

**MIGRATION AND BRAIN DRAIN IN SECONDARY CITIES: A CASE STUDY OF THE  
MADIBENG MUNICIPALITY**

By ZACHARIA TSHEPO PEKANE

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Supervisor: Danie du Plessis

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## **AUTHOR'S DECLARATION**

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## ABSTRACT

Secondary cities and rural municipalities lose their skilled labour force (those with three or more years of tertiary qualification) to more urbanised municipalities throughout the world. Madibeng municipality, a secondary city municipality located in the North West province, and which functionally forms part of the satellite urban system of the Gauteng polycentric city region that straddles provincial boundaries, is a typical example of such a municipality. Using Census 2011 data, the study seeks to understand the significance of the economic benefits that the Madibeng municipality holds for out-migrants, the pulling factor that the municipality has on the in-migrants, and the impact of migration on the locals. To be able to identify possible benefits of marginal productivity and increasing wage levels accrue to the municipality as a traditional migrant sending economy or whether there is a window of opportunity to identify possible areas for improvement to reach that eventuality. The study also seeks to understand the level of brain drain in the municipality and evaluate the adequacy of in-migrants to reverse the brain drain as well as identify the categories of workers that are adversely affected by this form of migration.

For the purpose of the study, the dataset for analysis excludes children born after the 2001 population census. People who did not usually reside in the household when they were enumerated on census night were excluded and those who moved within the municipality were still regarded as locals. The study uses proportions of variables of interest to standardise comparison of different categories (i.e. locals, in-migrants and out-migrants). The variables are then cross-tabulated according to different characteristics of the population to allow interpretation of these characteristics. For selected variables, a test is performed to assess if the differences in the proportions are significant between the three categories. Comparison is made between the three categories (locals, in-migrants and out-migrants) to check their characteristics according to employment status, educational attainment (as a proxy to skills level), income levels, age structure and access to goods/services.

The study shows that the in-migrants are highly skilled compared to local residents, although the out-migrants are proportionally higher educated than the in-migrants. The high volume of in-migrants significantly mitigates the loss of skilled workers. In-migrants play a role in increasing skills differentials in the Madibeng municipality. Due to the low-skilled migrants representing the highest proportion, their impact lowers average incomes in the municipality, thus contributing to inequality. Migrants were found to be resilient with lower unemployment rates compared to the locals. The out-migrants moved to destinations that provide better services such as sanitation, water and electricity

when compared to their place of origin. The municipality should pursue policies that deliberately target a higher proportion of skilled migrants. To be able to retain some of these skilled migrants, the municipality should pursue policies that are geared towards urbanisation at high densities to be able to reduce costs that are associated with the provision of infrastructure when it is provided over a long distance.

**Keywords and phrases:**

Madibeng municipality

Migration

Secondary cities

Skilled labour force

## OPSOMMING

Sekondêre stede en landelike munisipaliteite verloor regoor die wêreld geskoolde arbeid (werkers met drie jaar of meer tersiêre onderrig) aan stedelike munisipaliteite. Die Madibeng-munisipaliteit, 'n sekondêre stadsmunisipaliteit wat geleë is in die Noordwes provinsie maar wat funksioneel deel is van die polisentriese Gauteng stadsgebied, is 'n tipiese voorbeeld van so 'n munisipaliteit. Die studie maak gebruik van Sensus 2011 resultate om die belangrikheid van Madibeng se ekonomiese situasie vir uit-migrante, sowel as trekkragte vir in-migrante, en die impak van migrasie op die plaaslike bevolking te verstaan. Die studie ondersoek die mate waartoe die munisipaliteit, as 'n tradisionele netto-uitmigrasie area, voordeel trek uit marginale produktiwiteit en stygende loonvlakke, en hoe enige voordele bewerkstellig kan word. Die studie poog, laastens, om te bepaal tot watter mate inmigrasie kompenseer vir uitmigrasie. Die die kategorieë van werkers wat negatief geraak word deur migrasie word geïdentifiseer.

Vir die doeleindes van die studie word kinders wat gebore is na die 2001 bevolkingsensus sowel as individue wat nie gewoonlik in die huishouding woon nie uitgesluit. Intra-munisipale migrante word steeds beskou as deel van die plaaslike bevolking. Die studie maak gebruik van proporsies in veranderlikes van belang ten einde vergelykings tussen verskillende kategorieë (i.e. plaaslikes, inmigrasie, uitmigrasie) te standaardiseer. Die eienskappe van veranderlikes is dan gekruistabuleer volgens verskillende bevolkingseienskappe ten einde interpretasie te fasiliteer. 'n Toets is laastens uitgevoer om die statistiese betekenisvolheid van verskille tussen proporsies in die drie kategorieë te toets. Die studie vergelyk drie kategorieë (plaaslikes, inmigrante en uitmigrante) in terme van die volgende karaktereenskappe: indiensneming, onderwys (as 'n aanduiding van vaardigheid), inkomste, ouderdomstruktuur en toegang tot goedere en dienste.

Die studie toon dat, hoewel die inmigrante meer geskool is as nie-migrante, uitmigrante meer geskool is as inmigrante. Die hoë volume van inmigrasie lewer egter 'n betekenisvolle bydrae daartoe om die verlies aan geskoolde werkers te mitigeer. Inmigrante dra definitief by tot die verhoging van die vaardigheidsdifferensiaal in die Madibeng munisipaliteit deurdat die hoë proporsie laag geskoolde inmigrante gemiddelde lone in die munisipaliteit afstoot wat ongelykheid verhoog. Die studie bevind dat, vergeleke met plaaslike inwoners, inmigrante 'n laer werkloosheidsyfer gehad het. Uitmigrante het oorwegend migreer na bestemmings met beter dienslewering (water, riolering en elektrisiteit).

Die munisipaliteit behoort, ten slotte, beleid te implementeer wat ten doel het om meer hooggeskoolde arbeid te trek en te behou. Een benadering is om hoë digtheid verstedeliking voor te staan ten einde die marginale koste van infrastruktuur te verminder waar dit oor lang afstande gelewer word.

**Trefwoorde en frases:**

Madibeng-munisipaliteit

Migrasie

Sekondêre stede

Geskoolde arbeid

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## **ABBREVIATIONS AND ACRONYMS**

Affirmative Action (AA)  
Building Allowance (BA)  
Confidence Interval (CI)  
Doctor of Philosophy (PhD)  
Employment Equity (EE)  
Expanded Public Works Programme (EPWP)  
Further Education and Training (FET)  
Gauteng City Region (GCR)  
Gauteng Global City Region (GGCR)  
Integrated Development Plan (IDP)  
Millennium Development Goals (MDGs)  
Occupation Specific Dispensation (OSD)  
Preferential Corporate Tax (PCT)  
Rural Allowance Policy (RAP)  
Scarce Skills Allowance (SSA)  
Skilled Health Worker Cadres (SHWC)  
Statistics South Africa (Stats (SA)  
Sustainable Development Goals (SDGs)  
United Nations (UN)  
United States of America (USA)

## CHAPTER 1: INTRODUCTION

### 1. INTRODUCTION

This section of the paper will introduce the content of the study. The section will first give a background about the area of the study, policy relevance, the problem statement, research questions as well as aims and objectives of the study.

#### 1.1 Background and rationale

Madibeng is a secondary city municipality located in the North West province and functionally also forms part of the satellite urban system of the Gauteng polycentric city region that straddles provincial boundaries. Like many other secondary cities and rural municipalities, it loses its skilled labour force (those with three or more years of tertiary qualification) to more urbanised municipalities such as the Gauteng City Region (GCR). The study seeks to establish to what extent these losses are mitigated by in-migration to the municipality.

Post-apartheid South Africa was expected to lead to a decline in circular or temporary internal labour migration, with black Africans permanently settling at places near their employment. However, the evidence suggests there is no decline in temporary internal labour migration in the country, but rather it appears to have increased – especially the rise in female labour migration. Even those from neighbouring countries do not see themselves settling permanently in the country, but as circular migrants (Posel, 2004).

South Africa's metropolitan cities are increasingly positioning themselves to become globally competitive, while many small towns are struggling to survive. However, other small towns are thriving, having successfully turned themselves into prosperous tourist destinations and prime destinations for second home ownership (Donaldson, 2009). This trend of second home ownership has emerged for city dwellers despondent about urban living, to either migrate or semi-migrate. The semi-migrators want a stress-free country lifestyle in a small town but cannot leave behind their well-paid jobs and the luxuries of the urban lifestyle. They settle in small towns that are not too distant from the major urban core area so that they can, within an hour or so, drive to the city to enjoy and benefit from its higher-order services. These urban–rural migrants often have highly-developed business skills and, most importantly, capital to invest that is necessary for gentrification.

New entrants in the labour market are commonly found to be overeducated while the older workers are usually undereducated. Among migrants, especially immigrants with working experience, there

are greater job mismatches due to challenges with transferability of skills (Chiswick & Miller, 2007). The skill sets of migrants are different from those of locals, and enable them to have different strategies, to introduce new products and to create a set of jobs that may not have been present locally (Kalantaridis, 2010).

The study seeks to understand the streams of migration to the level of development since the mainstream migration flow provides an indicator of concentration while the sub-stream indicates the de-concentration forces shaping the urban systems (Geyer & Kontuly, 1993). The understanding of the stream will help in understanding the evolution of the municipality. The study will also look at the skill sets of migrants in both the main and the sub-stream. The municipality is seen as a migrant sending area when it comes to skilled workers; hence the perception of brain drain.

### **1.1.1 Policy relevance of migration and its impact on labour force skills levels**

Understanding the characteristics of migrants moving to and from rural areas is necessary to inform planning and housing policy, not only for providing background information to facilitate an evidence-based approach in policymaking, but also in informing new policy interventions when dealing with housing demands brought by these migrants (Gkartzios & Scott, 2010). For instance, there is a growing phenomenon of second-home owners who want privacy and escape the daily life of urban areas. Second-home owners also seek to protect their investments by supporting regulations which support their perception of a lifestyle they desire. Therefore, policymakers should be wary of strategies to promote regulations that promote aesthetic rather than social and ecological function (Kondo et al., 2012).

Those who support urbanisation see it as natural progress and development, and they see cities as generators and centres of culture, knowledge, innovation and economic growth. However, those who are anti-urbanisation perceive rural-urban migration during the industrial revolution as having resulted in social, economic, environmental and health problems. In recent years, there is evidence to suggest there are changes in policy orientation towards linkages and interrelationships between urban and rural areas (Davoudi & Stead, 2002). The national governments facing these challenges need to introduce policies and programmes to influence the regional distribution of immigrants across the country for the benefits of immigration to be more evenly shared on a national basis (Carter et al., 2008).

In South Africa the government has introduced different policies geared towards staff retention, such as Skilled Health Worker Cadres (SHWC), Occupation Specific Dispensation (OSD), Affirmative

Action (AA) and Employment Equity (EE), due to skills shortages amongst historically disadvantaged groups. There is also the Rural Allowance Policy (RAP) that seeks to attract skilled workers to areas regarded as “undesired” by these skilled workers.

## **1.2 Problem statement**

In South Africa, there is a prevalent household strategy of keeping a base in the rural area while sending household members to exploit employment opportunities in towns and cities for economic benefits (Collinson et al, 2006). The study seeks to understand the significance of the economic benefits that the Madibeng municipality holds for out-migrants, the pulling factor that the municipality has on the in-migrants, and the impact of migration on the locals. South Africa ranks as an upper-middle income country however the majority of South Africans live in poverty due to the legacy of apartheid (Carter & May, 1999). The challenge is to identify whether the benefits of marginal productivity and increasing wage levels accrue to the municipality as a traditional migrant sending economy or whether there is a window of opportunity to identify possible areas for improvement to reach that eventuality.

According to Beine et al., South Africa is one of the countries benefitting from brain drain where gains outweigh the losers resulting in an overall gain. The study seeks to understand the level of brain drain in the municipality which robs the municipality of productive human capital and of innovators that are crucial for economic growth. The adequacy of in-migrants to reverse the brain drain needs to be assessed, and their ability to contribute to economic growth understood. It is also important to identify the categories of workers that are adversely affected by this form of migration to inform policy that can facilitate harmonious existence. It is critical to understand the type of services received by the out-migrants, especially the highly skilled, to know the areas where the municipality needs to improve to be able to retain critical skills needed for economic growth.

