 000 in non-farm income characterise non-farm investors, the reductions in taxes from tax reform support the contention that this group did not benefit as much from pre-TRA'86 provisions as had been hypothesised.

TABLE 7.3: UNITED STATES - CHANGE IN TAX LIABILITY BY INDIVIDUAL PROVISION FOR VARIOUS LEVELS OF NON-FARM INCOME

Provisions	<$10 000		$10 000-$50 000		>$50 000	
	Million dollars	%	Million dollars	%	Million dollars	%
Reductions in tax liability:						
Marginal tax rates	500	27,2	143	26,3	1 294	89,4
Depreciation and expensing	478	26,0	124	22,8	56	3,9
Personal exemptions	613	33,3	159	29,3	73	5,0
Standard deductions	158	8,5	40	7,4	4	,3
Health insurance	52	2,8	14	2,6	5	,4
Self-employment taxes	40	2,2	63	11,6	15	1,0
Total	1 841	100,0	543	100,0	1 449	100,0
Additions to tax liability:						
Spousal deductions	33	2,2	7	1,3	5	,4
Income averaging	235	15,6	90	16,5	2	,2
Capital gains	470	31,1	241	44,3	958	71,2
Land clearing	7	,5	2	,4	2	,1
Itemised deductions	56	3,7	16	2,9	28	2,1
Charitable deductions	2	,2	<1	(-)	<1	(-)
High-income phase-outs	52	3,4	12	2,2	125	9,2
Investment tax credit	654	43,3	176	32,4	226	16,8
Total	1 509	100,0	544	100,0	1 346	100,0
Additions in tax liability, less reductions	332	NA	- 1	NA	101	NA

NA = Not applicable

Source: Rossi, (1988 p.14)

There is a notable difference between classes of non-farm income regarding TRA'86 provisions that increase tax liability. The most significant difference is in the contribution of capital gains and the investment tax credit. For those with the most non-farm income, the contribution of the repeal of capital gains is nearly twice as large as for each of the other two groups. Taxpayers with high incomes were able to benefit more from the capital gains provisions under pre-TRA'86 law than their lower income counterparts because of the greater disparity between tax rates on capital gains and ordinary income. The importance of the ITC is much larger for taxpayers with the lowest amounts of non-farm income. The loss of the capital gains provision to taxpayers with high off-farm income is a major one that is offset by substantial rate reductions. Tax reform, it would appear, while eliminating special tax benefits for would-be non-farm investors, bestows significant tax reductions on these investors through reductions in marginal tax rates.

IV.   South Africa

Although a National Secretariat for Part-time Farmers in South Africa was founded in 1983, no unanimity on the number of part-time farmers exists as yet. A SAAU study on the financial position of farmers shows that in 1983, 15 per cent of farmers were classified as part-time farmers (SAAU, 1984). The provincial breakdown was 20 per cent, 17 per cent, 14 per cent and 10 per cent, respectively, for Transvaal, Natal, Orange Free State and Cape Province. The SAAU study also compared capital investment and farming and non-farming incomes of full-time farmers with those of part-time farmers. Part-time farmers contributed 7,7 per cent to agricultural investment, while their off-farm investments of R2 489 million represented 38,6 per cent of the total non-farming investments. Part-time farmers' share in total investments amounted to R5 553 million or 12 per cent of total investment and they had more funds at stake in agriculture than in non-agricultural activities. It is also noteworthy that part-time farmers have invested more funds in agriculture than full-time farmers have invested outside of agriculture.

The available data also shows that the farming expenses of part-time farmers during 1983 exceeded their farming income by approximately R6,5 million, while non-farming income was R77 million less than

farming income (See Table 7.4). The average loss of part-time farmers amounted to R653 compared to the farming surplus of R15 930 for full time farmers. The overall financial position of part-time farmers, however, was encouraging. Their average debt-ratio of 14,5 per cent was 4,3 per cent less than that of full-time farmers and 55 per cent of part-time farmers had a debt ratio of between nil and 10 per cent, as against 48,1 per cent for full-time farmers. Non-farming income obviously played a major role in reducing risks and stabilising total income.

Less unanimity exists when Inland Revenue statistics are considered, because the information is gathered and published on a main source basis. This implies that many taxpayers who normally would have been earning farming income but due to unfavourable circumstances have suddenly earned less or even had a farming loss would, for that particular year, be classified under another category of taxpayers. Comparisons between different years would thus not be very useful. Nevertheless, available statistics for the 1986 tax year show that 58 463 individual taxpayers that have been classified as farmers on the main source of income basis had assessable farming income of R420,6 million and assessed farming losses of R705,9 million.[4] Approximately 42 per cent of their off-farm income (R469 million) was "passive" investment income while 45 per cent was employment income. As the information on part-time farming was not readily available, the following assumptions were made:

(i)   That all part-time farmers fall under Inland Revenue's main groups of employment and professional and technical services.

(ii)   That the same ratio in respect of full-time farmers and part-time farmers found in the SAAU study also applied to the taxation statistics. On this basis it was estimated that there were 10 075 part-time farmers in the 1986 tax year.[5]

(iii)   That 20 per cent of the losses of the employment group and 60 per cent of the losses of the professional group represented farming losses.

TABLE 7.4: GROSS FARMING INCOME, CURRENT EXPENSES, FARMING SURPLUS AND NON-FARMING INCOME IN THE RSA FOR
FULL-TIME AND PART-TIME FARMERS, 1983

Type of Farming	Gross Farming Income		Current Expenditures		Farming Surplus		Investment Income		Other Non-farming Income		Total Non-farming Income	
	Rm	%	Rm	%	Rm	%	Rm	%	Rm	%	Rm	%
Full-time (57753)	6562	94,6	5642	93,7	920	100,01	304	75,4	152	43,6	457	60,7
Part-time (9928)	373	5,4	379	6,3	(6)	(0,01)	99	24,6	197	56,4	296	39,3
Total	6935	100,0	6021	100,0	914	100,0	403	100,0	349	100,0	753	100,0
	R		R		R		R		R		R	
Full-time average	113622		97692		15930		5270		2636		7906	
Part-time average	37571		38175		(653)		9998		19834		29832	

SOURCE: SAAU (1984, p.122)

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Calculations based on these assumptions show that of the 10 075 part-time farmers 3 363 generated taxable farming income of R14,2 million while the remaining number had assessed losses of R86,9 million. If the net losses were in fact utilised as a set-off for non-farming income it represents a revenue loss of about R20 million (at a tax rate of 30 per cent).

C.   ECONOMIC CONSEQUENCES OF TAX FARMING

The economic consequences of tax farming can be classified broadly into general effects, which are relevant to the overall efficiency of resource use within the economy, and particular effects, which are relevant to the economic position of farmers and the efficiency of resource use within the farm sector. In addition, tax farming also impacts on output prices, land values, farm sizes and the environment.

I.   Effects on overall efficiency of resource use

The general consequences for the efficiency of resource use within the economy are of two basic types: a possible stimulus to saving and managerial effort and a resource diversion effect.

It is possible that the opportunity to avoid taxation legally through investment in agriculture induces some taxpayers to save more and work harder than they would otherwise. In effect, the possibility of legal avoidance of the progressive income tax reduces the disincentive effects of this tax. Of course, it also tends to defeat the purpose of the tax as a revenue-raising device and any benefits to the community which may arise from greater saving and work effort of tax farmers need to be offset against certain social costs. These can be thought of either in terms of the benefits which would accrue from use in the public sector of the tax revenue foregone, or in terms of the benefits to the community (including the incentives to saving and work effort) which could be achieved through a lowering in tax rates.

There are also benefits and costs associated with the resource-diverting effects of tax farming. It would be difficult to quantify these benefits and costs, but their general nature can easily be identified. The resources principally concerned are capital and management. The benefits arise from increased investment of capital

and the use of improved management resources in agriculture and could, in principle, be measured in terms of the real value of the increase in agricultural production resulting from this use of additional resources. The costs arise from the opportunity foregone to use these capital and management resources to increase production of goods and services in other industries.

One factor which is relevant in determining whether investment attracted into agriculture through tax farming could be more efficiently utilised elsewhere in the economy is the extent to which the taxation concessions raise the after-tax rate of return on this investment above the rate of return on investments which yield the same pre-tax rate of return but are ineligible for tax concessions. The results of a number of studies reported by the Bureau of Agricultural Economics (1973, pp.15-18) provide evidence that the ability of persons with high non-farm incomes to qualify for agricultural taxation concessions gives such persons a substantially stronger incentive to invest in agriculture than would exist if these concessions were not available.

The major question which needs to be considered is whether the value to the community of the production resulting from additional investment exceeds that which could be obtained by investment elsewhere in the economy. Other questions which may be of importance are the environmental effects of the additional investment and its effects on the economic growth of particular regions.

It is not possible to answer these questions by broad generalisations. In an economic system which was free of market imperfections, the effect of taxation concessions in providing an incentive for persons with high levels of non-farm income to invest in agriculture could be regarded with certainty as a distorting influence causing inefficiency in resource use. However, in most existing circumstances the effects of a particular distorting influence may offset the effects of other distorting influences. In ascertaining the effects of tax farming on the overall efficiency of resource use in the economy, it is necessary to have regard to such factors as the extent to which market returns and costs are influenced by Government measures (eg. tariffs and subsidies) and the extent of any external

diseconomies (and the extent of any external economies) which might result from increased investment in farming or non-farming industries.

The relative magnitudes of economic benefits of additional investment in the farming industries as against investment in the non-farming industries depend largely on the particular industry within the farming or non-farming sectors to which the investment is channelled. To the extent that tax farmers have been investing in industries which may have been able to thrive with relatively little Government assistance, this investment could be regarded as an efficient use of resources. Nevertheless, if taxation concessions provide an incentive for investment in all farming industries they must be regarded as a relatively costly way of encouraging investment in particular industries which are able to make efficient use of additional resources.

The above discussion applies to some extent to investment by all farmers and not just to investment by tax farmers with high non-farm incomes. There are some factors which suggest, however, that the tax concessions have a greater distorting effect on the investment behaviour of tax farmers than on the investment behaviour of other farmers. First, those relying solely on farm income are rarely able to earn high incomes from this source when their properties are in an early stage of development when substantial tax deductible expenditures are incurred. Second, for persons with high incomes from non-farm sources, decisions to invest in agriculture could generally be expected to be more sensitive to the availability of tax concessions than for persons who earn the bulk of their income from their existing farms.

Apart from capital, other resources diverted to the farm sector as a result of tax farming include management and labour of the taxpayer concerned, the farm manager whom he may hire and the professional advice which he obtains. As far as the taxpayer's own time is devoted to farm management at the expense of his business or professional interests it is often argued that the community would be better served if this time was spent in the area of his principal training and expertise rather than in farming. In relation to the management resources which he hires, the situation may be different. It is quite probable that there are some external benefits from tax farming

resulting from the willingness of many tax farmers to employ professional managers and to seek management advice and the consequent practical demonstration to other farmers of ways in which they can improve their productive efficiency. Indeed, officials of the Department of Agriculture and agricultural divisions of finance institutions have indicated in private discussions that many part-time farmers are often regarded as being amongst the most efficient farmers in particular areas.

II. Output Prices

The demand for farm products is not perfectly elastic with respect to changes in the price of these products. Consequently, to the extent that investment in the farm industry by taxpayers engaged primarily in non-farming industries increases total farm production it could be expected to have a depressing effect on the prices received by farmers. Tax farming may thus have an adverse effect on the incomes of 'genuine' farmers.

This effect may be significant in industries where prices on both the domestic and export markets are sensitive to changes in the volume of production and/or where the amount of produce which can be sold is constrained either by restrictions on market access or international arrangements. Such conditions apply now to a greater or lesser extent to a wide range of farm products. However, it seems likely that tax farmers give more careful consideration than most other farmers to the market prospects for particular commodities, and are generally less inhibited in seeking professional advice on this subject before undertaking their investment expenditures.[6] Because of these factors, the overall effects of tax farming on the returns received by full-time farmers may not have been very significant.

III. Land Prices

To the extent that taxation concessions have encouraged investment in agriculture by persons engaged principally in non-farming activities this could be expected to increase the demand for land and raise its price above the levels which would have otherwise prevailed. The potential effect of the concessions on the demand for land has been demonstrated for the case of an investor with a non-farm taxable

income of $15 000 undertaking a development programme in the Esperance region in Australia (Bureau of Agricultural Economics 1970, p.107). It was found that an investor could obtain a return on his investment equivalent to 20 per cent per annum if he paid $9,00 per uncleared acre for his property. To obtain the same rate of return without the special rural taxation provisions, the same investor could only afford to pay $2.20 per uncleared acre.

The results of one of these studies are reflected in Table 7.5 and show that the special tax provisions for farmers substantially raised the returns attainable after tax, particularly when investors had high levels of non-farm income.

TABLE 7.5: BREAK-EVEN RATES OF INTEREST FOR LAND DEVELOPMENT ON THE ESPERANCE SAND PLAIN: WITH AND WITHOUT SPECIAL AGRICULTURAL TAXATION PROVISIONS[1]

Level of non-farm taxable income	Break-even interest rate to equate farm and off-farm pay-offs[2]	
	With agricultural provisions	Without agricultural provisions
$	%	%
15 000	20	4
25 000	32	10

1) Assuming development for sheep only.

2) The interest rate which would be required on a non-farm investment to provide after-tax returns equal to those on the farm investment.

Source: Bureau of Agricultural Economics (1973, p.18)

The effects of tax farming on land values are probably greater in the case of unimproved land which offers more scope for tax deductible farm development expenditures than does land in a more advanced stage of development. Because of this, tax farming tends to narrow the margin between the prices of improved and unimproved land in particular areas. It is likely that tax farming also has a greater effect on the value of land in relatively close proximity to capital cities, where potential tax farmers are likely to be concentrated,

than for land in relatively remote areas.[7] However, even in remote areas the attractions of taxation concessions appear to have had an influence on land values (Lambert & Meyer, 1988; Pasour, 1975; Reinsel & Reinsel, 1979).

The raising of rural land values has both benefits and costs for those who derive their income principally from agriculture. An increase in land values obviously increases the wealth of farmers, but it is perhaps debatable whether this improves their well-being. The increased wealth can only be translated into higher incomes if producers are willing and able to borrow against their increased wealth or if they are willing to sell their properties. Because of the instability of incomes and changes in rural land prices, attempts to use credit to translate an increase in wealth, resulting from an increase in farm property values, into a higher flow of income may often be hazardous.[8]

One way in which increases in land values may be adverse to farmers is the increase in their tax liability. This is certainly a relevant factor in the case of death duties, capital gains tax or inheritance tax and often also an argument for requesting relief.

IV. Farm Adjustment

One group that obviously benefits as a result of the effects of tax farmers bidding up land prices are farmers who wish to sell their properties. This group includes those farmers who wish to sell because their properties are of insufficient size to enable them to earn a satisfactory income in farming. However, in buying up small holdings to be run as part-time enterprises, tax farmers make it more difficult for full-time farmers to enlarge the size of their holdings. Some tax farming ventures can thus be regarded as impeding farm size adjustments in the rural industries.

The effects of tax farming in impeding farm size adjustments by full-time farmers are moderated to the extent that, in bidding up land prices, tax farmers cause a greater amount of land to be placed on the market. Thus not all of the land purchased by tax farmers would otherwise be available for purchase by full-time farmers. Another offsetting factor is the tendency of some tax farmers to sell their

properties once they have improved them to a state where there is little scope for further tax deductible farm development expenditures. Under these circumstances, the developed properties concerned can become available for purchase at a later date by the owners of nearby holdings.

Irrespective of the extent to which tax farming has in the past impeded size adjustments by full-time farmers, it is possible that measures to restrict the eligibility of tax farmers for agricultural taxation concessions could cause some of the properties at present owned by tax farmers to be placed on the market. This would provide an opportunity from some full-time farmers to enlarge their holdings to a more viable and economic size.

V.   Environmental Effects

To the extent that the agricultural taxation concessions encourage the clearing of land for the establishment of agricultural pursuits it certainly involves a change in the environment of the areas concerned. However, the question of whether one type of environment is necessarily any more desirable than another is largely a matter of subjective judgment.

The development of new areas for agricultural production inevitably imposes external costs on some individuals and provides external benefits for others. It would appear, nevertheless, that the community as a whole has become more willing to make economic sacrifices to preserve the natural environment in particular areas. This obviously calls into question the justification for taxation concessions which provide incentives for the development of new areas for agricultural production.

As well as providing incentives for the development of new areas for agricultural production, the tax concessions also encourage expenditures to prevent soil erosion and to clear natural vegetation. Expenditures of this nature might generally be regarded as improving the environment.

It is very difficult to make any distinction between tax farmers and other farmers in terms of the environmental effects of their farm development activities. Those farmers who earn the bulk of their

income from farming and usually live on their properties could, perhaps, be expected to be generally more concerned to maintain a pleasant and attractive rural environment than those who earn the bulk of their income from non-farming sources and do not live on their properties. However, the involvement in agriculture of persons who earn the bulk of their income from non-farming sources quite often occurs as a combination of business enterprise and leisure activity. In such cases the individuals concerned often demonstrate a strong concern to improve the quality of environment of their properties.

D.   MEASURES TO REDUCE TAX FARMING

Alternative measures which are usually considered to reduce tax farming are considered in the following paragraphs. The first section examines certain basic approaches while the second section discusses country experiences in this regard.

I.   Basic approaches

Two basic approaches which are normally adopted to reduce tax farming are:

(a)   to set more stringent eligibility conditions for agricultural tax concessions;

(b)   to restrict the applicability of concessions in order to prevent taxpayers from offsetting farming tax concessions against non-farm income.

1.   Eligibility conditions

Taxpayers are often regarded as farmers if they engage in activities which are regarded for taxation purposes as farming. Although farming activities are sometimes defined in income tax laws, it is normally a question to be decided on the facts of each case. This, however, is not always as straightforward as it may seem and other objective criteria are often suggested or taken into consideration.

The common use of terms such as "Pitt Street", "Bay Street" or "Eloff Street" or the equivalent street in any other country or state capital

in reference to 'tax farmers' might suggest that a <u>residence criterion</u> could be used in determining whether individuals should be regarded as farmers for tax purposes. However, such a criterion is probably impractical since many 'genuine' farmers live off their farms and some tax farmers live on their farms and commute to the cities or country towns where they pursue their principal occupations. In fact, off-farm employment by farmers is a common and seemingly lasting and/or increasing phenomenon (Bureau of Agricultural Economics, 1985c, pp. 124 - 125; Schoney & Nicholson, 1987, p.421).[9]

Another possible criterion which has significant disadvantages is one which would make tax concessions available only to those who have been in agriculture for a specified period. This would leave established tax farmers largely untouched and would discriminate against 'genuine' farmers recently entering agriculture.

A third possibility is the use of economic criteria based, for example, on the importance of farming as a source of income for the taxpayers concerned. Such criteria have been used in Australia in defining eligibility for estate duty concessions relating to rural property (Bureau of Agricultural Economics, 1973, P.24). It has also been suggested in Canada for distinguishing between full-time and hobby farming (Canada, 1985a, p.37). Often the criteria consist of assets, profitability or income eligibility tests. One of the major difficulties with the use of such tests to determine eligibility for income tax concessions would be the exclusion of some 'genuine' farmers who earn off-farm income.

2.   Restrictions on the applicability of concessions

The introduction of restrictions to prevent concessions being used to reduce tax payable on off-farm incomes has the advantage that it avoids the need to fix an arbitrary cut-off point beyond which taxpayers would be ineligible for the tax concessions. The principle underlying the approach is that all taxpayers who earn income from farming should be permitted to obtain some benefit from such tax concessions as are in existence but as far as possible those who earn off-farm income should be prevented from obtaining benefits additional to those which would be available to them if their income was derived solely from farming.

In principle, restrictions on the applicability of agricultural tax concessions could be applied to averaging provisions as well as to the provisions which provide special taxation deductions for farmers. A simplified example is given in Table 7.6 of the way in which a restriction on the applicability of tax deductions could affect the assessments of taxable income of a hypothetical 'genuine' farmer and a hypothetical tax farmer. Both taxpayers have the same gross farm returns and the same amounts of normal business and personal deductions. However, the tax farmer earns a substantially greater amount of income from off-farm sources and has a larger amount of concessional deductions. The example shows that restrictions placed on the applicability of the concessional deductions would considerably increase the assessed taxable income of the 'tax farmer.

As an alternative to the procedure outlined above any net losses incurred in a farming enterprise could be made either ineligible for deduction against off-farm income or eligible for deduction against a specified amount of off-farm income. This approach may automatically limit tax-farming or result in significant revenue losses if the off-farm income limit is set too high in circumstances where part-time farmers with low off-farm incomes account for a very substantial portion of farming losses.

II. Country approaches

1. Australia

Farming losses incurred in Australia have always been deductible without any time limit against either farm or non-farm income of future years.[10] However, to restrict tax farming the Australian Government, in 1985, proposed a quarantining system for farming losses, under which losses could be deducted only until they fully offset farm income. At the same time, however, the government designed an ingenious shading-in formula for taxpayers whose principal business is farming but who earn other income. Given its reliance on fickle climatic conditions and fluctuating world markets, Australian farming tends to be quite cyclical, and it is not unusual for farmers to seek secondary employment during low-income periods. To accommodate taxpayers in this situation, the government proposed a

TABLE 7.6: HYPOTHETICAL EXAMPLE TO SHOW EFFECT OF RESTRICTING APPLICABILITY OF SPECIAL DEDUCTIONS

SITUATION WITH NO RESTRICTIONS

	Full-time Farmer	Tax Farmer
	R	R
Gross farming income	6 000	6 000
Gross income from other sources	2 000	17 000
Total gross income	8 000	23 000
Special deductions	1 000	16 000
Normal business and personal deductions	3 000	3 000
Total deductions	4 000	19 000
Taxable income	4 000	4 000

SITUATION WITH RESTRICTED APPLICATION OF SPECIAL DEDUCTIONS

	Full-Time Farmer	Tax Farmer
	R	R
Gross farming income	6 000	6 000
Less special farming deduction	1 000	16 000
Farm returns after deduction of farming concessions.	5 000	nil(a)
Add gross income from other sources	2 000	17 000
Gross income from all sources after deduction of farming concessions	7 000	17 000
Less normal business and personal deductions	3 000	3 000
Taxable income	4 000	14 000

(a) The R10 000 excess of concessional deductions over gross farm returns is not deductible against non-farm income. Provision could be made for this R10 000 to be carried forward and allowed as a deduction against gross farm returns in subsequent years, as is the case with capital development expenditures in South Africa.

graduated quarantining system that would have permitted taxpayers to deduct farming losses over and above farm income up to a maximum of $20 000 of excess losses (Commerce Clearing House, 1986a, p.710).[11] The excess deduction was to be reduced on a dollar-for-dollar basis when off-farm income exceeded $20 000. In other words, a farmer with $20 000 in off-farm income could have used up to $20 000 of excess farming losses, while a farmer with $21 000 in off-farm income could have used only up to $19 000 of excess farm losses. It will be seen that the concession would have disappeared completely when off-farm income reached $40 000 - the point at which, the government concluded, taxpayers can no longer be considered to be principally occupied in farming.[12] Shortly before the measures were expected to be introduced, in mid-April 1986, the government announced that it would abandon its farm expenses quarantining plans (Commerce Clearing House, 1986b, p.4). They were withdrawn as part of a package of measures designed to provide relief to farmers suffering from the effects of a severe downturn in Australia's agricultural sector (Krever, 1986, p.390). In lieu of the quarantining provisions, Treasury officials were asked to investigate possible ways of distinguishing "hobby" farms from genuine agricultural production businesses (Commerce Clearing House, 1986b, p.4).[13]

2.   Canada

Over time, special tax classifications of Canadian farmers have evolved, which limit the ability of some farmers to deduct farm business losses from other non-farm income. In effect, three categories of farmers have been established:

    .   hobby farmers
    .   sideline or part-time farmers
    .   full-time farmers[14]

In contrast to the hobby-farmer, both the full-time and sideline farmer require a "reasonable expectation of a profit" (Blatt, 1987, p.12; Canada, 1985a, p.20). The full-time farmer is differentiated from the sideline-farmer by the requirement that farming be the chief source of income. The distinction between sideline and full-time categories is of particular interest because of the restricted loss provisions (Section 31 of the Income Tax Act) associated with the

sideline farmer. The restricted loss provision limits the annual farm losses that can be applied towards other income to a maximum of $5000. In sharp contrast, full time farmers are unrestricted as to the amount of farm losses that can be applied towards other income.