The United Nations committed governments to create a set of Sustainable Development Goals (SDGs) that are integrated into the follow-up to the Millennium Development Goals (MDGs) after their 2015 deadline (Griggs et al., 2013). Municipalities are at the centre of implementation of these SDGs, and their Integrated Development Plan (IDP) reflects these goals. Of interest to the study is the impact the municipality has on the following goals:

- (i) Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- (ii) Reduce inequality

- (iii) Ensure availability and sustainable management of water and sanitation for all
- (iv) Ensure access to affordable, reliable, sustainable and modern energy for all
- (v) End poverty in all its forms everywhere

People generally migrate from low-wage to higher-wage areas, and economic conditions push and pull individuals in predictable directions (O'Reilly, 2015). It is broadly accepted that free movement of labour in a free market leads to an increase in scarcity of workers and higher marginal productivity and increasing wage levels in migrant sending economies (De Haas, 2010). De Haas (2010) also insinuates that migration worsens development in the migrant sending societies.

Migrant labourers are normally highly educated compared to local workers in the receiving economy. This is due to the transfer of human capital not being perfect (Piracha & Vadean, 2013). The study seeks to check if the municipality also benefits from similar types of migrants. It should also be noted that the employment of migrants with similar levels of education usually leads to an increase in the unemployment rate of local workers, especially the young (Aydemir & Kırdar, 2017). Many people also migrate to receive public services that are not available in their place of origin (Brueckner & Lall, 2015).

### **1.3 Research questions**

- What are the similarities and differences in skills levels (educational attainment) of locals, in-migrants and out-migrants in Madibeng municipality?
- What is the impact of migration on income levels in the Madibeng municipality (skills differentials)?
- What is the impact of migration on the employment status in the Madibeng municipality?
- What role does access to goods and services play in migrating to and from Madibeng municipality?
- What are the differences in the age structure of locals, in-migrants and out-migrants in Madibeng municipality?
- Are the similarities and differences in the characteristics significant?

### **1.4 Aims and objectives**

#### **1.4.1 Aims**

The aim of the study is to identify the characteristics of out-migrants as an indication of brain drain and to establish the characteristics of in-migrants to understand their adequacy to reverse the brain



drain. The study seeks to establish characteristics of locals and assess how they are impacted by migration. The study also aims to understand their impact on the developmental goals of the municipality and to identify opportunities for improvement.

#### **1.4.2 Objectives**

The objectives of the research is to analyse the characteristics of locals, in-migrants and out-migrants and understand their socio-economic impact on the Madibeng municipality. The objectives are as follows:

- To determine similarities and differences in skills levels (educational attainment) of locals, in-migrants and out-migrants in Madibeng municipality.
- To assess the impact of migration on income levels in the Madibeng municipality (skills differentials).
- To assess the impact of migration on the employment status of the locals in the Madibeng municipality.
- To understand how access to goods and services impacts migration from Madibeng municipality.
- To establish the differences in the age structure of locals, in-migrants and out-migrants in Madibeng municipality.
- To test for differences in the characteristics of the three categories.

## CHAPTER 2: LITERATURE SURVEY

### 2. LITERATURE SURVEY

This section of the paper will first give an overview of migration theory by discussing different migration theories. The section will also look into a synthetic model of migration, main stream and sub-stream migration within the context of differential urbanisation, and impact and consequences of migration.

#### 2.1 Overview of migration theory and factors influencing migration decision making

There are varied theories and factors that lead people to migrate to other areas to meet their own needs at a point in time. Below a brief literature on the neo-classical, relative deprivation, structuration and neo-Marxist theories of migration is presented.

##### 2.1.1 Neo-classical migration theory

People generally tend to move from poor countries to wealthier countries and from low-wage to higher-wage areas. Economic conditions thus serve to push and pull individuals in predictable directions (O'Reilly, 2015). The neo-classical migration theory views migration as the optimal allocation of production factors where both the sending and the receiving countries or economies benefit. Labour is re-allocated from the rural agricultural areas to the industrial sectors of the urban areas within the country or the economy or across borders, which is necessary for economic growth and is very important for the entire development process. The free movement of labour in a free market leads to an increase in scarcity of workers and higher marginal productivity and increasing wage levels in migrant sending countries or economies. Capital flows from migrant receiving countries or economies to the sending ones with migration ceasing when wage levels converge at the origin and destination. The neo-classical migration theory tends to view migrants as utility-maximising individuals and tends to disregard other migration motives as well as migrants' belonging to social groups such as households, families and communities (De Haas, 2010).

Skills differentials (the ratio of the average wage of a skilled worker to the average wage of an unskilled worker) play an important role when it comes to the migration process. According to the neo-classical theory, migration will continue as long as skills differentials are high and will only cease or decline when wage levels converge at both the origin and destination, leading to scarcity of cheap unskilled labour and resulting in low skills differentials. During the first half of the twentieth century in the United States of America, there was a long-run decline in skills differentials due to a reduction

in immigration, which led to a reduction in the constant supply of cheap unskilled foreign labour (Palmer & Palomba, 1973).

### **2.1.2 Relative deprivation migration theory**

Households' relative deprivation in the reference population is significant in explaining migration by household members to destinations where a reference population is better and the returns to migration are high. People move to labour markets where the returns on their human capital are likely to be the highest. The countries or economies that do not redress intra-group income inequalities may become associated with more migration (Stark & Taylor, 1991).

Migration can improve one's social standing relative to their peers even in the absence of absolute gains. There is a positive association between geographic and social mobility when we focus on relative social standing rather than absolute position (Flippen, 2013). Social judgments are shaped not only by absolute standards but also by standards set by social comparisons (e.g. policemen compare themselves with other policemen not with doctors). Relative deprivation assumes a subjective state that shapes behaviour, cognitions and emotions (Pettigrew, 2016).

A high skills differential in a population leads to inequality in that reference population. This inequality results in households being relatively deprived within the reference population, which leads to migration by household members where returns to migration are higher. According to Stark & Taylor (1991), this inequality leads to more migration. A low skills differential reduces relative deprivation in a population and, according to the relative deprivation migration theory, it should lead to a reduction in migration. People compare interpersonal income within their reference and that generates a feeling of relative deprivation or relative satisfaction, and they migrate to change their relative positioning (Stark & Bloom, 1985).

### **2.1.3 Structuration migration theory**

The structuration migration theory privileges neither structure nor agency as explanatory factors of migration, but their complex interaction (Wright, 1995). Patterns of action are limited by social structures while they are also involved in the creation and recreation of the same structures (Spivack & Desai, 2016). Accepting the reality that structure and agency are always present offers a more sophisticated analysis of structure and agency in migration processes (Bakewell, 2010). Social structures limit what people can and cannot do, but individuals and groups of people have a level of

autonomy and abilities to resist, and to make their own decisions and judgements within limits; and the very social structures that set the limits of possibilities (O'Reilly et al., 2014).

When it comes to the structuration migration theory, skills differentials do play a very important role, but other factors also need to be favourable for migration to take place. According to Cook et al. (2011), migrating to work that pays is very important, but in addition to that, people migrate to escape persecution and discrimination from their place of origin and to be able to provide a better and safer environment for their loved ones.

#### **2.1.4 Neo-Marxist migration theory**

The neo-Marxist migration theory insinuates that migration worsens underdevelopment in migrant sending societies through various negative feedback mechanisms, which leads to increased migration, thereby creating the vicious circle of migration. Migration not only reproduces but also reinforces the capitalist system based on class and spatial inequalities. The main positive benefits of migration are in the family welfare of the migrants themselves, and are temporary (De Haas, 2010). The neo-Marxist migration theory sees social class in terms of class relations that give persons control over productive assets and the labour power of others. Social class is a social causal mechanism that informs social change to reduce inequalities (Muntaner et al., 2015).

The neo-Marxist migration theory seeks to attain a more equal society within the reference population, and under this theory it is desired to have a low skills differential. A high skills differential creates income inequality in a population which is in contradiction with the neo-Marxist theory, as this theory seeks to eliminate barriers created by social classes.

#### **2.2 A synthetic model of migration**

Most migration theories pursue factors of migration which are one-sided towards that particular theory. But in reality, when migration happens, these factors do not happen in isolation; migrants respond to or are simultaneously affected by these factors. A synthetic model of migration aims to combine all the insight acquired from different theoretical approaches to migration into one model. This is done by identifying casual factors that exist in a variety of theories and specifying their mutual relationships, and attempting to remove the assumptions underlying the theories and joining these together as far as possible. Attention is also given to why people do not migrate, since in the majority of cases it is the minority in populations that do migrate, and it is this aspect of migration that is neglected and it is one of the elements that a synthetic model seeks to address. The model is based on

the relationship of factors such as micro-level issues of migration and decision-making as well as macro-forces of social transformation (Gelderblom, 2006).

Stark & Taylor (1991) provide an example where a synthetic model was used, and the results indicate that a specific type of migration constitutes a response to a specific configuration of variables, and the role of relative deprivation appears to differ for internal and international migration, which has implications for development policy.

### **2.3 Main stream and sub-stream migration within the context of differential urbanisation**

Differential urbanisation is a process where cities of different sizes go through periods of growth at differing paces (high or low) through the evolution of their urban systems in countries, irrespective of their being developed or less developed. The model of differential urbanisation combines elements of the migration theory and spatial economics while connecting the concepts of urbanisation, polarisation reversal, and counter urbanisation (Geyer et al., 2012). The generalised differential urbanisation model depicts an evolution of the city in six stages, starting with the early primate city stage when initially the city is forming until the small city stage when people migrate from large cities into the smaller cities (Gwebu, 2006). The mainstream migration flow provides an indicator of concentration while the sub-stream indicates the de-concentration forces shaping the urban systems (Geyer & Kontuly, 1993).

Migration has always happened in human history; people moved in search of food and later for economic reasons. Toward the end of the second millennium the motivation for migration changed, with the movement of people occurring because of a desire to attain a particular lifestyle in a particular environment, and the differentiated culture associated with rural areas has had a profound impact on previously remote communities (Stefanick, 2008). This type of migration is considered to be a change in values that leads to a preference towards rural areas. According to Perlik (2011), landscape qualities such as quietness, an environment close to nature, sunshine periods and spectacular views, and the possibility for outdoor activities become more attractive. These intangible values lead to choosing residential places according to amenities instead of looking for the highest possible income, leading largely to a higher sensitivity to bio-physical and environmental issues. As evidence of personal success, these rural areas provide in-migrants with an opportunity to do the things they value and pursue experiences that simultaneously give them a feeling of being authentic and attain the progress they desire (Hines, 2007).

The new middle class migrating to rural areas see it as a sign of progress and it meets their aspiration to distinguish themselves as members of an emerging class faction (post-industrial middle class) with emphasis on the production and consumption of their experiences (Hines, 2010a). Furthermore, their environmental values are gaining support in rural communities. They prioritise environmental protection, are more knowledgeable about environment issues and engage more in activities that promote environmental values than non-migrants (Jones et al., 2003).

The in-migrants are generally better educated and more affluent. The age group of in-migrants in the rural areas are older than those of non-migrants. This category of in-migrants move to the rural areas because they are motivated by the quality of life rather than by economic consideration. Due to both intended and unintended environmental consequences of dominant activities and land uses, amenity migration results in a redistribution of environmental harms and benefits at multiple scales, as rural landscapes are (partially and incompletely) changed in line with the ideals and expectations of migrant populations (Abrams et al., 2012). Migration into rural areas is often explained by the pull of the rural idyll for urban, middle-class migrants to popular rural areas, but there are also those migrating to less-popular areas to be near family and friends (Bijker & Haartsen, 2012).

There is a close correlation between counter urban migration flows tied to gentrified housing and education markets (Smith & Higley, 2012). The ability of rural municipalities to provide school education of high quality is a factor that leads to in-migration of affluent middle-class families. The migration of middle-class families into rural areas is also triggered by constraints in the exclusive urban education systems and restrictive housing markets. Gentrification also happens as the result of the expansion of the post-industrial class; these rural gentrifiers start cultural projects that are like those of tourists, but do so with the intention of permanently turning them into social and physical assets (Hines, 2010b). They increase their local strength through their environmental and political activism and thereby foster their ideals of proper land-use policy and practice. Rural communities in the post-industrial world are experiencing significant transition as traditional land uses, economic activities, and social activities are also transitioning (Gosnell & Abrams, 2011).

People also migrate on the basis of accessing natural and/or cultural amenities, resulting in significant changes in the ownership, use, and governance of rural lands, as well as in the composition, socio-economic dynamics and political processes of rural communities. There is growing acceptance that the fortunes of the rural communities are increasingly dependent on the interchanges of population, capital and ideas between urban and rural communities (Neil et al., 2010). Rural amenities have an important influence on the location decision-making of in-migrants for their new homes. The situation

poses policy challenges for governing rural areas with issues of settlement, land use and environmental management on the one hand, and the aspirations of increasingly diversified local populations on the other.

During the differential urbanisation process the main stream migration is mainly dominated by economic migrants due to high skill differentials with wages being lower at the place of origin and higher at the place of destination. Migration remains high and only declines when skill differentials decline (Palmer & Palomba, 1973). Sub-stream migration on the other hand, is fuelled by a combination of economic and lifestyle migrants, which means it does occur irrespective of there being an environment of high or low skill differentials.