The restricted loss provision has its origin in Section 10 of the Income War Tax Act of 1917 (Canada, 1985a, p.21). This provision in effect prohibited any taxpayer from deducting losses incurred by him in secondary activities from the income of his principal activity. In 1951, the provision was amended to provide additional tax advantages to so-called "gentlemen" farmers by allowing them to apply up to $5 000 of farming losses to other taxable income - all of the first $2 500 of losses and half of the next $5 000. The ceiling remained essentially unchanged till 1989, when it was increased to $8 750 (Commerce Clearing House, 1989a, p.193).

Although the non-agricultural restricted business loss provisions were repealed in 1952, over time, the application of the restricted farming loss provisions was broadened to include a wider group of farmers through reinterpretation by the courts. In 1977, in the case of Moldowan v the Queen, the Supreme Court continued the interpretation of Section 31 by disallowing deductions against non-farming income for hobby farms, but extended the $5 000 restricted loss provision to sideline farms (Blatt, 1987, pp.10-11). More recently, seemingly inconsistent court rulings on the status of individual full-time and sideline-farmers have added to the controversy surrounding the sideline-farmer classification (McNair, 1980, pp.3-18).

The Department of Finance (Canada, 1985a, pp.29-30) has indicated that the restriction on the deductibility of farming losses serves three purposes. Firstly, it prevents undue revenue costs of tax benefits intended for full-time farmers. Secondly, the restricted loss provision affects the competitive position of full-time farmers vis-à-vis part-time farmers.[15] Thirdly, it creates a middle ground between full-time farmers and those farming without any expectation of profit. As it is not always easy to determine the latter, the middle ground minimises the need for a rigid enforcement of the test and the resulting potential disputes between Revenue Canada and taxpayers.

There has been extensive consultation between government officials and major farm organisations on the restricted farming loss provision over the years. While farm groups recognise the need for a provision that targets farm tax incentives to bona-fide farmers, they have expressed concern about the application of the current provision in certain circumstances (Canada, 1985a, pp.35-36). The Government (Canada, 1987b, p.93) has identified the principal problems to be:

> "The existing rules for identifying part-time farmers and hobby farms are subjective and are difficult both to comply with and to administer. An additional problem with the current rules is that deductions for losses denied for failure to meet the reasonable-expectation-of-profit test are lost forever, even if the activity subsequently generates farm profit - a particular concern for start-up farmers".

In response to public concern about the sideline classification and the accompanying restricted loss provision, the following alternative ways of limiting the use of farm tax incentives have been suggested (Canada, 1966, vol.4, pp.447-448; 1985a, pp.37-39; Schoney & Nicholson, 1987, p.423): a more liberal deduction of purely economic losses, as distinct from losses created through the use of tax incentive provisions (i.e. a form of accrual accounting); restricting loss deductibility only on individuals with substantial off-farm income; to tie the limitation on loss deductibility to the extent of farming activity undertaken by an individual; amend Section 31 to conform to the original intentions; place farming on an equal status with other non-farm businesses (repeal Section 31); increase and index the $5 000 deduction; adopt profitability rules; and adopt special rules for first-time beginning farmers.

Recent proposals would seem to indicate that a combination of the latter three alternatives found favour with the Department of Finance as a better means of distinguishing between the different categories of farmers. In order to introduce an element of objectivity, the White Paper proposed two tests to determine whether farming losses would be deductible as losses from a farming operation or whether the farming operation would be regarded as a personal activity or hobby-farm the losses from which would not be deductible (Canada,

1987b, p.90).[16)] The first requirement was that the taxpayer would attain the status of a "qualifying farmer" by having earned at least one dollar of net farm income determined on an accrual basis in at least three of the most recent seven years inclusive of the year in question (the "profit test"). If the taxpayer could not attain the status of a qualifying farmer the losses from the farming operation would not be deductible against income from other sources but would, nevertheless, be available for a three year carry back and a ten year carry forward to be deducted against farming income of the taxpayer in those years.

Any qualifying farmer could attain the status of a "full-time" or "part-time farmer". The status of a full-time farmer would be achieved if gross revenue from farming in at least three of the most recent seven years (inclusive of the year in question) were greater than the taxpayer's total income from all other sources (the "gross revenue test"). In this instance farming losses would be deductible against other income without restriction. Qualifying farmers who do not meet the gross revenue test to qualify as full-time farmers would be allowed to deduct farming losses against income of the year from other sources to a maximum amount of $15 000 for fiscal periods commencing after 17 June 1987. Once again excess losses would qualify for the three year carry back and ten year carry forward to offset farm income in those years.

Transitional rules were proposed that provided that until the profit test was satisfied, the existing requirements, namely that no losses may be deducted in respect of an operation that does not have a reasonable expectation of profit, would continue to apply. As from 1992 the profit test would apply as follows:

Year in question	Reference years	Number of profitable years required
1992	1988 to 1992	1 of 5
1993	1988 to 1993	2 of 6
1994	1988 to 1994	3 of 7

The phase in for the gross revenue test would apply for 1988 and subsequent taxation years with reference to gross farm revenues for taxation years after 1985. The following schedule summarises the phase in period:

Year in question	Reference years	Number of years*
1988	1986 to 1988	1 of 3
1989	1986 to 1989	1 of 4
1990	1986 to 1990	2 of 5
1991	1986 to 1991	2 of 6
1992	1986 to 1992	3 of 7

(*number of years required where gross-farm revenue exceeded net income from other sources).

Special relief was provided for farmers who started farming operations after 17 June 1987. All such farmers would have a one time four year grace period during which they would be considered to have met both the gross revenue and profit test. Full accrual-based losses would be deductible against income from other sources during the grace period if the taxpayer could satisfy Revenue Canada that the farm operation had a reasonable expectation of profit on an ongoing basis. In order to continue to qualify as a full-time farmer after the end of the four year grace period the profit test and the gross revenue test had to be met at the end of the fifth year in at least one of the five years. In the sixth year both the profit test and the gross revenue test had to be met in at least two of the years, and in the seventh year the full tests would apply.

Farm groups and others found the profit and gross revenue tests arbitrary, unwarranted and complex (Blatt, 1987, pp.23-43; Deloitte, Haskins & Sells (Canada), 1988, p.2). The Government consequently decided to consult further with farm groups to develop more appropriate rules but, as an interim measure, have increased the ceiling on restricted losses. In 1988 the first $2 500 of a loss plus 50 per cent of the next $5 000 for a total of $5 000 may be deducted. In 1989, it increases to $2 500 plus 50 per cent of the next $12 500 for a total of $8 750 (CCH, 1989a, p.193).

3. New Zealand

Prior to 1983 a taxpayer who incurred a loss in an income year was entitled to deduct the amount of that loss from any assessable income

derived from other sources in that year and to carry forward any remaining loss for six succeeding years. The Ross Committee in 1967 argued that the six year limit placed on the carry forward was "arbitrary" and found no reason in principle why an unlimited carry forward was not permitted. They went on to recommend the unlimited carry forward of losses and found no reason to consider farmers as a special case in this respect (NZ, 1967, p.201).

Many hobby farmers attracted by the favourable tax treatment of ordinary farmers, have sought in the past to benefit from this special treatment themselves. The cases all followed a regular pattern (Dunbar & Smith, 1986a, p.3). A businessman purchased a rural property and took advantage of the generous tax incentives to develop the property. A tax-loss resulted from deducting the money that was injected into the development of the land, which was then offset against his other income. After a number of years the farm property would be sold at a capital gain, which was not subject to tax.

Prior to 1983 the test to be satisfied in determining whether an activity qualified as a business (and not as a hobby) required that a taxpayer have both an intention and a reasonable prospect of deriving a profit from a venture. In 1983 the Court of Appeal in the case of Grieve v CIR held that a taxpayer need only have the intention to make a profit, provided the enterprise was conducted in a commercial and businesslike manner (NZ Law Reports, 1984, Vol.1, pp.101-115). It was also in 1983 that the offset of losses incurred in a taxable activity against income from other (unrelated) sources was limited to $10 000 a year (Section 188A). According to King (1987b, p.34) this provision was introduced to ".... regulate the level of investment channelled into the primary sector from outside sources, attracted there by tax concessions."

Three years after the Grieve case, the Government announced in the 1986 budget that legislation would be introduced to repeal what was perceived to be a loose liberal test for ascertaining the existence of a business for tax purposes. The Minister of Finance (cited in Dunbar & Smith, 1986a, p.1) stated:

> "a number of arrangements are being entered into by
> taxpayers who invest in ventures ostensibly on the grounds

that they are conducting a business, whereas the purpose of the investment is to gain a tax deduction against other income for losses from the venture. Prior to 1983 the test to be satisfied in determining whether an activity qualified as a business required that a taxpayer have both an intention <u>and</u> a reasonable prospect of deriving a profit from the venture .... However, the Court of Appeal held in that year that a taxpayer need only have the <u>intention</u> to make a profit, provided the enterprise was conducted in a commercial and businesslike manner. The intention test is too loose and the law is to be suitably amended to restore the position to that which previously prevailed. Deductions claimed as business expenditure or losses will be disallowed where the activity in question has no reasonable prospect of earning a profit".

As the introduction of the two limb test coincided with the changes to the livestock schemes and the phase out of the immediate deductibility of development expenditure there was no reason to retain the $10 000 limit provisions. Consequently, commencing with the 1987 income year, any losses from agricultural activities may be offset in full against income from any other source in the year incurred (Russell & Christie, 1987, p.48).

4.   <u>United Kingdom</u>

Farmers in the United Kingdom are not treated in any special way in respect of losses unless those losses continue for a substantial period of years, when the "hobby farming" rules prevent the set-off of the continuing losses against other income.

Normally, for individuals and partnerships, a trading loss incurred in <u>bona fide</u> farming may be carried forward indefinitely against future profits of the same trade even if the profits are generated by a replacement farm or additional farm (<u>Tolley's Tax Planning 1986</u>, 1985, p.201).[17] Rather than carry forward his losses a farmer may offset his trading loss for a tax year

against other assessable income or carry forward any unrelieved loss against off-farm income.

The facility to set off trading losses against other income is only available if the trade which produced the loss was being carried on on a commercial basis and with a view to the realisation of profits. Section 384(a) of the Taxes Act 1988 provides that "the fact that a trade was being carried on at any time so as to afford a reasonable expectation of a profit shall be conclusive evidence that it was then being carried on with a view to the realisation of profits" (Simon's Taxes, 1983, vol.G, p.2018). On the second reading of the Finance Bill 1960, the Chancellor explained that the clause was not designed to debar relief for any undertaking run as a serious business, such as "genuine" farming operations, but was intended to deny relief in "extreme cases" where the trading activities bore no relationship to commercial criteria (Simon's Taxes, 1983, vol. B, p.1704). However, this subjective test proved unsatisfactory and a further test in the form of a time limit was introduced in Section 180 of the Taxes Act 1970 (TA 1988, Section 397). If a loss is incurred in a trade of farming in a year which follows five consecutive years of losses, relief is disallowed for the loss incurred in the sixth year. The hobby farming restriction is waived for a farmer who requires a start-up period of longer than five years or for the genuine farmer who has a reasonable expectation of profit but whose business is taking longer than six years to come right (Butterworths UK Tax Guide, 1988, p.92).

5.   United States[18)]

In the United States the following measures have been introduced to limit tax sheltering and tax farming: the hobby loss rule, at-risk limits, alternative minimum tax and passive loss restrictions.

(a) Hobby loss rule

From 1954 to 1969 a general hobby loss rule (Section 270) provided that an individual could not deduct losses from a "business" in excess of $50 000 if the "business" suffered losses

in excess of that amount in at least five consecutive years. However, not only were taxpayers able to arrange for losses to be below $50 000 once every five years, but both the IRS and the courts frequently ignored it (Condon, 1978, pp.202-206; Crouch, 1973, pp.184-188; Simon & Burton, 1975, pp.332-334).

With a large number of business versus hobby cases reaching the courts, Congress modified the legislation in 1969. Section 270 was repealed and a new Section 183, commonly known as the "hobby loss rule", was enacted in its place beginning with 1970 (Burns & Groomer, 1980, p.196; USA, 1988a, pp.21-22; Windish, 1987, p.63). An immediate effect was the elimination of the $50 000 limitation on losses.

If a profit motive can be demonstrated, Section 183 does not apply, but when there is no profit motive, the endeavour is considered a hobby and expenses are deductible only to the extent of its corresponding revenues. Furthermore, the Code specifies three classes of deductions as well as the order in which these expenses are deductible. Firstly, deductions for personal as well as business activities are allowed in full. Interest, taxes and casualty losses fall in this classification. Deductions that do not result in an adjustment to the basis of property are allowed next, but only to the extent that gross income from the activity exceeds the deductions in the first category. These expenses would normally include those deductible as "ordinary and necessary business expenses". Business deductions that decrease the basis of property are allowed last, but only against remaining gross income. Examples of such deductions are depreciation, depletion, amortization and property losses.

To illustrate, assume that a taxpayer with a small farm is deemed to be a hobby farmer and not engaged in the business for profit. The income and allowable expenses may be summarised as follows:

Expenses	$	Income	$
Interest	8 000	Sale of hay	8 000
Taxes	2 000	Sale of calves	3 000

Expenses		Income	
Supplies, repairs & other operating expenses	3 000	Sale of cull cows	1 000
Depreciation	10 000		
Total	23 000		12 000

Computation of expenses allowable:

			$
Class 1 - interest and taxes			10 000
Class 2 - Total		$3 000	

Gross income	$12 000	
Less - class 1 expenses	$10 000	
Excess income	$ 2 000	
Allowable - lesser of expense or income		2 000
Less - class 3 expenses	$10 000	
Income available	$ 0	
Allowable - lesser of expense or income		0
Total expenses deductible		12 000

The law presumes that an individual (or partnership, estate, trust or S corporation) has a profit motive if his activity produces a profit in any three of five consecutive years (two of seven for breeding, training, show or racing horses) (USA, 1987c, pp.4-5; 1988a, pp.21-22).[19] In determining whether the profit motive is present the following nine broad factors are also taken into consideration: the manner in which the taxpayer carries on the activity; expertise of the taxpayer or his advisers; time and effort expended by the taxpayer in carrying on the activity; expectation that assets used in the activity may appreciate in value; success of the taxpayer in carrying on other similar or dissimilar activities; the taxpayer's history of income or losses with respect to the activity; amount of occasional profits earned; financial status of the taxpayer; and elements of personal pleasure or recreation (Burns & Groomer, 1980, pp.197-198; Flick & Schmidt, 1973, pp.90-91; Pusker, 1978, p.156).

Start-up farmers may elect to take advantage of the presumption at a later time, after having had the five (or seven) years of experience allowed by the test (USA, 1987c, pp.4-5).

(b) **At risk limits**

The US Congress enacted at-risk rules to curb abuses in the use of non-recourse financing, that is financing for which the taxpayer is not personally liable (USA, 1987g, p.30). Generally any loss from an activity subject to the at-risk rules is allowed only to the extent of income from the activity plus the amount a taxpayer has at risk in the activity at the end of the tax year. A taxpayer is considered at risk in an activity to the extent of cash and the adjusted basis of other property the taxpayer has contributed to the activity and certain amounts borrowed for use in the activity (USA, 1987h, p.12).

Taxpayers subject to the at-risk rules are individuals, shareholders in S corporations, and corporations in which one-half of the shares are owned by five or fewer people (Windish, 1987, p.44). The at-risk rules provide that if a transaction is not within normal commercial practices, the amount at risk may be adjusted to properly reflect the amount at risk (Windish, 1987, p.47). When deductions from an activity exceed the amount at risk, the deductions are taken in the following order:

(i)   capital losses;

(ii)   all deductions that enter into the computation of section 1231 gains and losses;

(iii) deductions that are not tax preferences; and

(iv)   all items of tax preferences.

(c) **Alternative minimum tax**

The alternative minimum tax (AMT) was introduced in 1969 to assure that everyone with income pays at least some tax (USA, 1985a, p.329). The AMT provides a formula for tax computation which, in effect, ignores certain preferential tax treatments that are allowed under tax

law. By eliminating these preferences, a tax liability may be created for a taxpayer who would otherwise pay little or no tax.

Under prior law, individuals were subject to an AMT that was substantially similar to the present AMT. The major differences are a slight increase in the rate, an expansion of the base on which the tax is calculated and a phase-out of the exemption amounts. Corporations were not subject to the AMT before 1987 but were subject to an "add-on" minimum tax under which 15 per cent of tax preferences in exces of an exempt amount was added to tax liability (O'Byrne & Davenport, 1984, pp.86).

As a result of recommendations by Treasury II (USA, 1985a, pp.330-332) the AMT now applies to individuals and corporations, although there are some differences in the required adjustments and preferences for corporations as compared to individuals. Essentially, tax is computed in two different fashions - under the regular income tax and under the AMT. According to Shaviro (1988, p.94) the regular income tax "... remained the situs for preferences that Congress was not willing to abolish. The minimum tax ... in general reflected Congress's best efforts to move in the direction of accurately measuring economic income". Henderson (1988, p.43) regards the AMT as a less "radical" approach than doing away with the preferences themselves.

To compute AMT, a taxpayer begins with regular taxable income and makes certain adjustments to eliminate the acceleration of certain deductions and then adds back tax preference items. For agriculture the most important adjustments and tax preferences include farm losses, passive activity losses and depreciation. From this amount of income, called the alternative minimum taxable income (AMTI), an exemption is subtracted. The maximum amount of this exemption is $40 000 but it is reduced by $0,25 for every $1 by which the AMTI exceeds $150 000. After subtracting the exemption amount, the remaining income is taxed at a flat rate of 21 per cent. The result is the tentative minimum tax. The AMT is the amount by which the tentative minimum tax exceeds the regular tax (Kern, 1987, pp.307-313; USA, 1987f; 1988a, pp.53-59).

(d) <u>Passive loss restrictions</u>

The Tax Reform Act of 1986 placed a major restriction on the use of tax-advantaged investments as a means to defer tax on income from sources other than such investments. Generally, losses from "passive activities" can be used only to offset income from passive activities. Similarly, a tax credit generated by a passive activity can be used only to offset tax liability attributable to a passive activity (USA, 1987g, pp.26-29; 1987h, pp.9-12). Generally speaking, a passive activity is any activity that involves the conduct of a trade or business in which the taxpayer does not materially participate. A taxpayer materially participates in an activity if the taxpayer is involved on a regular, continuous, and substantial basis in the operations of the activity.

Portfolio income, such as dividends, interest and royalties, are not considered income from passive activities under the rule. Any loss or credit that cannot be used by a taxpayer because of the restrictions may be carried over to future years and applied to passive income or tax liability attributable to passive income in subsequent years. A loss that remains unused as of the time the taxpayer disposes of the passive investment that generated the loss may be deducted at that time.

The passive loss restrictions apply to the following taxpayers:

(i)   an individual, estate, or trust;

(ii) any closely held corporation; and

(iii) any personal service corporation.

6. <u>South Africa</u>

Apart from the special provisions set out in the First Schedule of the Income Tax Act, South African farmers are subjected to tax in the same way as other taxpayers. However, before these special provisions can apply the taxpayer must derive taxable income from pastoral, agricultural or other farming operations. The Income Tax Act does not contain a definition of farming operations and it is a question of

fact whether such operations are being carried on. Several cases lend support to the concept emerging from an earlier case (Special Court Case ITC No. 208, 6 SATC 55 at 57) that as long as there is a genuine intention to develop land as a farming proposition in the hope that an ultimate profit will be derived, farming operations are being carried on. But this concept has been criticized in so far as it purports to be an entirely subjective test:

> "It seems ... that before a person can be said to carry on farming operations there must be a genuine intention to farm, coupled with a reasonable prospect that an ultimate profit will be derived thereby incorporating an objective element to the test." (Per Smallberger J in Special Court Case ITC 1319 (1980) 42 SATC 262 at 264 as cited in Silke, Divaris & Stein, 1982, p.1007).

Case law has been supported by a number of quarantining provisions to separate full-time farmers from hobby or tax farmers. Two approaches have been adopted:

(i)   Losses generated by write offs in respect of capital expenditures and livestock are only available for set-off against farming income; and

(ii) Only farming income qualify for the averaging provisions.

Previous chapters have shown to what extent special tax provisions have been misused by full-time and part-time farmers alike. A number of submissions to the Margo Commission also referred to the tax sheltering activities of hobby farmers and submitted that these farmers' business and/or investment incomes and their farming incomes be taxed separately.[20]   Others stressed the importance of part-time farming.[21]

Although the Margo Commission acknowledged the important role of part-time farmers in the agricultural economy, it proposed that a distinction be drawn between part-time and hobby or tax farming (RSA, 1987, p.239). It regarded the present test as being complex, involving a heavy administrative burden and introducing uncertainties. The Commission consequently recommended that objective

tests similar to those in the United Kingdom and the United States (and proposed in Canada) be introduced - namely, that if a farmer after a certain number of years has not obtained a taxable income from farming, the farming losses may be written off only against farming income. The Commission pointed out that when such tests are introduced it should be borne in mind that South Africa frequently faces long droughts. The Government accepted the proposal and stated: "A test of this sort, if effectively applied, will distinguish farmers genuinely dependent on farming from those who farm purely for the tax advantages" (RSA, 1988, p.16).

D.   CONCLUSIONS

The literature reveals that farmers are receiving an increasing portion of their income from non-farming sources. A survey by the Board of Inland Revenue, for example, shows that in 1986/87 less than two-thirds of total farm income in the United Kingdom came from farming and more than one-third from other employment, investments and pensions (cited in Richardson, 1989, p.32). A study by the Bureau of Agricultural Economics (1985c, pp.124-125) in 1985 also shows that, for the European Community as a whole, in 1977, only 37 per cent of farm holders found full-time employment on their holdings while only 55 per cent of farm holders worked more than 50 per cent of normal full working time on their holdings. In addition approximately half of farm family incomes in the Federal Republic of Germany are now derived outside agriculture (Bureau of Agricultural Economics, 1985c, p.124) while a study by Bollman (1983) shows that the proportion of Canadian farmers with off-farm employment had increased from 3,2 per cent in 1940 to 14 per cent in 1980.

Evidence presented in this chapter also suggests that:

(i)   the investment decisions of tax farmers are more strongly influenced by the tax concessions than are the investment decisions of other farmers;

(ii)   most of the farming tax concessions provide greater benefits to individuals with high taxable incomes than to individuals with low taxable incomes. Individuals with income from non-farm sources consequently obtain greater benefits from the

concessions than they would if they obtained their income solely from farming; and

(iii) despite the increasing prominence of part-time farming which implies greater difficulty to distinguish between different categories of farmers, most countries put some form of restriction on the use of agricultural tax concessions by those for whom farming is not their principal business.

Part-time farmers have argued that loss or other limitations discriminate against them. Losses from most businesses can be offset against a taxpayer's other income without limitation, but the deductibility of farm losses is normally restricted for part-time farmers. They also point out that restrictions deprive farming of outside equity capital which is an important source of financing for future growth (Quantz, 1988). Farming operations require significant capital investments and it is desirable that all valid sources of capital flowing into agriculture be encouraged.