Developing countries lose skilled professionals to the developed countries. One such example is the main stream migration of health professionals from developing countries towards developed countries, especially where wages are low in the source country (especially African countries such as Zimbabwe, Ghana, Senegal and Cameroon) and significantly higher in the destination country. A number of developed countries rely on immigration to cope with their domestic shortages in health care, which negatively impacts on the health care of the source countries. To reverse the situation, wages alone do not seem to be adequate (Vujicic et al., 2004).

Also in Asia migration patterns show income and demographic disparities, and Asia is a major supplier of skilled labourers to the developed world even though the majority of the migrants are unskilled labourers (Ratha, 2015). Due to the ageing population in the European Union, several member countries have adopted a policy to facilitate and regulate the recruitment of highly skilled migrants to deal with the situation. The Netherlands was able to attract a good number of highly skilled migrants from India (also PhD migrants) who mainly migrated due to life course trajectories (Kõu et al., 2015).

## **2.4 Impact and consequences of migration**

Many people migrate to areas that provide jobs while others migrate to receive public services that are not available in their place of origin or to seek refuge from challenges that exist in the place of origin such as political turmoil, climate shocks or other social and economic challenges (Brueckner & Lall, 2015). However, there are costs associated with searching for a job or migrating to city regions that offer improved quality of life; hence the people on the periphery of the city regions find it easier and cheaper to migrate to those areas due to proximity (Ardington et al., 2016). Areas in the periphery

of city regions benefit from technological spillovers since technological knowledge is highly localised and declines with distance, and it also has a spatial pattern (Martinuzzi, 2002).

The receiving areas benefit from the skills of incoming migrants since migrants are generally highly qualified compared to the locals (Piracha & Vadean 2013). On average, migrants turn out to be more able, ambitious, aggressive, entrepreneurial, and healthier when compared to similar individuals who remain in their place of origin, which benefits the receiving place and robs the place of origin of their best human resources (O'Reilly, 2015). Increasing populations put a lot of pressure on basic services and infrastructure of the receiving country or economy, in that such country or economy may not readily have the necessary resources and institutions to provide all the new arrivals with jobs, housing, and basic services (Brueckner & Lall, 2015). Migration usually does not result in a decline in total incomes for the locals; however, there usually are occupational groups that will suffer as a result of in-migration (Ruhs & Vargas-Silva, 2014). Also, a high level of migration negatively impacts on the rate of employment for the locals (Facchini, 2013a).

#### **2.4.1 Potential positive impacts**

When a decision to invest in any location is made, the location where the business can be constructed is mainly based on maximising profit. The factor that usually gives rural areas an advantage is the rent gap where the difference between the current rental income of properties and the potential of rental income is high – making it more desirable for gentrification to occur in rural areas (Darling, 2005). The increasing in-migration creates growth in many rural areas, contrary to historical flows (Barcus, 2004).

The movement to rural areas is influenced by the improvements in transportation networks and communication infrastructure, and general improvements in amenities. The globalised world, information and communication technologies as well as the changes in professional duties provide rural communities with an opportunity to participate in the knowledge economy from a distance. Rural areas offer advantages when it comes to specific types of industries with a potential for job creation such as knowledge-based industries, low environmental impact businesses, agriculture, tourism, home-based businesses/consultancies, home-based employees working away from the office, services for the ageing population, and leisure activities (Fieldsend & Kerekes, 2011).

The creation of smart centres in rural communities that are sparsely populated provides people with venues to socialise and for professionals to network. It also provides venues where teleworking can efficiently take place (Vitola & Baltina, 2013). Telecommuters are still working, but are using new



communication technologies while enjoying the benefits of a rural lifestyle. These lifestyle migrants require an improved level of services and amenities that are generally not provided to the original residents, which leads to an improved quality of life for the rural residents (Fountain & Hall, 2002). The in-migrants generally tend to have more extensive business networks than the locals while also developing many valuable local contacts and contributing to both the supply and demand side of the rural economies (Bosworth, 2006).

As rural economies become increasingly diverse, the businesses added by in-migrants help to minimise the impact of declining traditional income streams such as agriculturally related income and employment. In-migrants that are microbusiness owners tend to be more growth orientated than their more local counterparts. Regional and rural development policies need to cater for this new sector of the regional rural economy and the economic contribution of in-migrants in the region. Regional development seems to depend on a combination of knowledge and ideas, with certain occupations specialising in this domain, and people in these occupations are drawn to areas providing a high quality of life. Rural development strategies need to create an environment that attracts and retains these workers. Many studies have indicated that the creative class are highly associated with regional development (McGranahan & Wojan, 2007). The migrants are socio-economically well positioned to make well-informed decisions that result in improved residential satisfaction by moving to rural areas.

Counter urbanisation is generally viewed as a negative phenomenon; however, rural in-migration has a potential to act as a catalyst for economic regeneration with business activity brought by in-migrants (Bosworth, 2006). It is broadly accepted that migrants make a disproportionately positive contribution in the creation of new ventures in rural areas compared to the locals (Kalantaridis & Bika, 2006). The skill sets of entrepreneurial individuals who have not been born in the local areas in which they currently operate enable them to have different strategies in starting and/or running a business, which is a break-away from the confines of the local area. They are able to cast their net wide for their material and capital, and for marketing their products/services and helping to integrate the local economy with the external economy. They influence the process of rural economic development and are a key contributor to new venture creation, as well as a catalyst to enhance rural-urban interdependencies (Kalantaridis, 2010).

This economic growth results in improved employment opportunities for the locals as well as for migrant labourers (Stefanick, 2008). The migrant labourer provides families with additional labour so they are able to free family labourers to pursue other opportunities, and migrant labourers provide capacity to expand farms (Charalambos et al., 2003). Migrants provide a highly flexible labour force

and the economic contribution of migrant labour is of immense significance for the agricultural and wider economic development of rural areas.

One of the benefits of migration is the improvement in skills levels. Return migrants bring back to their place of origin best practices they acquired from their host countries to upscale their compatriots; however, the level of their success also depends on the willingness of the recipients (Wang, 2015). These return migrants from developing countries bring back their work experience and expertise to improve productivity in their native economy (Lowell & Findlay, 2001). A professional and social network of the nationals in the diaspora tied to their homeland helps in the transmission of knowledge and has the potential to avoid a possible brain drain (Siar, 2014).

Around the year 2000, at least one-third of highly skilled workers in the Silicon Valley were born outside the United States of America (USA) and were predominantly Asian. These engineers and entrepreneurs (who were educated in the USA) are transforming their regions through professional and business connections they have built in a process of brain circulation aided by lower transaction costs due to digitisation. They transfer technical and business knowledge to their regional economies (Saxenian, 2006). The USA attracts a large number of students, which results in brain gain and is good for the future of the economy; as a result, close to half of the PhD recipients are born in foreign countries (Straubhaar, 2000).

#### **2.4.2 Potential negative impacts**

There are also negative impacts created by migrants moving into the host country or economy. In developing countries, the rural-urban migration pattern is the dominant form of mobility, where mainly the youth migrate to urban centres searching for work, improved quality of life, and better education. The reverse pattern is of people returning home after retirement and those who are faced with health challenges and who prefer to migrate to rural areas for care and who possibly die because of the absence of affordable treatment and care (Levira et al., 2014). They contribute to the burden on the already weak rural health care system and their families. The addition of seriously sick people in the community adds to the already existing challenges to the individual residents, households, social networks, community institutions, and public services (Clark et al., 2007).

The migrants that return to their rural areas often experience the challenge of identity (Laoire, 2007). In rural areas with a history of outmigration, both new in-migration and return migration creates more social dynamics that are complex and depend on the position of the in-migrant. While rural and small-town youth perceive out-migration to be necessary, those who remain in the area reflect on the

negative consequences of out-migration on the vitality of aging communities. There is a need to promote return migration and in-migration as strategies for reversing population decline (Phyne & Harling-Stalker, 2011).

The in-migration in the rural areas creates inter- and intra-class-based dynamics as a result of the transition from the regime of production-based on natural resources to the knowledge-based production influenced by ex-urban members of the community. This process of rural gentrification has the potential to worsen social and environmental disparities within the region (Hines, 2012). In sub-Saharan Africa there is, for example, an inequitable distribution of health professionals between geographic areas and health facilities. The existing workforce experiences increased workloads and job dissatisfaction, and at times undertakes tasks for which it has not been trained, especially in rural areas. Generally there is a need to encourage in-migration, especially of people who are professionals in the areas where there is a critical shortage of skills (Gerein et al., 2006).

The negative effect of skilled emigration from developing countries is the reduction in the number of skilled workers who are critical to the country's productivity and its economic growth (Lowell & Findlay, 2001). Similarly, new unskilled migrants lower the skill levels of migrants such as those of the Mexican migrants to the United States of America (USA) who migrate due to the USA-Mexico wage differentials that are still very high (Angelucci, 2015). In South Africa, the emigration of skilled health workers to developed countries decreased the capacity of the health industry and reduced its skills levels and led to the government having to introduce the SHWC and OSD policies in 2007 in an effort to improve the working conditions of the health workers and also as a retention strategy (Labonté et al., 2015).

### **2.4.3 International context/experience**

The structure of both the sending and the receiving economy, and the skills of both the local and migrant workers determine the impact of migration on the labour market. Research in the United Kingdom found that there was a minimum impact on average wages nationally due to migration. However, when wages are distributed according to different categories (low, medium and high), local workers who earn low wages are left with lower average wages, while the medium and high earners get higher average wages (Ruhs & Vargas-Silva, 2014).

In Britain, the skills of the migrants were found to be similar to those of the local workforce; hence the impact of migrant workers was not evident at an aggregate level when it came to skills, but there was some impact at different educational groups (Dustmann et al., 2005). However, the norm is that

the migrant labourers are highly educated compared to local workers in the receiving economy. This is due to the transfer of human capital across borders not being perfect, as well as differences in culture and economic structures between the sending and the receiving countries (Piracha & Vadean, 2013). There are also situations where migration is led by political factors that are independent of economic conditions in both the sending and the receiving countries, such as those of ethnic Turks from Bulgaria. The employment of migrants with similar levels of education led to an increase in the unemployment rate of local workers, especially the young (Aydemir & Kırdar, 2017). In Colombia, as a result of conflict, cities were faced with large numbers of less skilled migrants mainly from rural areas escaping conflict, which led to a decrease in salaries across board; the salaries of unskilled urban workers were substantially decreased due to the presence of these forced migrants (Calderón-Mejía & Ibáñez, 2015).

Foreign direct investment from developed countries into sub-Saharan Africa is at times done by companies using sophisticated technology with large capital, and who use both skilled and unskilled labour. When these companies invest in countries that do not have the required high-level skills, they bring their own, which leads to skilled worker transfer, and which increases the human capital base of the destination country. When these firms become integrated in the local environment, they substitute foreign workers by local workers (Hoxhaj, 2015).

#### **2.4.4 South African context/experience**

In South Africa, the mismatch between jobs and workers is mainly due to the apartheid spatial arrangement where the majority of workers who are mainly black were settled in the rural areas which are far from where the jobs are located. These workers had to travel long distances from where they had been located to their places of work, which led to high costs linked to search for employment (Ardington et al., 2016). The South African market has an oversupply of unskilled labourers and a shortage of highly skilled professionals that are necessary to sustain economic growth (Horwitz, 2013), with those immigrating to South Africa on average being much more highly educated than the locals (Facchini, 2013b). Traditionally, migration is dominated by men, and they continue to be the dominant migration gender; however, there is an increasing proportion of female migrants, which proportion is fuelled by the increasing economic participation of women (Camlin et al., 2014). South Africa is one of the most attractive and receiving destinations of migrants in sub-Saharan Africa. At the national level, increased migration resulted in lower incomes for the locals but had no impact on the rates of employment (Facchini, 2013b).

Most parts of society have reached the urbanisation phase, and this phase is approaching polarisation reversal; however, it is still in a very early stage. The polarisation reversal is happening in selective geographic areas, showing the continued impact of the special policies of the apartheid era within major metropolitan areas (Geyer & Geyer, 2016). Migration trends in post-apartheid South Africa indicate that an increasing share of people migrating in search of work are permanently relocating to their area of destination and as a result there is a weakening association of these migrants with their place of origin (Posel, 2010).

Provinces that were formerly home to the Bantustan homelands (North West, Limpopo, KwaZulu-Natal and Eastern Cape) which are predominantly rural, are still the ones providing major migration flows towards the provinces that are performing economically better and are home to large metropolitan areas (Gauteng and Western Cape). In general, non-African migrants, who are relatively more mobile, are mainly settling in metropolitan areas, and that proportion is increasing relatively over time. On the other hand, the African migrants are mainly settling in non-metropolitan areas; however, their proportion is decreasing over time. Over time, the overall population is becoming more settled in their location and a decreasing number of the population members are involved in migration (Naidoo et al., 2008).