Most countries have relied on the courts either to distinguish between full-time and part-time farmers for taxation purposes or to establish whether farming activities demonstrate a profit motive. Inconsistent court rulings, however, have added to the controversy and the number of cases being resolved in the courts. Consequently, to introduce elements of objectivity, some countries have suggested (Canada, South Africa) or apply (UK, USA) profit tests as a means of distinguishing between different categories of farmers. These tests are often also considered to be arbitrary and complex, particularly if transitional rules or special relief for start-up farmers or those experiencing some form of difficulty have to be provided for. As a result, a number of countries rely on quarantining measures, that is, the set-off of farming losses against non-farming income is restricted to a particular amount of non-farming income. This approach avoids the disadvantages of qualitative and quantitative tests that are otherwise required and which invariably are complex, involve very heavy administrative workloads and introduce uncertainties as to the outcome in particular cases (Commerce Clearing House, 1985, p.29).

Another approach is to have no restrictions on the set-off of farming losses against non-farming income, but to restrict the carry forward

of losses. Although most countries allow losses to be carried forward indefinitely, some countries apply limits, but then again exempt agriculture in most instances (Zimbabwe, 1986, p.193). But to paraphrase the Chelliah Commission, farming (and mining) tend to be chronic loss reporters and some regulation of the carry forward of losses seems necessary (Zimbabwe, 1986, p.252). The time limits to carry forwards range from one year (Lesotho) to seven years (Canada), but the ten year period suggested by the Chelliah Commission seems fair (Zimbabwe, 1986, p.252).

The continuation of farming tax concessions and the increasing importance of part-time farming are two trends which are irreconcilable. At the same time the measures which have been introduced or suggested are arbitrary and complex and will become more so if farmers derive an increasing proportion of their income outside agriculture. The New Zealand approach referred to above, namely to eliminate virtually all tax concessions and ring-fence provisions, accommodates the world wide trend towards part-time farming. It also has the advantage of relying on case law for ascertaining the existence of a farming business for tax purposes in exceptional circumstances only. South Africa should follow this route, rather than targeting special provisions to full-time farmers only. Such a change will also fit in well with present endeavours to create a "level playing field" in respect of farm financing.

FOOTNOTES

1. Sometimes terms refer to a major street in a capital or other city, for example Pitt Street farming (Australia), Bay Street farming (Canada) or Eloff Street farming (South Africa). Quite often they are colloqually known as gentlemen farmers. In this regard the Canadian Minister of Finance, in 1952, stated that ".... gentleman farmers never make money from their farms. They always lose money; and they write off that loss against income from other sources, such as salary or investment income" (cited in Canada, 1985a, p.23).

2. Under these sections farmers were on the one hand allowed to deduct from their income for taxation purposes the entire outlay on designated capital expenditures in the year in which the expenditures were incurred and, on the other hand, exempted from recapture provision when property was sold. Expenditures on fencing, land clearance, pest and weed destruction, drainage, prevention of soil erosion and irrigation works were treated in this way.

3. Sections 75A-75D expenditures more or less correspond with those previously covered by Section 75.

4. The statistics were obtained from Inland Revenue.

5. It was also assumed that there was no double counting in respect of the number of part-time farmers that earned farming income.

6. This view has time and again been proven at financial training courses that the major commercial banks offer to farmers.

7. Part-time farming activities north of Johannesburg are an excellent example.

8. See Melichar (1987, pp.523) who stated in respect of USA farmers: "During that [1970's] boom, farmers as a group enjoyed a massive increase in real wealth, and some farmers borrowed heavily to increase their participation in those gains. In the bust of the 1980s, the entire increase in real wealth disappeared, and many heavily indebted farmers have been unable to service or to repay their debt".

9. Presently the financing of part-time farmers (or that intend to become full-time farmers) already amounts to between 2 and 3 per cent of the Land Bank's total loans to individuals. See the Land Bank's Annual Report 1988, p.31.

10. Although farm losses incurred by a company can be carried forward indefinitely until absorbed in the same way as those losses of other taxpayers, the company must satisfy either the "continuity of beneficial ownership" or the "continuity of business" tests. The former test requires that shares carrying more than 50 per cent of all voting, dividend and capital rights be beneficially owned at all times during the year of recoupment by one or more persons who individually or together held any shares carrying similar rights at all times during the loss year. To satisfy the continuity of the business test, the company must carry on at all times in the year of recoupment the same business as it carried on immediately before a change in the beneficial ownership of its shares which disqualifies it from satisfying the continuity of ownership test. It is not enough that the business is the same kind of business; it must be the identical business.

11. This was also referred to as a "notional income approach" where notional income represents actual farming income plus "deemed" income from farming, the latter reflecting a specified amount of non-farming income. $5 000 was originally suggested.

12. The original quarantining proposals shaded in from $15 000 to $30 000. The Labour government increased these figures after negotiations with the Democrats.

13. The Government also intended to extend the review to the distinction between business-related farming expenditure as opposed to private expenditure, the appropriate write-off for capital, operating and other expenses and the tax treatment of stock valuation in the stud breeding industry (Commerce Clearing House, 1986b, p.4). However, nothing has materialised as yet.

14. The origin of the three categories of farmers is the decision in 1977 of the Supreme Court of Canada in Moldowan v The Queen. In this decision farmers were classified into:

(i)   those for whom farming may reasonably be expected to provide the bulk of income or the centre of work routine (full-time farming);

(ii)   those who do not look to farming, or farming and some subordinate source of income, for their livelihood but carry on farming as a sideline business (sideline farming); and

(iii)   those who do not look to farming, or farming and some subordinate source of income, for their livelihood and who carry on farming as a hobby (hobby farming).

15.   It is argued in the White Paper (1985a, pp.22-30) that the tax incentives are more valuable to part-time farmers with high off-farm income than to full-time farmers with limited off-farm income, but it is also noted that full-time farmers with high incomes benefit in the same way as would part-time farmers in the absence of Section 31.

16.   In the White Paper it was also proposed that farm income and losses be computed on a modified accrual basis with a cash basis reserve in order to minimise tax avoidance by individuals with high incomes from sources other than farming (Canada, 1987b, p.81). Since Chapter 5 elaborates on the latter proposals the following paragraphs focus on the profit and gross revenue tests only.

17.   In practice the Inland Revenue will allow a reasonable time for a replacement farm to be acquired before they will apply the provisions for discontinuance of a trade.

18.   This section only refers to the "hobby loss" rules. Other measures for tax sheltering which also impact on hobby farmers, are discussed in Chapters 4 to 6.

19.   Before 1987, the presumption was met if the activity produced a profit in two out of five years.

20.   An attorney, for example, motivated his proposal as follows:

"There must be a large number of professional individuals and other executives who, in addition to their professional practices and other businesses, own smallholdings or farms mainly for the tax relief that can be derived therefrom. It is common knowledge that in most cases, these individuals do not run their farms on an efficient profit making basis. They are purchased and run specifically for reducing their income tax liability to the State. I have personal experience in my own practice where certain partners fall under this category. The partners concerned pay little or no income tax and the other partners who derive their sole source of income from the practice without the facility of 'losing' professional income on the farm, pay a large amount of tax by comparison. In circumstances such as these, it is the taxpayer without the farming outlet, who is contributing the needs of the country. The pseudo farmer is, in my opinion, very little short of being a 'parasite'. He pays little or no income tax for the reasons set out above. He lives off the fat of the land, enjoying all the benefits. He contributes NOTHING towards this country, its defences and other essential services. When the pseudo farmer eventually decides to sell his farm, or should he still own it on his death, that asset will have appreciated by an enormous amount from date of purchase, due mainly to the improvements that have been ploughed into the farm and for which tax relief has been obtained, and through its appreciation in value over the period concerned. When that property is disposed of, the capital profit is put into his or his heirs' pockets tax free" (Submission No.82 to Margo Commission).

21. See submission No. 785 to the Margo Commission.

PART IV

SUMMARY

CHAPTER 8

SUMMARY

Since World War II there have been four waves of tax reform in major Western countries: (i) the widesepread introduction of social security taxes to finance income- maintenance programmes for less privileged groups; (ii) greater reliance on indirect taxation, particularly VAT; (iii) the introduction of the imputation or other forms of corporate-income-tax integration to relieve the double tax on dividends; and (iv) lowering of the highest marginal income tax rates, in conjunction with the elimination of various tax concessions.

The last wave of tax reform represents a move to level the playing field of the income taxes through base broadening and rate-cutting. Failure to do so leaves the income tax stranded in a labyrinth of second best choices that are informationally demanding and an administrative nightmare. Tax rate cutting has been motivated by three factors. First, political developments led to conservative governments in several countries. Those governments brought with them a diminished support for income redistribution, an emphasis on markets, and a desire to deregulate. Second, inflation in the 1970's and 1980's aroused hostility to the income tax because of bracket creep. The rapid growth in revenue from the individual income tax, and its share in total revenue, alarmed those who wished to restrict the role of the State. Third, many felt concern about the adverse effects of high marginal tax rates and many economists have come to share the belief that high tax rates have a major disincentive effect on work and risk-taking, increase incentives for evasion and avoidance, distort economic decision-making and ultimately reduce the growth of output.

Two broad approaches to fund reductions in tax rates have been identified. The first is to bring into the tax base sources of income which were previously excluded. The second approach is to remove the favourable tax treatment of particular sectors of the economy or particular types of asset, to reduce the deductibility of expenses and

to eliminate subsidies provided through the tax system. Many reforms have focused on reducing the use of tax shelters, elimination of investment incentives and moving tax depreciation nearer to economic depreciation. Underlying all the approaches is a feeling that it may be better to have a more neutral tax system with lower tax rates.

Tax reform by way of base broadening and rate cutting has impacted on agriculture because it implies the reduction or elimination of the sector's fiscal favouritism as well as the many elements of expenditure taxation that the industry enjoys. Growth in farming tax shelters have proliferated and played a significant role in the erosion of the tax base. In addition fiscal discrimination resulted in a mélange of effective tax/subsidy rates lacking any rational basis.

Research literature relating to income tax concession and tax sheltering in the farm sector is substantial and a number of conclusions have been reached concerning the effects it has had on that sector. Initially much of the research focused on micro- and farm-level types of quantitative analysis. Recently, however, national level models have been used to examine the effects of tax policy on aggregate agricultural investment.

Several income tax concessions are postulated to be responsible for tax sheltering and fiscal favouritism, namely cash accounting, the immediate write-off of certain capital expenditures, interest deductibility, capital gains tax treatment, favourable inventory valuations, averaging provisions and special use-valuation of farm assets for estate tax purposes. Studies agree that tax sheltering and income tax concessions:

- exert an upward pressure on land, commodity or livestock prices, increasing already high barriers to enter into agriculture;

- support, encourage and coincide with the trend to fewer and bigger farms;

- have produced an influx of capital into agriculture which in turn stimulated the production of tax sheltered crops;

-    Allow the creation of financial reserves - either as crops on which taxes have not been paid or as deducted prepaid expenses - that sometimes mitigate financial difficulty. This reserve can be realised only by squaring with the tax collector, an event that may perhaps be postponed until the tax burden will be low. The reserves have frequently been considered something of an economic stabiliser, because they can be accumulated in times of large crops and liquidated when crops are smaller. But the role of such reserves as stabilisers changed during the last few difficult years, when some tax-motivated reserves were liquidated at a time when the markets would have been better served by a continued holding of them. This out-of-phase liquidation has, in the view of some observers, led to even lower prices;

-    inevitably alter management practices and add considerations to the decision-making process that are far removed from the successful propagation of plants and animals, denigrating those skills and frequently subordinating them to those of the tax adviser;

-    may have encouraged farmers to increase their use of debt capital to expand.

The actual and proposed reforms of income tax provisions which were aimed at reducing the misuse of tax concessions and countering farming tax shelters are not easily summarised. Recent legislation in the United Kingdom, United States, and New Zealand as well as the proposals still under consideration in Canada go furthest in combining base broadening with rate reduction. Particular tax mechanisms which have taken some of the advantage out of farming tax shelters are:

-    the capitalisation of or limitations on farming expenses;

-    an increase in capital recovery periods;

-    the repeal of investment tax credits and deductions for land clearing expenses;

-    more market related valuation schemes for livestock;

- hobby loss rules and passive or ordinary loss restrictions; and
- at risk limits and alternative minimum tax.