The origin and destination of migrants depict interesting characteristics that have an implication at different levels of governance. The mainstream migration to Western Cape is dominated by young adults (25–29 years), mainly unmarried, mostly unemployed and predominantly from the Eastern Cape Province. The young migrants usually settle in informal settlements or other people's backyards. The sub stream of migrants to the Western Cape is made up of highly skilled migrants who are mainly married and from other metropolitan cities of South Africa. These highly skilled migrants are driven by environmental considerations to favour the coastal areas of the Western Cape (Jacobs & Du Plessis, 2016).

#### **2.4.5 Gauteng City Region context/experience**

The Gauteng province contributes 34,1% of the gross domestic product in South Africa (Statistics South Africa, 2016). In June 2017, the province employed 5,05 million workers, representing 31,1% of the national work force (Statistics South Africa, 2017). According to Stats SA's mid-year estimates, Gauteng's share of the population is 25,3%, which shows that the number of jobs in Gauteng are higher than the national average. According to Census 2011, Gauteng received 43,5% of the national in-migration. According to the same publication, Gauteng has the highest share of households that fall in the middle-income and upper-income categories with 28,6% and 45,5%,

respectively. Chances of a household falling in a higher earning category are better in Gauteng; hence the largest migration stream flows to Gauteng.

## CHAPTER 3: METHODOLOGY

### 3. METHODOLOGY

#### 3.1 Introduction

This section of the paper will discuss the methodology used in the study. The section will define the study population, data sources, the design of the study and statistical techniques applied. It will also indicate the limitations associated with the data used in the study.

#### 3.2 Study area and population of study

Madibeng municipality, due to its proximity to Tshwane and Johannesburg and its functional interaction with Gauteng, forms part of the Gauteng Global City Region (GGCR) (Van Huyssteen et al., 2015). According to John (2012), Madibeng municipality is viewed as one of the possible secondary cities in South Africa due to the population and the economic activity within the municipality. More importantly, secondary cities are viewed as alternative centres for people to work and live in and as a catalyst for development in the surrounding rural areas. This places Madibeng in the enviable position of being favoured by circumstances to prosper. It is time for municipalities such as Madibeng to be given more attention since planning has been focused on the inside edge of the metropolitan areas and little attention given to areas that lie on the outer edge of the metropolitan areas (Geyer et al., 2015).

The study focuses on the Madibeng municipality in the North West province using the results from Census 2011. For the purpose of the study the population in the municipality is classified into two categories: those who migrated into the municipality since the previous census of 2001 and those who have not moved from the municipality since the previous census. A third category of former Madibeng residents who have migrated since 2001 is created to compare these characteristics against those who are still residing in the municipality.

For a municipality to be prosperous, it is very important to have a good understanding of its human capital in order to increase its productivity. Smaller municipalities suffer from brain drain to larger regions with bigger economies that offer migrants better opportunities. For the long-term sustainability of the municipality, the study seeks to understand the characteristics of out-migrants, to assess to what extent this outflow is mitigated by in-migrants, and to evaluate their characteristics compared to the non-migrant population.

The Madibeng Local Municipality represents an interesting study due to its potential to realise significant economic growth but not having lived up to this potential. For the financial year 2014/15, mining and quarrying accounted for 31,1% of the municipality's economy while manufacturing, which should be the main beneficiary in terms of value addition, accounted for only 4,7% of the economy (Madibeng Local Municipality, 2015). The municipality is blessed with natural resources such as minerals for mining, good land for agriculture around and within the location of the Hartbeespoort Dam. The dam also serves as a tourist attraction in addition to the natural beauty of the municipality, which finds itself well positioned along the Heritage Route. However, despite these favourable factors, the municipality in recent years has been in the public domain for its inability to manage its resources. On 16 August 2012, it was reported that the South African Police Service opened fire on a crowd of striking mineworkers at Marikana (in Madibeng municipality), killing 34 mineworkers and leaving 78 seriously injured (South African History Online, 2012). The results of this research can assist the municipality by informing its various planning initiatives to attain sustainable economic growth. Residents in Brits and Hartbeespoort Dam blocked roads in protest against dirty drinking water in the municipality, and the government audit has revealed financial mismanagement of project funds in excess of R100 million (Department of Cooperative Governance and Traditional Affairs, 2010).

### **3.2.1 Study target population**

The target population are the people who were residing in Madibeng municipality during Census 2011, excluding those who were not born during Census 2001. The target population of the study also includes persons who previously were residents of Madibeng municipality during Census 2001 but who have migrated to other parts of South Africa during Census 2011.

### **3.3 Data sources and preparation**

The dataset for analysis excludes children born after the 2001 population census. People who did not usually reside in the household when they were enumerated on census night were excluded. Those who moved within the municipality were still regarded as locals. Based on these definitions, the total number of locals are 239 355 people, in-migrants constitute 62 609 people and out-migrants total 14 774 people. The total number of people excluded from the data set are 89 600 (new-born not moved: 63 967; new-born moved: 10 849; not residing in the municipality: 7 031; and other errors: 7 753). The list of variables used in the study is provided in Table 3.1 below.



**Table 3.1: Variables used in the study**

Variables	Categories
Migration status	Locals, In-migrants, Out-migrants
Economic activity	Economically active, Not economically active
Employment status	Employed, Unemployed
Highest qualification	Above grade 12, Grade 12, Below grade 12, No schooling, Other
Institution of highest post-school qualification	Further Education and Training (FET) college, University/technikon/college, No post-school, Other
Income level	High income, Medium income, Low income, No income, Unspecified
Age group	60 years and older, Between 40 and 59 years, Between 20 and 39 years, Under 20 years
Property valuation	Less than R50 000, R50 001 – R100 000, R100 001 - R200 000, R200 001 - R400 000, R400 001 - R800 000, R800 001 - R1 600 000, R1 600 001 - R3 200 000, More than R3 200 001, Do not know
Source of energy	Electricity, Gas, Paraffin, Wood, Candles, Other (including coal and solar), None
Use of energy	Cooking, Heating, Lighting
Access to internet	No access, From home, From work, From cell phone, From elsewhere, Unspecified, Chemical toilet, Pit toilet with ventilation, Pit toilet without ventilation, Bucket toilet, Other/unspecified
Type of toilet	Flush toilet (connected to the sewerage system), Flush toilet (with septic tank),
access to piped water	Inside the dwelling, Inside the yard, On community stand (less than 500m from dwelling)
Ownership	Own, Does not own, Unspecified
Access to services and ownership of household goods	Refrigerator, Stove, Vacuum cleaner, Washing Machine, Computer, Satellite TV, DVD Player, Motorcar, TV, Radio, Landline, Cell phone, Mail post box, Home mail delivery

### 3.4 Study design

The study uses proportions of variables of interest to standardise comparison of different categories (i.e. locals, in-migrants and out-migrants). The variables are then cross-tabulated according to different characteristics of the population to allow interpretation of these characteristics.

- The test of differences between the proportions is performed.

- To test the differences between the proportions, a hypothesis testing will be performed using the two-tailed z-test at 5% level of significance.

The two-tailed z-test is performed at a 5% level of significance. The results of the test that the proportions are equal will be accepted when the z-score is between 1,96 and -1,96 (a positive value means the first variable is higher than the second while the negative value means the second variable is higher than the first), which would mean there is no difference (or the differences are not significant) between the proportions in the characteristics that are being tested. If the z-score is greater than 1,96 or less than -1,96, then the two proportions are different (or the differences are significant), or we reject the hypothesis that the proportions are equal. When the outcome says '*not significant*' it means the characteristics being tested are similar, whereas when the outcome says '*significant*' it means the characteristics differ.

The analysis is based on proportions created from the dataset, based on valid responses for each variable of interest. As a result, the populations differ depending on the variable being considered. For selected variables, a test is performed to check if the differences in the proportions are significant between the three categories (locals, in-migrants and out-migrants). Comparison is made between the three categories to check their characteristics according to employment status, educational attainment (as a proxy to skills level), income levels, age structure and access to goods/services.

### **3.5 Data limitations**

There are some limitations associated with data collected in Census 2011. There are those persons who were not born during Census 2001, and as these persons could not be properly classified in the study, they were excluded. Some persons were enumerated in a place where they do not normally reside and could not be placed properly in the context of the research. Due to item non-response, the observed population differs according to the variable of interest.

### **3.6 Ethical issues**

Data used in the study is secondary data collected and processed by Stats SA and is available for use in the public domain. The data does not pose any ethical difficulties.

## CHAPTER 4: EMPIRICAL FINDINGS

### 4. EMPIRICAL FINDINGS

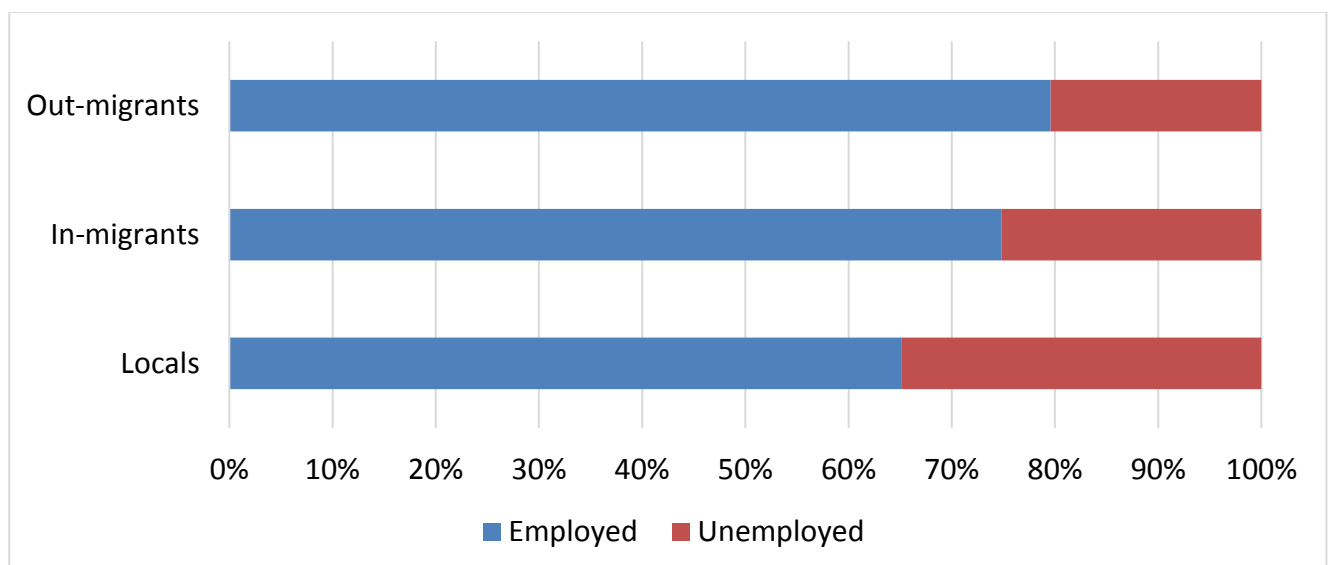
#### 4.1 Introduction

This section will discuss the empirical findings of the study in order to identify the characteristics of the study population so as to for ascertain the pull and push factors to migration; specifically also the mobility of the population with high-level skills. It will start by reporting on the employment status of the economically active population, and then follow with the educational attainment of the study population, income levels, age distribution, property values, sources of energy, access to services and ownership of goods by households. In each of the sections, a two-tailed z-test is performed for selected variables to test whether the results observed are statistically significantly different from each other.

#### 4.2 Employment of the economically active population

Figure 4.1 shows the proportions of the employment status of the economically active population in Madibeng municipality (both locals and in-migrants) and the out-migrants who previously were residents of the municipality during the 2001 census.

**Figure 4.1: Employment status of the economically active population**



The locals had the highest unemployment rate of 34,9%, which is significantly higher than that of in-migrants (25,2%). The out-migrants are relatively better off than those who remained in Madibeng, with an unemployment rate of 20,4%.

Table 4.1 shows the results for the test of differences in the employment status of the economically active population between the locals, in-migrants and out-migrants in Madibeng municipality.

**Table 4.1: Test of differences in employment status of the economically active population**

Variable 1	Variable 2	Rejection region at 5% significance level	Z score	Outcome
Locals	In-migrants	$ z  > 1,96$	-38,7	Significant
Locals	Out-migrants	$ z  > 1,96$	-33,4	Significant
In-migrants	Out-migrants	$ z  > 1,96$	-10,6	Significant

The employment rates for in-migrants and out-migrants are significantly higher than those of locals in the Madibeng municipality, while the employment rates of out-migrants are also significantly higher than those of in-migrants. The results seem to vindicate the decision of out-migrants to move out of the municipality since only 20,4% of those who have migrated elsewhere are unemployed, which is significantly lower than the unemployment rates for locals and in-migrants in Madibeng municipality. During the period of the study, 32 722 in-migrants and 7 644 out-migrants were employed.

### 4.3 Educational attainment in the Madibeng municipality

Figure 4.2 presents the percentage distribution by educational attainment and migration status in Madibeng municipality.

**Figure 4.2: Educational attainment in the Madibeng municipality**

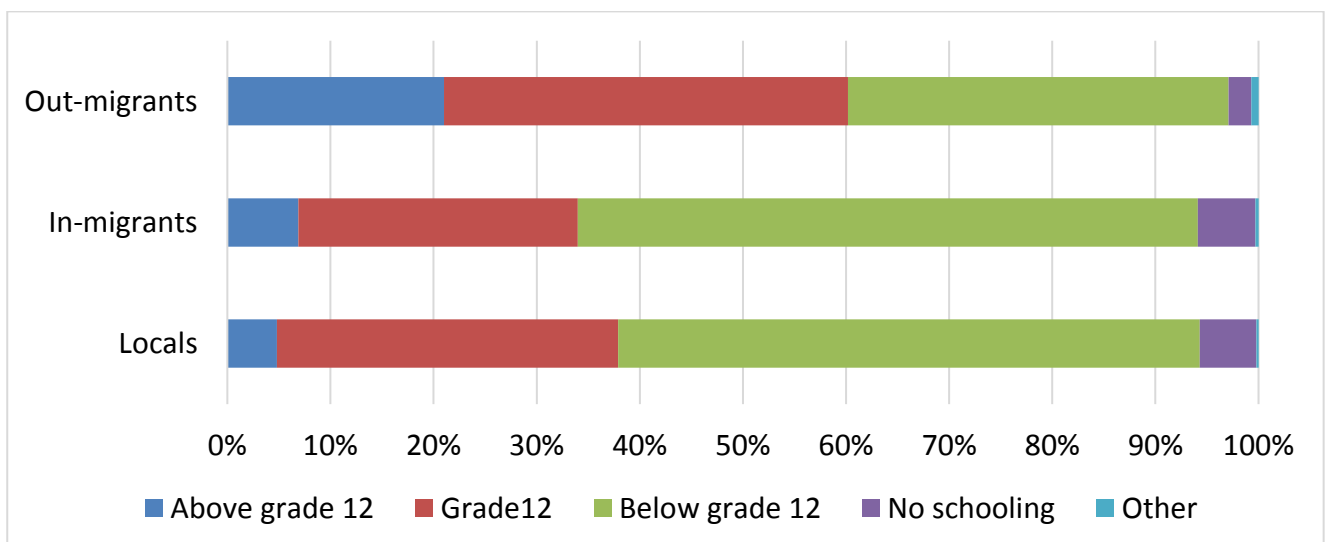


Figure 4.2 shows levels of educational attainment in the Madibeng municipality. Out-migrants have the largest proportion (21,0% or 1 792 persons employed) of persons with an educational attainment level above Grade 12, followed with a wide margin by in-migrants (6,9% or 2 917 persons employed) and locals (4,8% or 5 601 persons employed). In the next category (those with Grade 12 as their highest level of educational attainment), out-migrants have the highest proportion with 39,2%, followed by locals with 33,1%, while in-migrants recorded 27,1%.

Table 4.2A presents the results for a test of differences in educational attainment levels by migration status in Madibeng municipality.

**Table 4.2A: Test of differences in educational attainment levels in the Madibeng municipality**

Variable 1	Variable 2	Rejection region at 5% significance level	Z score	Outcome
<b>Above Grade 12</b>				
Locals	In-migrants	$ z  > 1,96$	-15,3	Significant
Locals	Out-migrants	$ z  > 1,96$	-36,4	Significant
In-migrants	Out-migrants	$ z  > 1,96$	-30,8	Significant
<b>Grade 12</b>				
Locals	In-migrants	$ z  > 1,96$	23,5	Significant
Locals	Out-migrants	$ z  > 1,96$	-11,2	Significant
In-migrants	Out-migrants	$ z  > 1,96$	-21,3	Significant
<b>No schooling</b>				
Locals	In-migrants	$ z  > 1,96$	-0,6	Not significant
Locals	Out-migrants	$ z  > 1,96$	19,0	Significant
In-migrants	Out-migrants	$ z  > 1,96$	17,3	Significant

The proportion of those with no schooling is relatively close: locals and in-migrants at 5,5% and 5,6%, respectively. The out-migrants recorded the lowest proportion of persons with no schooling with 2,2%. Interestingly, Table 4.2A indicates that the proportion of persons with no schooling is not significantly different for the locals and in-migrants, but the out-migrants have a significantly lower proportion, while the rest of the values are significantly different.

Table 4.2B shows the percentage distribution by highest school qualification obtained and migration status in Madibeng municipality.

**Table 4.2B: Institution where highest post-school qualification was obtained**

Highest qualification	Locals	In-migrants	Out-migrants
Further Education and Training (FET) college	3,0	3,7	11,1
University/technikon/college	4,4	5,4	16,6
Other	1,3	1,2	2,2
No post-school	91,3	89,7	70,1
<b>Total</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>

The out-migrants recorded the highest proportion of persons with post-school qualifications (29,9%), followed by in-migrants at 10,3%. Out-migrants have the highest proportion of persons who qualified at either of three post-school institutions, viz. University/technikon/college, FET colleges and Other institutions, with 16,6%, 11,1% and 2,2%, respectively. The other significant challenge is that the largest proportion of in-migrants (60,1%) consists of persons with an educational attainment level below Grade 12, which is not the desired demographic profile for improving economic growth. Table 4.2B further shows that there is an inclination towards universities/technikons/colleges for post-school qualifications compared to FET colleges, which supply critical skills to sectors that support the local economy in Madibeng (mining and agriculture).

#### **4.4 Income and education level of the economically active population**

Table 4.3A presents the percentage distribution of the economically active population by income level, education levels and migration status in Madibeng municipality.

**Table 4.3A: Income and education levels of the economically active population**

Status	Income level	No schooling	Below grade 12	Grade12	Above grade12	Other	Total
Locals	High income	0,3	0,3	1,5	13,8	4,2	1,4
	Medium income	15,4	18,1	28,2	57,2	35,4	23,2
	Low income	53,1	39,0	29,4	11,5	24,3	35,3
	No income	27,2	38,6	35,8	17,5	22,4	36,0
	Unspecified	4,1	3,9	5,2	0,0	13,7	4,2
	<b>Total</b>		<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>
In-migrants	High income	0,2	0,5	2,6	26,7	11,5	2,9
	Medium income	12,4	18,8	32,9	49,6	33,6	24,4
	Low income	59,3	48,5	34,1	11,9	37,7	42,7
	No income	25,6	29,1	25,6	11,8	9,0	26,7
	Unspecified	2,5	3,1	4,7	0,0	8,2	3,3
	<b>Total</b>		<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>
Out-migrants	High income	0,0	1,0	3,3	21,2	10,7	6,2
	Medium income	12,3	19,2	39,6	64,2	48,2	36,7
	Low income	56,1	46,6	28,3	5,7	23,2	30,9
	No income	25,7	29,5	22,9	8,8	5,4	22,3
	Unspecified	5,9	3,8	6,0	0,0	12,5	3,9
	<b>Total</b>		<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>

To create a truly developed municipality, inequality needs to be reduced. One of the ways to attain this is to lower skills differentials (the ratio of wages between the skilled and unskilled to be kept at a low level). Table 4.3A shows that out-migrants have the highest proportion of persons earning a high income (those who earn R307 201 and above annually) with a total of 6,2% in this category. The comparative figures for in-migrants and locals are only 2,9% and 1,4%, respectively. In all three categories, the proportion of the economically active population with levels of education above Grade 12 and earning a high income is significantly higher than in the other categories (26,7% in the case of in-migrants and 21,2% in the case of out-migrants). The number of persons earning high income

for all educational groups combined are 1 462 for in-migrants and 579 for out-migrants during the study period. In the case of persons earning a medium income (those who earn between R38 401 and R307 200 annually), out-migrants have the highest proportion with 36,7%, followed by in-migrants (24,4%) while the figure for locals are 23,2%.

The locals are the least involved with income-generating activities, with 36,0% earning no income during the Census 2011 period. As much as 69,4% of in-migrants are low-income earners or have no income, whereas only 27,3% are medium- or high-income earners. In contrast, as much as 43,4% of out-migrants are medium- or high-income earners.

Table 4.3B presents the results for a test of differences in the ratios of the economically active population within different income levels in Madibeng municipality.

**Table 4.3B: Test of differences in income levels of the economically active population**

Variable 1	Variable 2	Rejection region at 5% significance level	Z score	Outcome
<b>High income</b>				
Locals	In-migrants	$ z  > 1,96$	-17,4	Significant
Locals	Out-migrants	$ z  > 1,96$	-18,2	Significant
In-migrants	Out-migrants	$ z  > 1,96$	-12,0	Significant
<b>Medium income</b>				
Locals	In-migrants	$ z  > 1,96$	-5,0	Significant
Locals	Out-migrants	$ z  > 1,96$	-25,1	Significant
In-migrants	Out-migrants	$ z  > 1,96$	-21,9	Significant
<b>Low income</b>				
Locals	In-migrants	$ z  > 1,96$	-27,0	Significant
Locals	Out-migrants	$ z  > 1,96$	8,5	Significant
In-migrants	Out-migrants	$ z  > 1,96$	21,3	Significant
<b>No income</b>				
Locals	In-migrants	$ z  > 1,96$	36,6	Significant
Locals	Out-migrants	$ z  > 1,96$	28,9	Significant
In-migrants	Out-migrants	$ z  > 1,96$	8,8	Significant



The tests for differences in the ratios reflected in Table 4.3B indicate that the income levels are significantly different across all three categories.

Table 4.4A presents the percentage distribution of the economically active population by education attainment, employment status and migration status in Madibeng municipality

**Table 4.4A: Employment status and educational attainment levels of the economically active population**

<b>Education attainment</b>	<b>Employment status</b>	<b>Locals</b>	<b>In-migrants (%)</b>	<b>Out-migrants (%)</b>
Above Grade 12	Employed	85,7	90,6	93,2
	Unemployed	14,3	9,4	6,8
	Total	100,0	100,0	100,0
Grade12	Employed	65,4	75,4	78,1
	Unemployed	34,6	24,6	21,9
	Total	100,0	100,0	100,0
Below Grade 12	Employed	61,8	72,1	71,4
	Unemployed	38,2	27,9	28,6
	Total	100,0	100,0	100,0
No schooling	Employed	71,9	74,6	75,4
	Unemployed	28,1	25,4	24,6
	Total	100,0	100,0	100,0

The information depicted in Table 4.4A clearly indicates that the highest employment ratios in each of the three categories are for those with an educational attainment level above Grade 12, with the highest percentage recorded for out-migrants (93,2%), followed by in-migrants (90,6%) and locals (85,7%). For those with Grade 12, the highest employment ratios are for out-migrants (78,1%), followed by in-migrants (75,4%), while locals are the lowest at 65,4%.

Table 4.4B shows the results for the test of differences in the ratio of the employed according to the educational attainment levels of the economically active population in Madibeng municipality.

**Table 4.4B: Test of differences in the ratio of the employed according to the educational attainment levels of the economically active population**

Variable 1	Variable 2	Rejection region at 5% significance level	Z score	Outcome
<b>Above Grade 12</b>				
Locals	In-migrants	$ z  > 1,96$	-6,8	Significant
Locals	Out-migrants	$ z  > 1,96$	-10,0	Significant
In-migrants	Out-migrants	$ z  > 1,96$	-3,3	Significant
<b>Grade 12</b>				
Locals	In-migrants	$ z  > 1,96$	-21,3	Significant
Locals	Out-migrants	$ z  > 1,96$	-16,9	Significant
In-migrants	Out-migrants	$ z  > 1,96$	-3,2	Significant
<b>Below Grade 12</b>				
Locals	In-migrants	$ z  > 1,96$	-2,5	Significant
Locals	Out-migrants	$ z  > 1,96$	-11,4	Significant
In-migrants	Out-migrants	$ z  > 1,96$	0,8	Not significant
<b>No schooling</b>				
Locals	In-migrants	$ z  > 1,96$	-2,5	Significant
Locals	Out-migrants	$ z  > 1,96$	-1,1	Not significant
In-migrants	Out-migrants	$ z  > 1,96$	-0,2	Not significant

According to Table 4.4B, the employment ratios across the three categories are significantly different for those with an educational attainment level of Grade 12 and above. For those with an educational attainment level below Grade 12, the proportion of those employed is not significantly different for in-migrants and out-migrants.