Notwithstanding the accomplishments of recent tax reform, much remains to be done to reach the comprehensive reform target. Despite sometimes heroic efforts at reform the income tax, particularly as it applies to agriculture, has remained awkwardly suspended between the accretion and the consumption concept. Some of the measures just enumerated reflect this observation. They may even be described as "repair" rather than reform or as "symptoms reform" because they often deal with symptoms and leave underlying problems untouched.

In order to achieve more neutrality ("level playing field"), simplicity, to discourage non-productive economic activity, encourage greater compliance, accommodate the world wide trend towards part-time farming, to broaden the income tax base and lower income tax rates this study proposes that the following income tax provisions apply to South African farmers:

(i)   Capital expenditures. A structure of depreciation allowances with just two categories on a declining balance basis should be introduced. All assets within each of the two categories should be pooled. Additions of capital assets would increase the size of the pool while sales would reduce it. Capital expenditures should qualify for a 30 per cent allowance (plant and machinery) or a 10 per cent allowance (other farming capital expenditures), both on a declining balance basis. Recoupments of moveable assets should be limited to the original price of an asset. Capital expenditures for forestry purposes should be capitalised in a forestry account and be deductible only when income is derived from forestry. Expenditures for the eradication of noxious plants and the prevention of soil erosion should be fully deductible if they relate to activities which are consistent with a conservation plan approved by the Department of Agriculture. The total deduction per annum should be limited to 10 per cent of gross farm income for the year.

(ii)   Livestock. In addition to a cost option, three further schemes for livestock valuation should be available to taxpayers. These can be known as the trading stock scheme, the herd scheme and

the high-priced-stock scheme. The first two schemes should retain a standard value basis. Under the trading stock scheme taxpayers should value livestock on hand at the end of each income year at trading stock value for that year. These standard values should be set by Inland Revenue at say 70 per cent of a three year moving average of national average market values by livestock class. Taxpayers who adopt a herd scheme should value eligible classes of livestock (mature adult livestock kept for the sale of their produce or progeny) at the end of each tax year at their respective herd scheme values. They should also readjust the opening livestock values for that year to the closing herd values. These should be set at 100 per cent of the national average market value annually. The high-priced stock scheme should apply to stock purchased at prices above a pre-set benchmark price. Depreciation from cost should be allowed and should commence from the point when a young animal reaches maturity or is first used for stud duties until the closing value of livestock equals the herd values. To facilitate the phase-in of the new livestock schemes it has been suggested that the tax due on revaluation income be spread over five years. Game farmers should capitalise the costs associated with game and claim the costs only when the game is sold.

(iii) Averaging. A substantial reduction in income tax rates and a widening of tax brackets eliminate the need for averaging measures. If simplicity is the objective the present averaging scheme or the American/Canadian averaging provisions are proposed.

(iv) Tax farming. The proposals enumerated above remove the need for arbitrary and complex rules to distinguish between full-time, part-time or tax farmers. The fundamental approach recommended in this study accommodates the world wide trend towards part-time farming and ensures that investment will be directed to agriculture because of market returns, rather than by tax concessions.

Some observers believe that tax policy has only reinforced trends that were largely brought about by other forces. The picture that emerges from this study is that if a sector of the economy enjoys tax

concessions or presents tax shelter opportunities, it is likely to have lower product prices; become owned by high-bracket taxpayers; likely have a greater separation of management from ownership; perhaps tends to be less sensitive to market forces; be dependent upon highly sophisticated financial and tax advisers; and provide opportunities for leverage and interest arbitrage.

A final note is to urge more attention to the topic of income taxation in agriculture. Although reliable information is hard to come by it deserves more attention than it received until very recently. This study constitutes a modest attempt to add to our knowledge of income tax concessions and agriculture.

APPENDIX 1

TAX REFORM IN PRACTICE: A SUMMARY

A.   General Overview

1.   Pacific and Mediterranean countries

In the Pacific (Australia, New Zealand and Japan) and Mediterranean
regions (Greece, Portugal, Spain and Turkey) recent reforms have
focused on the introduction of value added tax (VAT). In Japan, the
new tax on consumption is seen as a way to finance specific social
expenditures[1] whereas in New Zealand, the tax was advocated as the
key to lowering rates of income tax.[2] For the Mediterranean
countries VAT is required for membership of the European Economic
Community to which Greece, Portugal and Spain now belong.[3] In
Turkey the decision to introduce VAT was influenced by a desire to
achieve a more balanced tax structure and, in particular, to reduce
the relatively high reliance on personal income and production taxes
and other duties (Tait, 1988, p.13). In each of these countries it is
likely that VAT will become a major source of tax revenue although
Australia has opted not to introduce VAT but rather rationalize its
wholesale sales tax (Keating, 1985, p.557).

2.   Nordic and Northern European countries

The common theme of tax reform proposals in the Nordic countries
(Denmark, Sweden and Norway) and in Northern European countries, such
as Germany and the Netherlands, is the need to reduce marginal rates
of income tax. During recent years each of these countries has either
implemented or announced their intention of cutting the top schedule
rates of income tax. In Denmark the top marginal rate of tax will
fall from 73 per cent to 68 per cent for personal income, and net
income from capital will be taxed at a flat rate of 48 per cent. The
loss of revenue will be offset by restricting the present almost
unlimited tax deductibility of interest payments and by increasing the
rate of corporation tax. Denmark is also committed to reducing
taxation on dividends by providing relief at the level of the company
(Denmark: The 1986 Tax Reform, 1985; Foighel, 1986; OECD, 1988e,
pp.47-50). Reform proposals have been implemented in Sweden to
replace the four current personal income tax rates (viz, 35, 50, 64
and 75 per cent) by three lower rates: 33, 45 and 60 per cent (Sweden,

1987). The Federation of Swedish Industries has also made proposals to reduce the corporate tax rate from 52 to 25 per cent while substantially broadening the tax base (1988, pp.89-93). In the case of Norway, the 1984 Tax Reform Commission proposed the elimination of a large number of tax privileges, the lowering of tax rates (the top rate would fall from 74 to 41 per cent) and automatic inflation adjustments for individuals and companies. These proposals are currently being examined by the Government (Owens, 1987b, p.6).

In 1987 an agreement was reached among the German government's coalition on the basic content of a tax reform package that included an increase in the basic personal exemptions and reductions of the lowest (22 to 19 per cent) and highest (56 to 53 per cent) marginal tax rates as well as the corporate tax rate (56 to 50 per cent) (Tax Reforms in Major Industrial Countries, 1987, pp.14-15; Uelner & Menck, 1988, pp.119-140; Wingert, 1987, pp.256-259).[4]

In the Netherlands the Oort Commission (Netherlands, 1986) suggested the merging of income tax and social security contributions with the same flat rate over a large range of income above the standard deduction and a reduction of the number of tax brackets from nine to three or four (OECD, 1987f, pp.46-47).

3. British Isles

The tax reform debate in Ireland and the United Kingdom has focused on two issues: how to improve the neutrality of the personal and corporate income tax and whether expenditure should rather represent the tax base. Although in each country tax reform commissions have advocated an expenditure tax,[5] in neither has this had any impact on the actual changes implemented. In the United Kingdom there has been significant progress towards reducing the rates of the direct taxes, most notably the reduction in the higher rates of tax on individuals in 1979, but coupled with a simultaneous increase in the VAT rate; and the reduction of the corporate tax rates announced in the 1984 Budget, financed in part by a strong deceleration of depreciation allowances (Edwards, 1984, pp.30-41; UK, 1984, pp.295-297).[6] More recently the basic rate of income tax was reduced to 27 per cent while the 1988 Budget announced the reform of the system of taxing married couples (OECD, 1988d, pp.37-40). Another

major reform, which will be implemented over the next few years, is the overhaul of the local-tax system. Despite the overall tax pressure in Ireland being among the highest in the OECD area, tax reform has been very modest. Important changes include the extension and reduction of the standard income tax rate, the alignment of the rate of corporate and personal income tax, the reduction in first-year capital allowances from 100 to 50 per cent and the increase in certain excise duties (<u>Financial Times</u>, 26 January 1989, p.2; O'Brien, 1989, pp.25-34).

4. <u>Northern America</u>

In the United States tax reform has been a major policy issue before and since the President's State of the Union message in January 1984.[7] In November 1984 the Treasury issued a set of far reaching proposals known as Treasury I (USA, 1984b). These were subsequently modified by the Administration and the President's tax proposals, known as Treasury II, were issued in 1985 (USA, 1985a).[8] These proposals were substantially changed by discussion in the House and Senate, and the main features of the reform package which emerged from the Conference committee and which was legislated in October 1986 were as follows (Boskin, 1988, pp.83-84; Tanzi, 1988, p.54):[9]

(i)   Lowering personal and corporate income tax rates (to a maximum of 28 per cent and 34 percent, respectively);

(ii)   A substantial shift (amounting to about $120 billion over the next five years) of the tax burden from the individual to the corporate tax;

(iii)   Elimination of the investment tax credit (a feature common to all the major reform proposals);

(iv)   Much slower depreciation schedules;

(v)   Stiff alternative minimum tax for corporations (to ensure that no corporation that reports current profits to its shareholders will avoid paying taxes);

(vi)   The tax deductibility of individual retirement accounts (IRAs) will be income-tested, and other tax-deferred retirement accounts will limit the amounts that individuals can contribute;

(vii)   Capital gains will be taxed in full as ordinary income, with no inflation adjustment for the basis of the asset;[10)]

(viii) Extension of the research and development (R & D) tax credit with tightened eligibility and a reduction in the rate from 25 per cent to 20 per cent;

(ix)   Elimination of tax deductibility of consumer debt;

(x)   Various other changes in accounting rules, industry-specific items, and the personal tax base (for example, state and local sales taxes will no longer be deductible, the personal exemption is increased, and income averaging is eliminated).

The overall reform package was held to be revenue neutral (Tanzi, 1988, p.54) but despite a long debate on the need to supplement federal revenue by way of VAT, its introduction has been ruled out on the basis of regressivity and administrative complexity (Tait, 1988, p.34; USA, 1984b, pp.213-227).

On 18 June 1987, sixteen years to the day that major tax reform legislation was last tabled in the Canadian House of Commons, tax reform proposals in the form of a White Paper was again released (Canada, 1987a, 1987b & 1987d). The highlights of the proposals were as follows[11)]:

(i)   The broadening of the base for personal and corporate income tax;

(ii)   The reduction of the top income tax rate for individuals and the corporate tax rate;

(iii)   The phase-out of the general investment tax credit for qualifying depreciable assets;

(iv)   The introduction of an advance corporation tax; and

(v)   The introduction of broad new anti-avoidance measures.

Three alternative proposals for a multi-stage sales tax have been put forward for review and discussion (Akin & Pel, 1988, pp.113-129; Canada, 1987c). Following the proposals in the White Paper, the Canadian Government recently announced that a multi-stage VAT would replace the outmoded manufacturers' sales tax (MST) on 1 January 1991 (Financial Times, 23 August 1989, p.3).

5. Other countries

Besides the countries referred to above a number of other countries are undertaking more gradual changes in their tax system. The Austrian tax reform (Schwank, 1989, pp.9-12) eliminates many of the allowances and tax incentives enjoyed by certain groups and restricts depreciation allowances. The tax liability of the average taxpayer is lowered and the corporate tax structure simplified. In France, there is a political commitment to reduce the overall level of taxation and measures have recently been announced to eliminate the net wealth tax, to reduce the rates of corporate tax and to increase investment tax incentives and personal income tax thresholds (Financial Times, 12 June 1987, p.4; Milleron & Maillard, 1988, pp.95-118, Pechman, 1988, p.10). India has introduced a modified VAT (MODVAT), which is not a VAT, but rather a form of modified excise duty (Sury, 1988, p.428). Italy has improved the administration of its existing tax system, reduced the top tax rate from 62 to 60 per cent and adopted a new withholding tax of 12,5 per cent on government bond interest (Cardarelli & Del Giudice, 1988, pp.141-146)

As these examples show, the borderline between tax reform and gradual adaptation is fine, and in practice a gradualist approach can sometimes produce changes in the tax structure which cumulatively produce results quite similar to a major reform. A common theme of the reforms described above is the need for greater fiscal neutrality[12] - the belief that a tax system should interfere as little as possible with economic behaviour - and an understandable, but probably unrealistic, desire to reduce the complexity of tax systems.[13] Most proposals suggest a widening of the income tax

base accompanied by a lowering of the rates. Many are revenue neutral, though all involve a redistribution of the tax burden. Some suggest increasing the reliance on indirect taxes.

B.   Reform specifics

In spite of differences in tax systems, political preferences and administrative institutions, many similarities can be identified in reform proposals. The following three Sections highlight some of the fundamental changes in respect of personal income tax, corporate taxation and indirect taxation. Needless to say that these changes all affect agriculture.

1.   Personal income taxation

Reform of personal income tax systems has often been directed at reducing the substantial leakages from both labour and capital income in defining the tax base. Such leakages can take the form of exempt income, deductions in calculating taxable income, and tax credits. Several countries have moved to tax a range of previously exempt fringe benefits (Owens, 1988, pp.68-79). Both New Zealand and Australia, for example, have introduced a system of taxing the employer on the fringe benefits he provides (Evans, 1988, pp.23-24). In New Zealand the tax applied as from 1 April 1985 and is now levied at a rate of 48 per cent while in Australia the tax came into force on 1 July 1986 and is levied at a rate of 49 per cent.

Some governments have reduced the preferential treatment of capital gains, because it has been a major source of tax avoidance. In the United States the 60 per cent capital gains deduction was eliminated and the full amount of any net capital gain must now be included in taxable income resulting in a maximum tax rate on the gain of 28 per cent (USA, 1987g, pp.23-24). This change has affected livestock, depreciable property, real estate, timber and unharvested crops. In Canada three-quarters of capital gains or losses will either be included in income or be deductible against gains as from the 1990 tax year (Commerce Clearing House, 1989, p.265).

Most governments considering tax reform have also scrutinised existing tax deductions and credits. Some have tightened deductible limits for

costs incurred in earning income, such as entertainment allowances and
other self-employed business expenses (Krever, 1986, p.388). Although
several countries are restricting or eliminating the deductibility of
consumer interest, there is still a deduction or a tax credit for
mortgage interest on owner-occupied dwellings in all but a few cases
(OECD, 1987a, p.83). As from 1987 mortgage interest in the United
States, for example, is only deductible to the extent that the amount
borrowed on the mortgage does not exceed the cost of the home plus
improvements. Excess interest is regarded as personal interest for
which the deduction is presently being phased out (USA, 1987g, p.35).

Almost all tax reforms provide for a lowering of the top schedule
rates of tax although in most countries these rates are paid by less
than 0,2 per cent of the taxpayers (Owens, 1987b, pp.10-11). In this
respect, they are following the lead of the United States, although no
country expects to emulate the reduction of 22 percentage points in
the top federal tax rate (from 50 per cent to 28 per cent between 1984
and 1990). Japan is cutting its top rate by twelve points, and
Australia is cutting its rate by eleven points; most of the other
countries are cutting theirs by two to eight points (Pechman, 1988,
p.4).

2.   Corporate taxation

Many existing corporate tax systems produce very large dispersions in
effective marginal tax rates because of their treatment of
depreciation and inflation as well as specific incentives for certain
activities, sectors or regions. The resulting distortion of after-tax
returns leads to a misallocation of resources, a less productive
capital stock and hence substantial welfare costs (Hagemann, Jones &
Montandor, 1988, p.209). In the light of this, reform of corporate
taxation has generally concentrated on base broadening and the
reduction of rate dispersion through changes to the treatment of
capital costs. For example, the United States, the United Kingdom,
Canada and Australia have abolished investment tax credits and/or
accelerated depreciation and brought capital recovery allowances more
into line with real economic depreciation (Auerbach, 1987, pp.73-86;
Battan & Ott, 1985, pp. 5-17; Byatt, 1988, p.227; Dodge & Sargent
1988, pp.59-51; OECD, 1988c, pp.53-58; USA, 1987h). However, about
half of OECD countries still have such general investment tax

incentives and most have a range of specific incentives. Moreover, few countries have attempted to adjust taxable profits for inflation. Thus, a substantial dispersion in effective tax rates remains.

The combination of personal and company taxation can, by taxing some forms of capital income twice, lead to very high effective tax rates. Most OECD countries achieve some degree of alleviation of the tax-induced bias against the corporate form of organisation and equity financing (resulting from the double taxation of dividends), and in favour of profit retention using a variety of methods (dividend tax credits, lower company tax rates on distributed income and exemption of capital gains).[14] However, concern about the revenue cost, the international implications and administrative problems have made governments reluctant to go further. As was noted earlier, in recent years, Australia and New Zealand have strengthened the integration of their personal and corporate tax systems (using dividend tax credits), but the United States decided not to integrate (the dividend exclusion was in fact repealed) and Japan is considering a proposal to reduce integration by abolishing the preferential corporate tax rate on distributed income (Nomura, 1987, p.260).

3.   Indirect taxation

The main reform of indirect taxation has been the introduction of VAT-type taxes in Greece, Hungary, India, Japan, New Zealand, Philippines, Portugal, Spain, Taiwan and Turkey (Tait, 1988, pp.10-14). Canada is also considering a national VAT-type tax to replace an existing very distorting manufacturers' sales tax and provincial retail sales taxes.[15] There have been relatively few moves to simplify rate structures within VATs even though there is little evidence that multiple rate systems significantly improve progressivity, and then at substantial administrative and efficiency cost. There has also been some interest in shifting the tax base towards consumption, particularly via increased indirect taxation. The countries which have made such a change or envisage doing so (the United Kingdom, Canada, Australia and New Zealand) appear to be less concerned with reducing the tax penalty on savings than with easing pressure on personal income tax rates and lessening tax evasion and avoidance. Such a tendency has been limited elsewhere by concerns about VATs perceived regressiveness and its effect on measured price

indices, as well as a fear that it might prove too efficient a revenue raiser (and lead to an increase in the size of goverment) (Tait, 1988, p.38). A recent example of the difficulties of a shift in the tax base towards consumption was provided by the strong opposition in Japan to the government proposal to introduce a VAT-type tax, although there appears to be a consensus on the need for greater reliance on indirect taxation (<u>Financial Times</u>, 31 March 1989, p.6).

FOOTNOTES

1. Japan is an example of a country that has held out against VAT from the original Shoup proposal in 1953 until 1986 when, finally, proposals for a VAT were approved by the ruling party. The rapid aging of the population that requires large increases in social security expenditures probably compelled the party to approve the introduction of VAT. According to Nagano (1988, p.157) 23,6 per cent of the Japanese population will be over 65 years old in 2020, while the figure will be 15,4 per cent for the USA and 21,2 per cent for Germany. Although the proposal was rejected by Parliament, Japan introduced a 3 per cent VAT on April 1, 1989 (Financial Times, March 31, 1989, p.6).

2. See NZ (1985).

3. According to Tait (1988, p.31) Greece was committed to change to VAT on entering the EEC in 1981 as a full member, but successive prevarications delayed the introduction until January 1987.

4. Questions have been raised whether the suggested changes could genuinely be called tax reform. Schmidt, for example, argued that "The measures which have been and shall be taken in the field of tax policy don't deserve the term "tax reform". They are in substance .... not a reform in the sence that important taxes are fundamentally changed or that the tax system as a whole has undergone a substantial revision" (1987, p.1).

5. Meade Committee in the United Kingdom (UK, 1978) and O'Brien Commission in Ireland (Ireland, 1982). See also O'Brien (1989).

6. Recently the Confederation of British Industry again called for a cut in the corporation tax rate from 35 to 25 per cent (Financial Times, 20 January 1989, p.9).

7. For a summary of the different tax reform proposals see USA (1984b, pp.169-183).

8. See McLure & Zodrow (1987, pp.37-58) and Pechman (1987, pp.11-28).

9.   For expositions of the 1986 Tax Reform Act see Aaron (1987), Rabushka (1988), Tanzi (1988), USA (1987g, 1987h) and Wakefield (1987).

10.   Recently the US Congress has proposed that capital gains should again be taxed more leniently (Wall Street Journal, 20 October 1989, p.A16).

11.   See Colley (1988), Dodge & Sargent (1988). Lanthier (1987), Lemieux (1988), McKie (1989), Spindler & Walker (1988) and Unger & Kinoshita (1988).

12.   See Sandford's article entitled "The World plumps for neutrality" in the Financial Times, 9 January 1989.

13.   Harl asserts that "Perhaps it is not the destiny of the human family to experience tax simplification" (1985, p.23).

14.   See OECD (1987a, p.86).

15.   According to Tait (1988, p.36) the difficulty of reaching an agreement with the provinces has probably been the major influence restraining Canada's adoption of the VAT.

APPENDIX 2

COST OF CAPITAL MODEL

Jorgenson's cost of capital model (1963, 1967) is based on the assumption that the real after-tax rate of return (r) is the same for all assets and remains constant under any set of tax rules. Assets are assumed to decay at a geometric rate δ and income is taxed at a constant rate (u). The implicit rental value of capital services (c) is the price which would have to be paid to rent a new unit of capital. This rental rate determines a firm's optimal level of capital stock.

Let q be the acquisition cost of the asset, D(t) the depreciation deductions allowed at time t per dollar of investment (with no salvage value), p the expected inflation rate and k the investment credit rate. Assuming 100 per cent equity financing, the model is:

$$q = \int_0^\infty c(1-u)e^{-\delta t}e^{pt}e^{-(r*+p)t}dt + uq\int_0^\infty D(t)e^{-(r*+p)t}dt + kq$$

Define the term in the second integral, the present value of depreciation deductions per dollar of investment, by z. The rental value of capital services, c, is solved for as:

$$c = q(r+\delta)(1-uz-k)/(1-u) \tag{-(2)}$$

With no income taxation, this expression reduces to :

$$c = q(r+\delta) \tag{-(3)}$$

The financing assumption affects the cost of capital reserves. Assume that the interest rate on borrowed funds is equal to the sum of the real after-tax discount rate (r) plus the expected inflation rate (p). If 100 per cent debt financing is used, the acquisition cost of the asset is unchanged. However, the firm is allowed to deduct interest payments; the present value of the tax savings from these deductions is expressed as:

$$uq\int_0^\infty I(t)e^{-(r*+p)t}dt$$

where I(t) is the interest deduction in time t per dollar of investment. The expression in the integral is denoted by f. The cost of capital services with 100 per cent debt financing becomes:

$$c = q(r+\delta)(1-uf-uz-k)/(1-u) \qquad -(4)$$

The effect of a change in the investment credit rate on c is determined by differentiating equation (4) with respect to k:

$$\delta c/\delta k = -q(r+\delta)/(1-u) \qquad -(5)$$

Thus, the cost of capital services decreases when the investment credit rate decreases. The acceleration of depreciation deductions raises the value of z and has a similar effect. The effect of a change in the tax rate is determined by differentiating equation (4) with respect to u:

$$\delta c/\delta u = q(r+\delta)(1-k-f-z)/(1-u)^2 \qquad -(6)$$

The value of this expression cannot be unambiguously determined. A decrease in the tax rate reduces the tax liabilities on the revenues generated by an asset; however, it also diminishes the tax savings produced from the depreciation and interest deductions. The net effect depends on the relative magnitudes of k, z and f. In particular, a decrease in the tax rate is likely to increase the cost of capital services if depreciation deductions are very rapid or if interest rates are high.

For a nondepreciating asset which does not qualify for any investment credits, the expression for c reduces to:

$$c = qr(1-uf)/(1-u) \qquad -(7)$$

when 100 per cent debt financing is assumed. The effect of a change in the tax rate is certain in this case:

$$\delta c/\delta u = (qr-qrf)/(1-u)^2 \qquad -(8)$$

The denominator is positive; since both r and f are positive and less than one, the numerator is also positive. Thus, the rental price of a

nondepreciating asset unequivocally decreases when the tax rate decreases. The decrease in the present value of the interest deductions is never large enough to offset the decrease in the present value of the tax liabilities produced by the asset.