#### 4.5 Age distribution in the Madibeng municipality of the population born before Census 2001

Figure 4.3 shows the percentage distribution of the population members born before Census 2001 by age group and migration status in Madibeng municipality

**Figure 4.3: Average age in the Madibeng municipality of the population born before Census 2001**

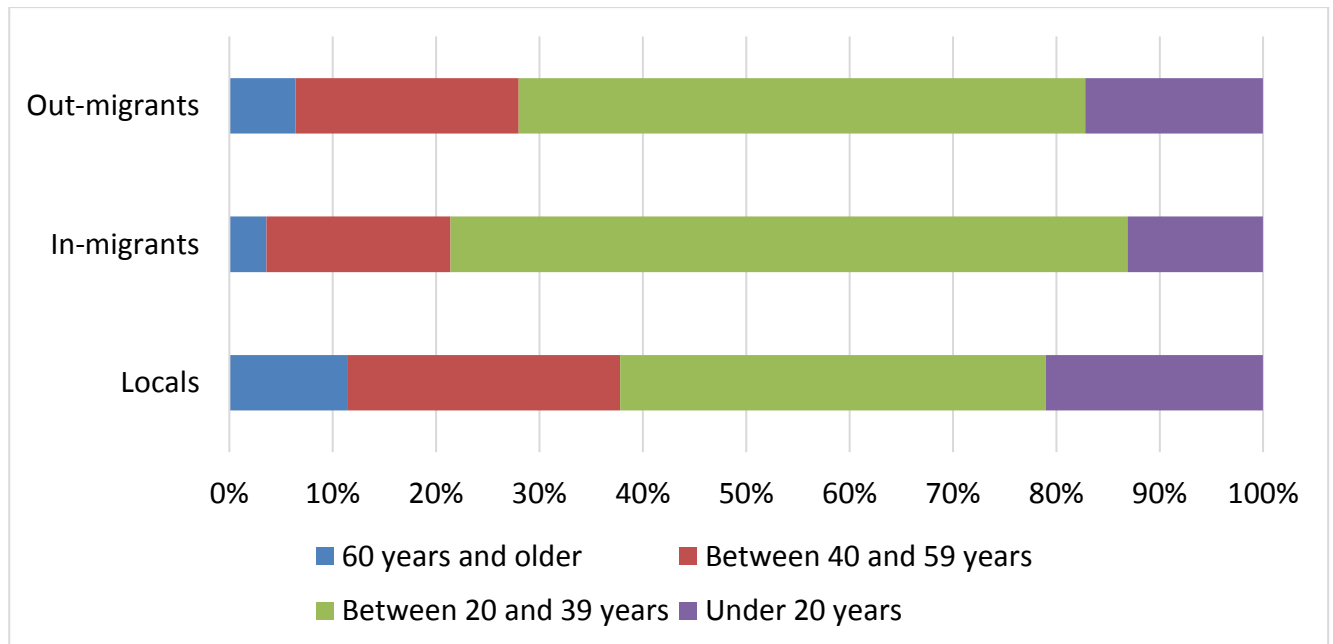


Figure 4.3 indicates that for all three categories, persons aged between 20 and 39 years are the highest proportion (ranging between 41,2% in the case of locals and 65,5% in the case of in-migrants). This is followed by persons aged between 40 and 59 years, while those 60 years and older make up the smallest number.

Table 4.5 shows the results for average age of the population members born before Census 2001 and their confidence intervals (CI).

**Table 4.5: Average age of the population born before Census 2001 in the Madibeng municipality**

Status	Average age	Standard deviation	Number	Lower limit (95% *CI)	Upper limit (95% CI)
Locals	35,8	0,0368	237032	35,7801	35,7804
In-migrants	31,5	0,0506	62609	31,5330	31,5338
Out-migrants	33,1	0,1221	14774	33,0965	33,1005

Note:\*CI refers to confidence interval

Table 4.5 shows that, of the three groups of people assessed, the average age of the locals is highest (35,8 years), followed by the out-migrants (33,1 years), while the in-migrants have the lowest average age at 31,5 years. The age distribution of migrants reflects a better composition of persons in their most productive years with the demographic profile that carries the highest proportion of the economically active population of ages between 20 years and 59 years. The confidence intervals for all three categories are non-overlapping, which means the three ages are significantly different (differences are not due to measuring error).

#### 4.6 Property value of the households in the Madibeng municipality

Table 4.6A presents the percentage distribution of the households by property value and migration status in Madibeng municipality.

**Table 4.6A: Property value of the households**

Property value	Locals (%)	In-migrants (%)	Out-migrants (%)
Less than R50 000	59,3	74,3	41,8
R50 001 – R100 000	17,0	8,2	10,3
R100 001 - R200 000	6,8	2,7	4,7
R200 001 - R400 000	6,1	2,9	11,1
R400 001 - R800 000	4,2	3,6	15,3
R800 001 - R1 600 000	3,4	3,8	10,4
R1 600 001 - R3 200 000	2,0	3,3	4,5
More than R3 200 001	0,9	1,1	1,5
Do not know	0,4	0,2	0,5
<b>Total</b>	<b>100,0</b>	<b>100,0</b>	<b>100,0</b>

According to Table 4.6A, the vast majority of in-migrants (74,3%) reside in households with property values of less than R50 000 compared to 59,3% of locals and only 41,8% of out-migrants. In contrast, only a small proportion of locals (6,3%) and in-migrants (8,2%) reside in properties valued in the categories R800 001 and above, while the figure for out-migrants (16,4%) is significantly higher.

Table 4.6B shows the results for the test for differences in the ratios of households with property values above eight thousand rand by migration status.

**Table 4.6B: Test of differences in the ratio of the property values above eight hundred thousand rand**

Variable 1	Variable 2	Rejection region at 5% significance level	Z score	Outcome
Locals	In-migrants	$ z  > 1,96$	-11,3	Significant
Locals	Out-migrants	$ z  > 1,96$	-21,7	Significant
In-migrants	Out-migrants	$ z  > 1,96$	-16,7	Significant

In Table 4.6B, the differences in the proportions of properties above eight hundred thousand rand between the three categories are all statistically significant. According to Smith & Higley (2012), there is a close correlation between counter urban migration flows tied with gentrified housing markets, which is usually underpinned by life course movements, with affluent families moving towards rural settings for child-friendly environments. The out-migrant households have the highest proportion in all property value categories (over R200 000) and, at least property wise, are moving to areas where their economic conditions are enhanced. Property values can be seen as an indicator of liveability, and it provides social and economic benefits. The higher the property values, the more the feeling of safety and resilience as well as sustainability attached to the property. Once a secondary city like Madibeng displays an increase in property values, it is likely to attract the affluent and the highly skilled from the metropolitans into these secondary cities and be able to play a catalytic role for balanced and dispersed growth across the country.

#### **4.7 Sources of energy used by the households in the Madibeng municipality**

Municipalities are the entities where the vast majority of the population are expected to have access to affordable, reliable, sustainable and modern energy in line with the SDGs. In South Africa, the main source of energy is electricity (which is predominantly produced from coal), leaving the contribution of sustainable energy very minimal (see Figure 4.4A, Figure 4.4B and Figure 4.4C).

Figure 4.4A presents the percentage distribution of households according to energy used for cooking and migration status in Madibeng municipality.

**Figure 4.4A: Sources of energy used by households for cooking**

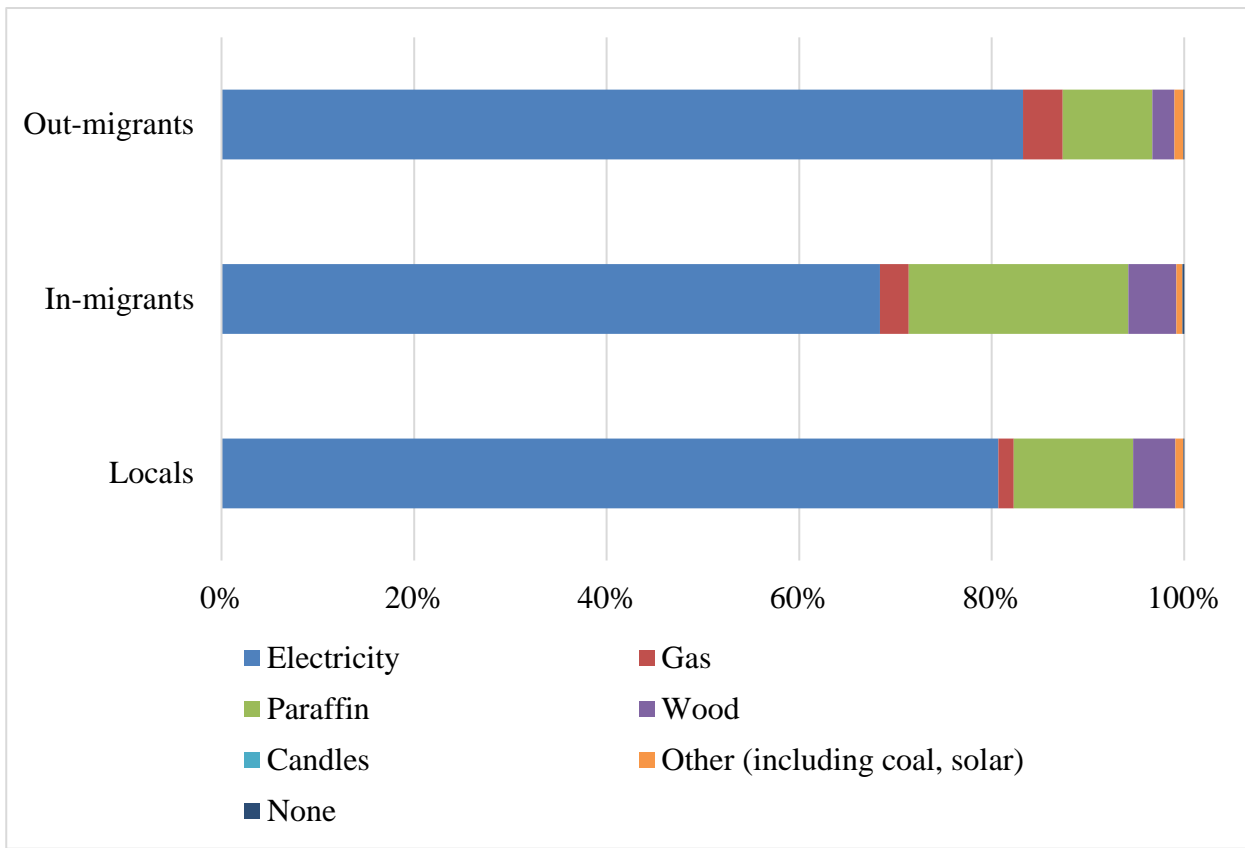


Figure 4.4B presents the percentage distribution of households according to energy used for heating and migration status in Madibeng municipality.