When tax rates are progressive, derivation of the rental price of capital services is more complex. The effect of progressive rates can be evaluated by assuming that the firm's marginal tax rate, u*, remains constant over the life of the asset. The cost of capital services in this case is calculated by substituting u* for u in equation (4) when 100 per cent debt financing is used. The cost of capital services varies among firms with different taxable income levels when tax rates are progressive. The analysis is similar to that of evaluating the effect of a change in a constant tax rate. Firms with high taxable income levels are taxed at higher marginal tax rates than firms with lower taxable incomes but they do not necessarily have higher capital services costs. The difference in cost depends on the relative magnitudes of the investment credit rate and the present values of depreciation and interest deductions.

Increasing the investment credit rate and accelerating depreciation deductions decrease the cost of capital services. A decrease in tax rates may increase or decrease capital services costs. Once the cost is changed, a firm's desired level of capital stock is altered; net investment (disinvestment) is required to bring the capital stock up (down) to its new optimal level. Net investment eventually drops to zero if there are no further changes in tax policy or in the other determinants of desired capital stock. The change in tax policy continues to affect gross investment through replacement. The interactions between tax provisions can cause the optimal level of capital stock to decrease when tax rates decrease.

APPENDIX 3

TYPES AND CLASSES OF LIVESTOCK AND CLASSES ELIGIBLE FOR THE HERD SCHEME

		Eligible for herd scheme
Cattle	Calves	
	Rising one-year heifers	
	Rising two-year and older heifers	Yes
	Mixed-age cows (second and subsequent calving)	Yes
	Rising one-year tollies and bulls	
	Rising two-year and older tollies and bulls	
	Breeding bulls	Yes
Sheep	Weaned lambs	
	Two-tooth ewes	Yes
	Mixed-age ewes (rising 3-year and 4-year old ewes)	Yes
	Rising five-year old ewes	Yes
	Mixed age wethers	Yes
	Breeding rams	Yes
Goats	Weaned kids	
	Rising one-year she-goat	
	Mixed age she-goat	Yes
	Rising one-year he-goat	
	He-goats	Yes
	Breeding he-goats	Yes
Horses	Foals, under one-year	
	Rising one-year fillies and colts	
	Rising two-year fillies and colts	Yes
	Rising three-year fillies and colts	Yes
	Rising three-year and older geldings	Yes
	Rising four-year and older mares	Yes
	Rising four-year and older stallions	Yes
Donkeys	Foals	
	Rising one-year jennies	
	Rising two-year jennies	Yes
	Rising three-year and older jennies	Yes
	Rising one-year jacks	
	Rising two-year jacks	Yes
	Rising three-year and older jacks	Yes
Mules	Foals	
	Rising one-year	
	Rising two-year	Yes
	Rising three-year	Yes
	Rising four-year and older	Yes
Pigs	Weaners less than 10 weeks	
	Growing pigs 10 to 16 weeks	
	Growing pigs over 16 weeks	
	Breeding sows over one year of age	Yes
	Breeding boars	Yes

	Eligible for herd scheme
Ostriches Chicks 1 day to 2 months	
Chicks 2 to 6 months	
Growing ostrich 6 to 14 months	Yes
Rising 14 months and older	Yes
Poultry Under 9 months	
Over 9 months	
Chinchillas	

APPENDIX 4

ASSESSING THE FINANCIAL IMPACT OF THE NEW LIVESTOCK VALUATION SCHEMES

The following examples below assess the effect of the new livestock schemes in altering the timing and magnitude of the payments. The illustrations have been chosen as representative of a reasonably wide variety of actual farming situations.

To measure the financial effect all tax payments and tax savings are discounted to year one rands, using a discount rate of 10 per cent. In this way the time value of money notion is incorporated in the analysis. In each example the net present value of future tax payments/savings resulting from operation of each of the new schemes. The difference between the net present values is termed a cash flow difference.

(a) **Sheep examples**

The three sheep examples considered are

(i)   the purchase of a lamb at the average market price of R50 and a sale five years later for R75.

(ii) the breeding of an identical animal and sale as a six year old for R75.

(iii) breeding a wether with sale as a two-tooth for R75.

The market values in the examples for the relevant classes are as follows:

	Year	Market Value (R)	Standard Value (R)
Weaned lamb	1	50	35
Two-tooth ewes	2	75	75
Mixed-age ewe	3	90	90
	4	115	115
Five- and six-year ewe	5	125	125
	6	130	130

(b) **Goat examples**

The three goat examples considered are virtually the same as the sheep examples except for market values which are as follows:

	Year	Market Value (R)	Standard Value (R)
Weaned kids	1	45	31,5
Nursing one-year he-goat	2	60	60
He-goat	3	70	70
	4	85	85
	5	90	90
	6	100	100

(c) **Cattle examples**

Cattle comprises the "large" category in terms of differences between current market values and current standard values.

The three examples considered are:

(i)   the purchase of a heifer at the average market value of R460 and sale ten years later at R450.

(ii) breeding an identical animal and sale as a ten year old at R450.

(iii) breeding a tolly with sale as a nursing two-year old for R600.

Assumed market values in the examples 7 to 9 for the relevant classes are:

	Year	Market Value (R)	Standard Value (R)
1-year heifer/tolly	1	460	322
2-year heifer/tolly	2	530	530
Mixed age cow/bull	3	570	570
	4	620	620
	5	680	680
	6	750	750
	7	830	830
	8	920	920
	9	1 050	1 050
	10	1 000	1 000

EXAMPLE 1: Purchased lamb - long farm life

Year	Present scheme		Trading stock scheme		Herd scheme	
	Taxable income (loss)	Tax due (saved) at 30%	Taxable income (loss)	Tax due (saved) at 30%	Taxable income (loss)	Tax due (saved) at 30%
	(R)	(R)	(R)	(R)	(R)	(R)
1	(48)	(14,4)	(15)	(4,5)	(15)	(4,5)
2	4	1,2	40	12,0	40	12,0
3	-		15	4,5	15	4,5
4	-		25	7,5	0	0
5	-		10	3,0	10	3,0
6	69	20,7	(50)	(15,0)	(55)	(16,5)
Total	25	7,5	25	7,5	(5)	(1,5)
Net present value		(-)0,46		8,5		1,93
Cash flow difference				(-)8,96		(-)2,39

EXAMPLE 2: Bred ewe - long farm life

Year	Present scheme		Trading stock scheme		Herd scheme	
	Taxable income (loss)	Tax due (saved) at 30%	Taxable income (loss)	Tax due (saved) at 30%	Taxable income (loss)	Tax due (saved) at 30%
	(R)	(R)	(R)	(R)	(R)	(R)
1	2	0,6	35	10,5	(35)	10,5
2	4	1,2	35	10,5	35	10,5
3	-		15	4,5	15	4,5
4	-		25	7,5	0	0
5	-		10	3,0	10	3,0
6	69	20,7	(50)	(15,0)	(55)	(16,5)
Total	75	22,5	70	21	40	12,0
Net present value		14,54		22,13		15,57
Cash flow difference				(-)7,59		(-)1,03

EXAMPLE 3: Bred wether - short farm life

Year	Present scheme		Trading stock scheme		Herd scheme	
	Taxable income (loss)	Tax due (saved) at 30%	Taxable income (loss)	Tax due (saved) at 30%	Taxable income (loss)	Tax due (saved) at 30%
	(R)	(R)	(R)	(R)	(R)	(R)
1	2	0,6	35	10,5	Not applicable	
2	73	21,90	40	12,5		
Total	75	22,50	75	22,50		
Net present value		20,51		21,86		
Cash flow difference				(-)1,35		

EXAMPLE   4:   Purchased kid goat - long farm life

Year	Present scheme		Trading stock scheme		Herd scheme	
	Taxable income (loss)	Tax due (saved) at 30%	Taxable income (loss)	Tax due (saved) at 30%	Taxable income (loss)	Tax due (saved) at 30%
	(R)	(R)	(R)	(R)	(R)	(R)
1	(42)	(12,90)	(13,50)	(4,05)	(13,50)	(4,05)
2	2	0,6	28,50	8,55	28,50	8,55
3	-	-	10,00	3,00	10,00	3,00
4	-	-	15,0	4,5	0,0	0,0
5	-	-	5,0	1,5	5,0	1,5
6	71	21,30	(15,0)	(4,5)	(25,0)	(7,5)
Total	30	9,00	30	9,00	5,00	1,50
Net present value		0,87		7,81		2,57
Cash flow difference				(-)6.94		(-)1,70

EXAMPLE 5:   **Bred goat - long farm life**

Year	Present scheme Taxable income (loss) (R)	Tax due (saved) at 30% (R)	Trading stock scheme Taxable income (loss) (R)	Tax due (saved) at 30% (R)	Herd scheme Taxable income (loss) (R)	Tax due (saved) at 30% (R)
1	2	0,6	13,50	9,45	13,50	9,45
2	2	0,6	28,50	8,55	28,50	8,55
3	-	-	10,00	3,00	10,00	3,00
4	-	-	15,0	4,5	0,0	0,0
5	-	-	5,0	1,5	5,0	1,5
6	71	21,30	(15,0)	(4,5)	(25,0)	(7,5)
Total	75	22,50	75	22,50	50,0	15,00
Net present value		14,37		21,31		16,07
Cash flow difference				(-)6,94		(-)1,70

EXAMPLE 6: **Bred goat - short farm life**

	Present scheme		Trading stock scheme		Herd scheme	
Year	Taxable income (loss)	Tax due (saved) at 30%	Taxable income (loss)	Tax due (saved) at 30%	Taxable income (loss)	Tax due (saved) at 30%
	(R)	(R)	(R)	(R)	(R)	(R)
1	2,0	0,6	31,50	9,45	Not applicable	
2	73,0	21,90	43,50	13,05		
Total	75,0	22,50	75,0	22,50		
Net present value		20,51		21,31		
Cash flow difference				(-)0,80		

EXAMPLE 7:   Purchase of heifer - long farm life

Year	Present scheme		Trading stock scheme		Herd scheme	
	Taxable income (loss)	Tax due (saved) at 30%	Taxable income (loss)	Tax due (saved) at 30%	Taxable income (loss)	Tax due (saved) at 30%
	(R)	(R)	(R)	(R)	(R)	(R)
1	(466)	(133,8)	(138)	(41,40)	(138)	(41,40)
2	16	4,8	208	62,40	208	62,4
3	10	3,0	40	12,00	40	12,0
4	-	-	50	15,00	0	0
5	-	-	60	18,00	0	0
6	-	-	70	21,0	0	0
7	-	-	80	24,0	0	0
8	-	-	90	27,0	0	0
9	-	-	130	39,0	0	0
10	410	123,0	(600)	(180,0)	(550)	(165,0)
Total	(10,0)	(3,0)	(10,0)	(3,0)	(440,0)	(132,0)
Net present value		(-)74,79		31,11		(-)44,73
Cash flow difference				(-)105,90		(-)30,06

EXAMPLE 8: Breeding of heifer - long farm life

Year	Present scheme		Trading stock scheme		Herd scheme	
	Taxable income (loss)	Tax due (saved) at 30%	Taxable income (loss)	Tax due (saved) at 30%	Taxable income (loss)	Tax due (saved) at 30%
	(R)	(R)	(R)	(R)	(R)	(R)
1	14	4,2	322	96,6	322	96,6
2	16	4,8	208	62,4	208	62,4
3	10	3,0	40	12,0	40	12,0
4	-	-	50	15,0	0	0
5	-	-	60	18,0	0	0
6	-	-	70	21,0	0	0
7	-	-	80	24,0	0	0
8	-	-	90	27,0	0	0
9	-	-	130	39,0	0	0
10	410	123	(600)	(180,0)	(550)	(165,0)
Total	450	135	450	135	20	6
Net present value		63,21		169,11		93,27
Cash flow difference				(-)105,9		(-)30,06

EXAMPLE 9:   Bred tollie - short farm life

Year	Present scheme		Trading stock scheme		Herd scheme	
	Taxable income (loss)	Tax due (saved) at 30%	Taxable income (loss)	Tax due (saved) at 30%	Taxable income (loss)	Tax due (saved) at 30%
	(R)	(R)	(R)	(R)	(R)	(R)
1	14	4,2	322	96,6	Not applicable	
2	586	175,8	278	83,4		
Total	600	180,0	600	180,0		
Net present value		164,02		172,42		
Cash flow difference				(-)8,40		

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