**Figure 4.4B: Sources of energy used by households for heating**

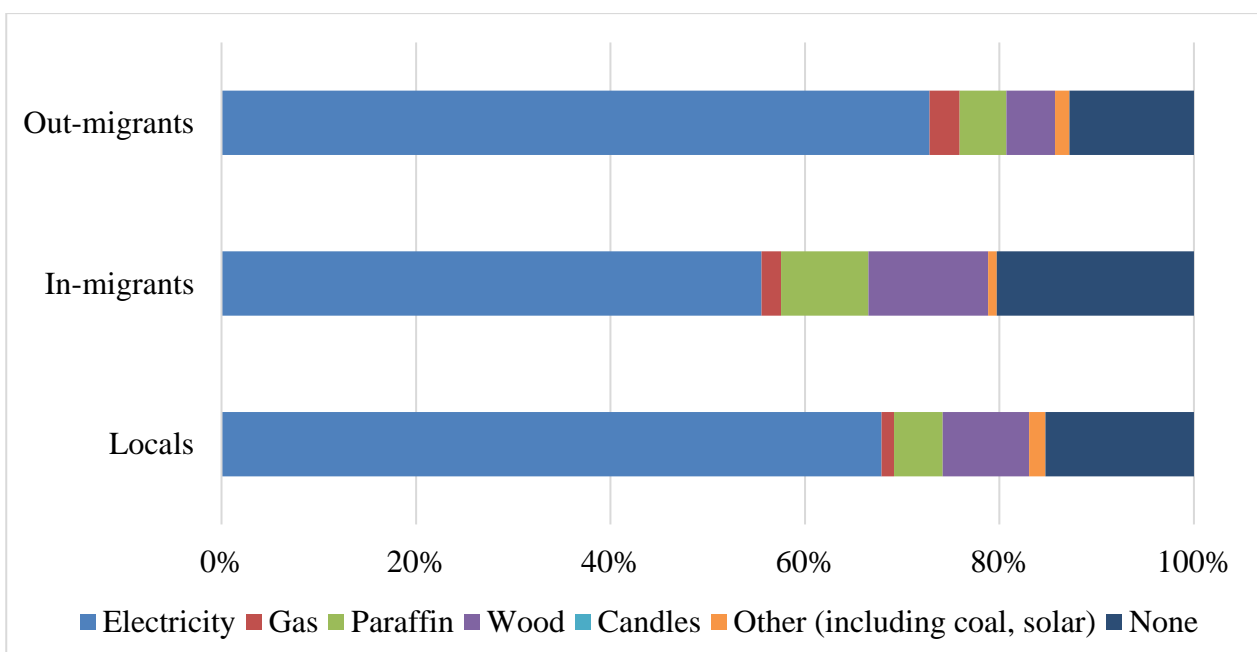
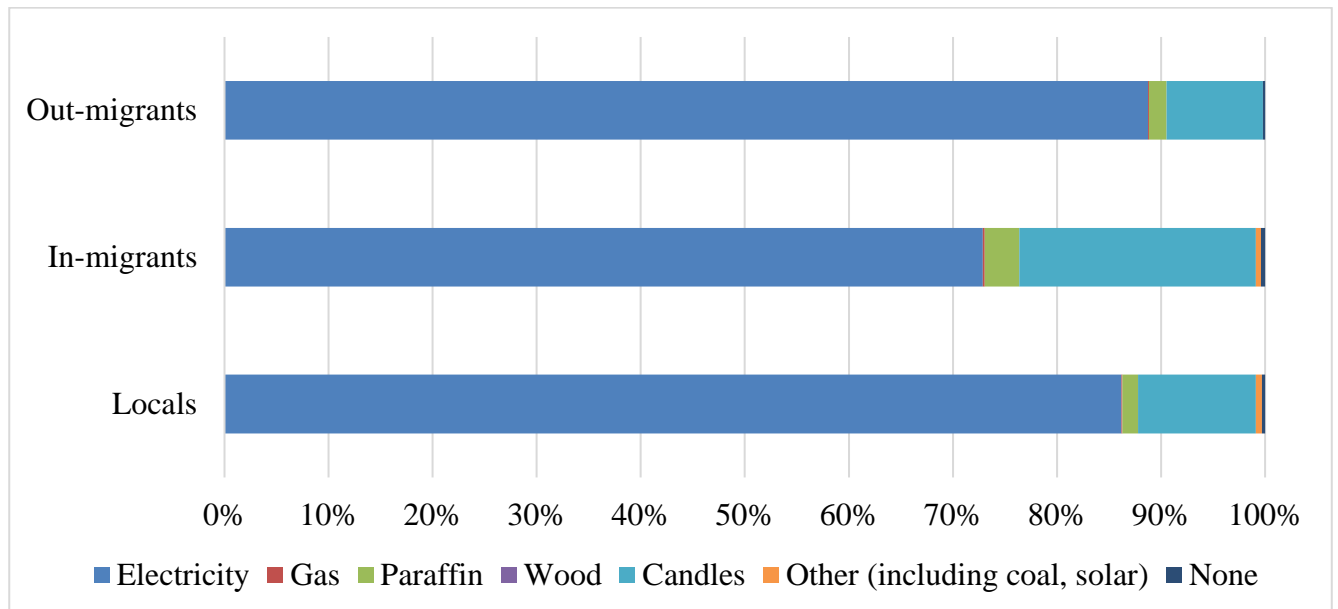


Figure 4.4C presents the percentage distribution of households according to energy used for lighting and migration status in Madibeng municipality.

**Figure 4.4C: Sources of energy used by households for lighting**



Electricity is the main source of energy used by households in Madibeng for lighting, cooking and heating purposes. As much as 88,2% of out-migrant households, 86,2% of locals and 72,8% of in-migrants have access to electricity. Electricity penetration is thus at a high level and theoretically able to facilitate economic development and higher economic growth.

Table 4.7 shows the results for the test for differences in the ratios of the use of electricity by households for cooking, cleaning and lighting by migration status.

**Table 4.7: Test of differences in the ratio of the use of electricity by households for cooking, cleaning and lighting**

Variable 1	Variable 2	Rejection region at 5% significance level	Z score	Outcome
<b>Cooking</b>				
Locals	In-migrants	$ z  > 1,96$	41,3	Significant
Locals	Out-migrants	$ z  > 1,96$	-5,1	Significant
In-migrants	Out-migrants	$ z  > 1,96$	-27,9	Significant
<b>Heating</b>				
Locals	In-migrants	$ z  > 1,96$	38,2	Significant
Locals	Out-migrants	$ z  > 1,96$	-8,6	Significant
In-migrants	Out-migrants	$ z  > 1,96$	-28,2	Significant
<b>Lighting</b>				
Locals	In-migrants	$ z  > 1,96$	48,0	Significant
Locals	Out-migrants	$ z  > 1,96$	-5,0	Significant
In-migrants	Out-migrants	$ z  > 1,96$	-33,0	Significant

According to Table 4.7, access to electricity for cooking, heating and lighting is significantly different for all three categories. However, access for in-migrants is much lower compared to locals and out-migrants for all the usages. According to Table 4.6A, in-migrants mainly reside in properties valued at less than R50 000 (74,3%), which indicates a lack of infrastructure to house them; hence, lower access to electricity.

For the municipality to be able to attract highly skilled migrants, it has to be seen to be friendly to all categories of migrants and not only to the highly skilled. It is in the best interest of the municipality to address the housing conditions for migrants to be able to compete favourably with other destinations for skilled migrants. Similarly, infrastructure for housing needs to improve in order to retain the skilled out-migrants so that they can contribute to the local economy.



#### 4.8 Access to services and ownership of goods by households in the Madibeng municipality

Figure 4.5 shows the percentage distribution of households according to access to the internet and migration status in Madibeng municipality.

**Figure 4.5: Household access to the internet**

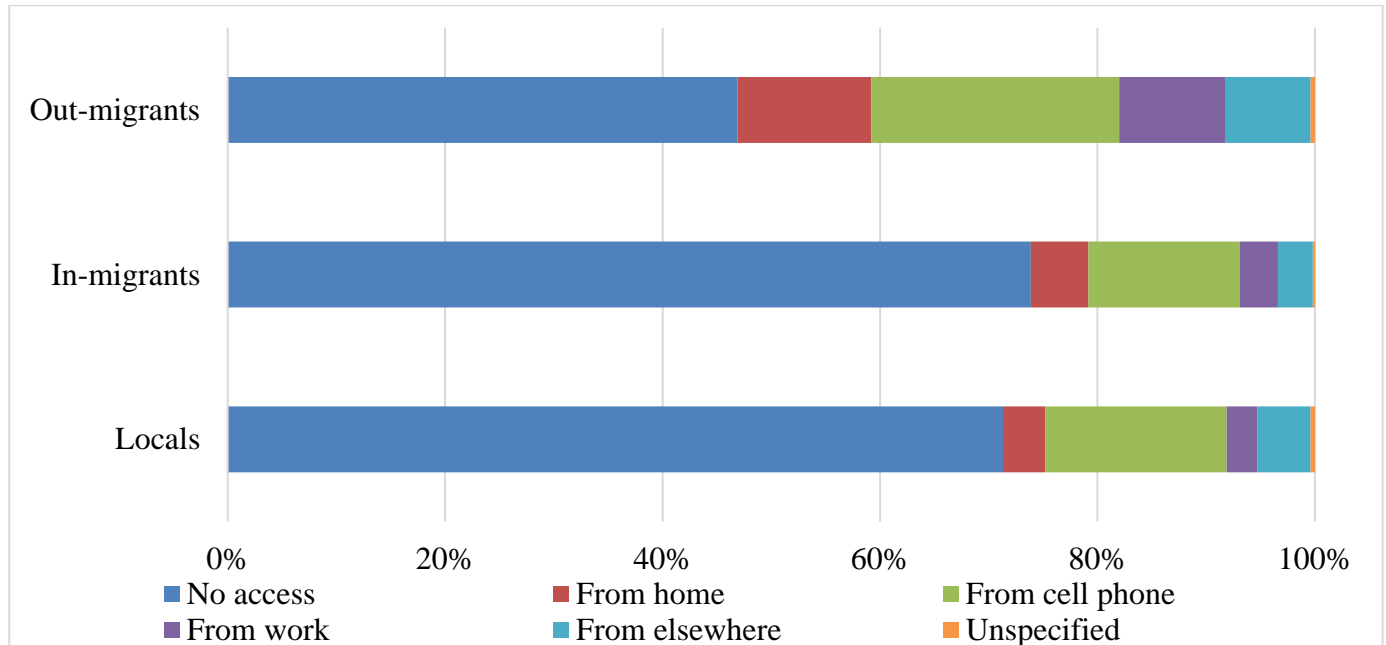


Figure 4.5 shows that there is still a very high proportion of households in Madibeng who do not have access to the internet, with 73,8% of in-migrants and 71,3% of locals without access. The proportion of those without access to the internet is comparatively lower for out-migrants at 46,9%. Access is mainly through a cell phone, with proportions of 22,8%, 16,7% and 13,9% for out-migrants, locals and in-migrants, respectively.

Table 4.8 shows the results for the test for differences in the ratios of the households without access to the internet by migration status.

**Table 4.8: Test of differences in the ratio of households without access to the internet**

Variable 1	Variable 2	Rejection region at 5% significance level	Z score	Outcome
Locals	In-migrants	$ z  > 1,96$	-8,5	Significant
Locals	Out-migrants	$ z  > 1,96$	39,0	Significant
In-migrants	Out-migrants	$ z  > 1,96$	40,9	Significant

Access to the internet is not necessarily the solution to all the problems experienced in developing communities, but it does bring new sources of information and has the ability to create new channels of communication to new professional bodies and business partnerships (Richardson, 1997). Table 4.8 indicates that the proportions of households are statistically significantly different between the three categories. This low level of access to the internet translates into higher costs of searching for employment and having limited opportunities due to the associated lack of information. The penetration of the internet is associated with the cost of doing business (ability to link up with business partners and potential clients) and to innovation (ability to share ideas). Improving access to the internet will assist in attracting the highly skilled and associated enterprises. The relatively higher proportion of the highly skilled, coupled with the adventurous nature of those who are prone to migrating, means that they need a place of destination that is able to meet their ambition. Therefore, in order to avoid the brain drain, the infrastructure such as that for internet access needs to be present to avoid the loss of this demographic.

Figure 4.6 shows the percentage distribution of households according to main type of toilet used and migration status in Madibeng municipality.

**Figure 4.6: Main type of toilet used by households**

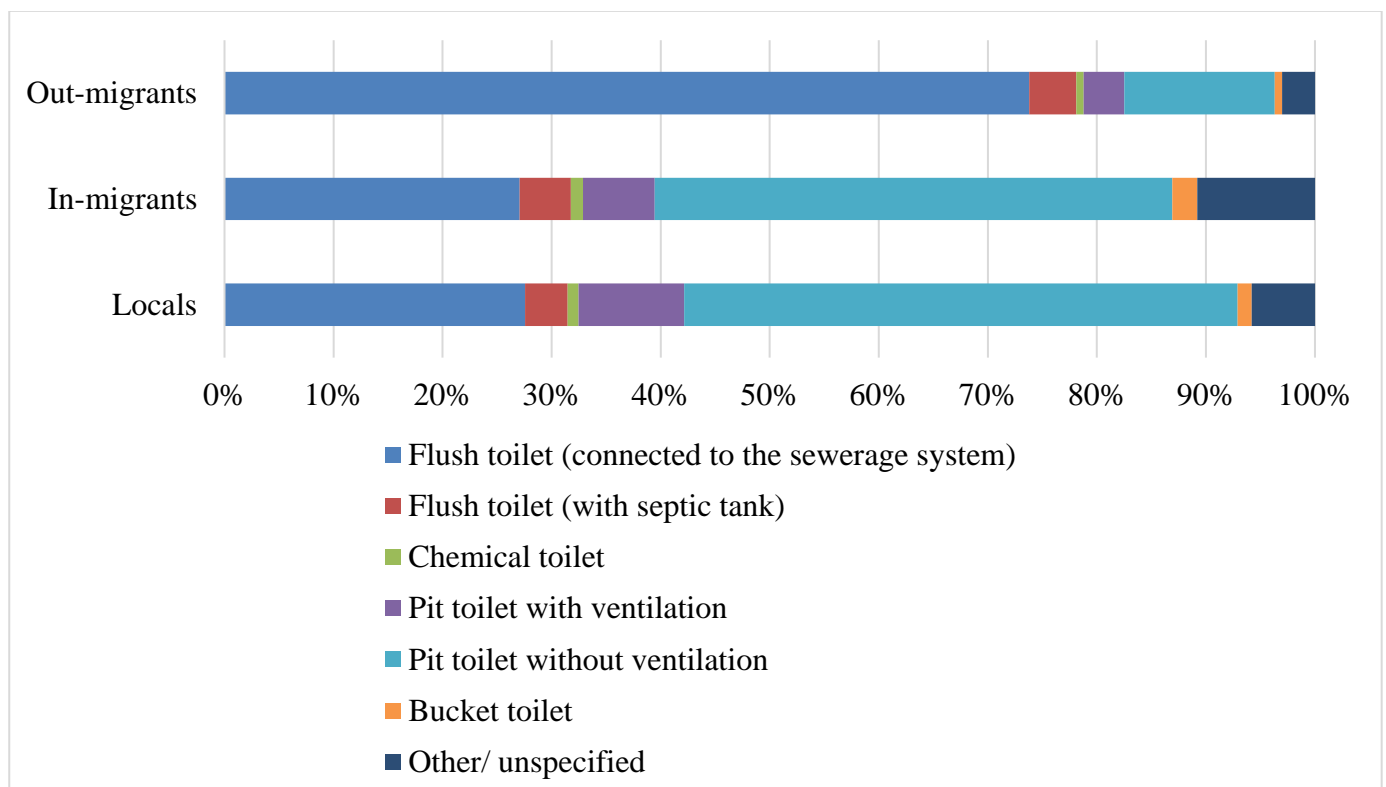


Figure 4.6 shows that only 31,8% of in-migrants and 31,5% of locals use flush toilets, whereas a high proportion (78,1%) of out-migrants use flush toilets that are mostly connected to a sewerage system. Since parts of the municipality are predominantly rural in character, a high proportion of households uses pit toilets (60,5% of locals and 54,1% of in-migrants use pit toilets), which are mostly without ventilation. Only 17,5% of the out-migrant households use pit toilets.

Table 4.9 shows the results for the test for differences in the ratios of the households with flush toilets by migration status

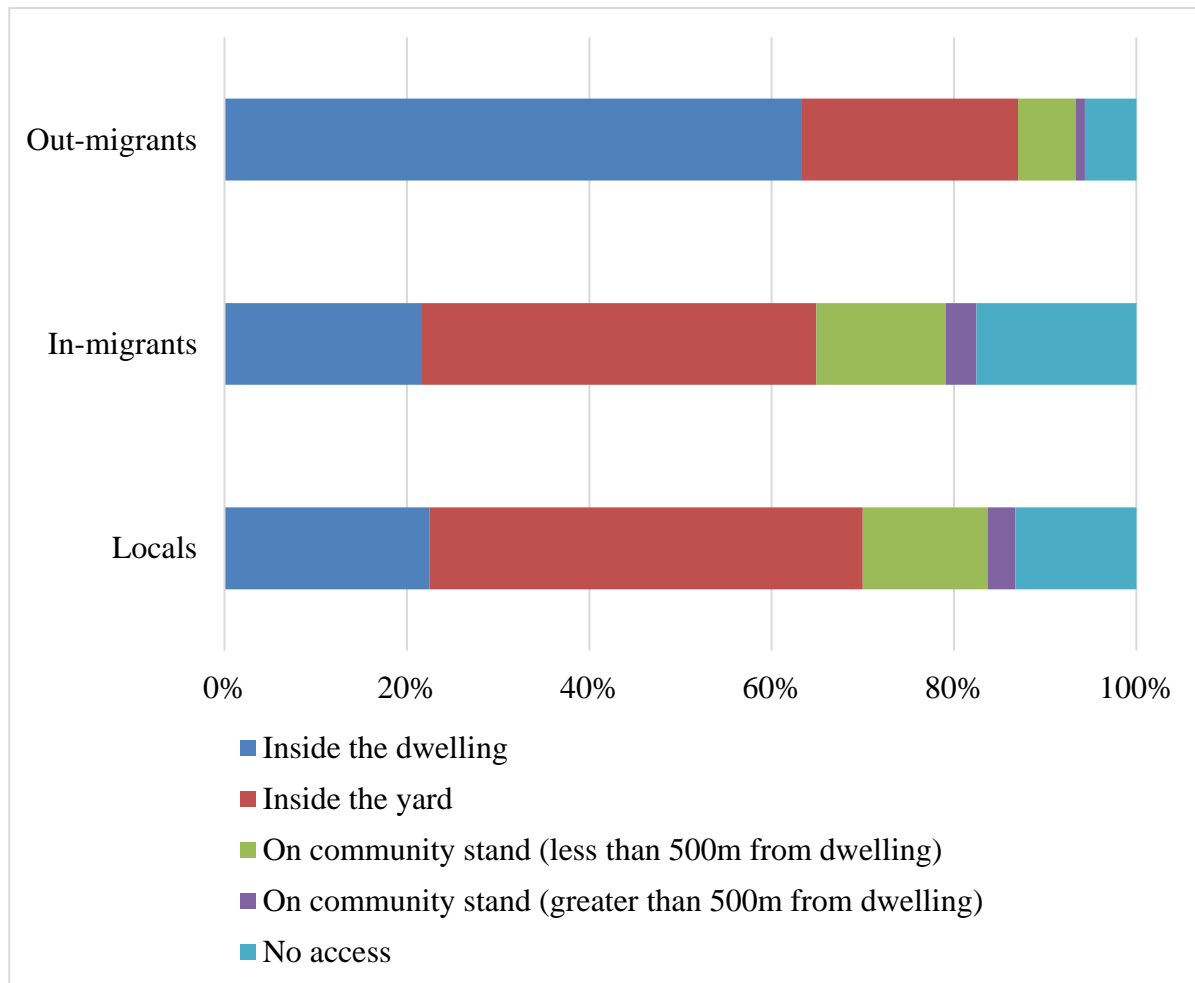
**Table 4.9: Test of differences in the ratio of households with flush toilets**

Variable 1	Variable 2	Rejection region at 5% significance level	Z score	Outcome
Locals	In-migrants	$ z  > 1,96$	-1,0	Not significant
Locals	Out-migrants	$ z  > 1,96$	-88,6	Significant
In-migrants	Out-migrants	$ z  > 1,96$	-81,4	Significant

Unlike water, infrastructure for sanitation can be very challenging depending on the distance and the terrain of the area where it is needed, which makes it a very expensive service to deliver. Since Madibeng is a predominantly rural municipality, there has always been a gravitation towards the use of pit toilets by households due to the inability of the municipality to provide waterborne sewerage systems in these areas. According to Table 4.9 there is no difference between locals and in-migrants households with flush toilets, but out-migrants have a significantly higher percentage of households with flush toilets.

Provision of sanitation is essential, since inadequate provision thereof has very dire implications, because it impacts negatively on the health of the population and the dignity of the people. How this essential service is provided becomes a reflection of how people in society are valued, and the affluent (and by extension the highly skilled) will gravitate towards areas where it is provided adequately. Hence, for the municipality to attract and retain the skilled workforce, it has to provide adequate sanitation.

Figure 4.7 shows the percentage distribution of households according to access to piped water and migration status in Madibeng municipality.

**Figure 4.7: Household access to piped water**

Municipalities are supposed to ensure availability and sustainable management of water and sanitation for the benefit of all the people in the municipality. South Africa is a water-scarce country and in many areas water sources are far away from where it is needed for consumption, which results in huge costs associated with infrastructure for storage and purification. Even though the Madibeng municipality is mainly composed of rural areas with residential areas spatially dispersed over a large area, a significant number of households do have access to piped water (86,4% for locals and 82,3% for in-migrants).

Table 4.10 shows the results for the test for differences in the ratios of the households with piped water inside the yard or dwelling by migration status

**Table 4.10: Test of differences in the ratio of households with piped water inside the yard or dwelling**

Variable 1	Variable 2	Rejection region at 5% significance level	Z score	Outcome
Locals	In-migrants	$ z  > 1,96$	16,0	Significant
Locals	Out-migrants	$ z  > 1,96$	-38,3	Significant
In-migrants	Out-migrants	$ z  > 1,96$	-44,2	Significant

At least 69,7% of locals have access to piped water either in their dwelling or yard, compared to 64,7% of in-migrants. The out-migrants are much better off, with 86,6% having access to piped water either in their dwelling or yard. Access to piped water is significantly different across all the three categories. Given the limited resources, there is significant progress in providing household access to water. Similar to sanitation though to a greater extent, one cannot live without water, and the provision of clean water minimises the chances of infections among the population. The provision of water, especially clean drinkable water, leads to good quality of life, which helps to retain and attract the affluent and highly skilled. The municipality has Hartbeespoort Dam located within its border; what is needed is the infrastructure to support the provision of piped water which might assist skills retention.

Table 4.11 shows the results for the test for differences in the ratios of the households access to services and ownership of household goods by migration status



Relative household deprivation in the reference population is significant in explaining the decision to migrate by members of the households to destinations where the reference population is better and the returns to migrate are high (Stark & Taylor, 1991). Table 4.11 above indicates that across all categories of household goods, out-migrants have the highest levels of access to services and ownership of household goods compared to locals and in-migrants. The locals also have better access to services and ownership of household goods compared to in-migrants in most of the categories reported, except in ownership of vacuum cleaners and cell phones, where in-migrants recorded higher values.

Access to goods and services in Table 4.11 is an indicator of affordability and income by households, which influence the decision to migrate. If the municipality wishes to offset the associated brain drain, it should create the environment that will allow for businesses to be attracted to the municipality and provide the residents with an opportunity to earn an income that will allow them to afford these services.

## **CHAPTER 5: CONCLUSIONS, POLICY RECOMMENDATIONS AND FURTHER STUDIES**

### **5. CONCLUSIONS, POLICY RECOMMENDATIONS AND FURTHER STUDIES**

#### **5.1 Introduction**

This section will give a conclusion based on the observations of the study. It will first summarise the findings and conclude with the implications of these findings, policy recommendations, potential shortcomings of research and further studies, and the value and contribution of research.

#### **5.2 Summary and conclusions**

The overall aim of the study is to identify the characteristics of out-migrants as an indication of brain drain and to establish the characteristics of in-migrants to understand their adequacy to reverse the brain drain. The study also seeks to establish characteristics of locals and determine how they are impacted by migration.

The study has shown that the in-migrants in Madibeng municipality have a higher proportion of skilled workers (those with an educational attainment level above Grade 12) compared to the local population. The movement of migrant workers who are highly educated compared to the locals in the receiving population is a common phenomenon (Piracha & Vadean, 2013). These in-migrants also have a higher proportion of persons with a post-school qualification. In absolute numbers, skilled in-migrants (2 917) adequately replace the lost skilled out-migrants (1 792). It is in the best interest of the municipality to avoid the brain drain by retaining the skilled work force among the population (if possible) instead of relying on in-migrants.

The study also indicates that the in-migrants play a role in increasing skills differentials in the Madibeng municipality. This impact is displayed by in-migrants (1 462 high-income earners) having a comparatively high proportion of persons who earn a high income at the top end, while also having a comparatively high proportion of persons who earn a low income at the lower end. Due to the low-skilled migrants representing the highest proportion, their impact lowers average incomes in the municipality, thus contributing to inequality. Those who migrated out of the municipality on average have moved to high-income destinations (with 579 high-income earners) and their proportional distribution depicts comparatively lower skills differentials. The municipality is affected by migration flows as well as labour practices.



The study results further confirm the resilience of migrant labour with lower unemployment rates compared to the locals. The locals are the least involved with income-generating activities while a higher proportion was observed for both in-migrants (32 722 employed) and out-migrants (7 644 employed). The locals have a higher unemployment rates in all the educational attainment categories when compared to both the in-migrants and the out-migrants. Strategies that motivate the local population to obtain jobs as well as to create jobs need to be improved upon to stimulate economic growth.

Economic conditions can serve either as a push or pull factor (O'Reilly, 2015) while others migrate to receive public services that are not available in their place of origin (Brueckner & Lall, 2015). The results indicate that out-migrants have moved to destinations that provide better services such as sanitation, water and electricity when compared to their place of origin. They also live in properties of higher value and have better access to goods and other services (such as access to the internet) as compared to both locals and in-migrants. This indicates that the availability of these goods and services has played a role as one of the push factors in Madibeng to justify migration decisions. To further exacerbate the situation, in-migrants to the Madibeng municipality generally have lower access to services and goods compared to locals.

The study found that the average age of all three categories are in the lower to mid-thirties, with the lowest average age recorded among in-migrants. The migration population (in-migrants and out-migrants) is dominated by the economically active age category (those aged between 20 years and 59 years), and the municipality should be geared towards attracting this demographic.

### **5.3 Policy recommendation**

The locals within the municipality had a high unemployment rate of 34,9% during Census 2011, which indicates a need to create more jobs. Madibeng is a municipality that has a significant primary sector (mining and agricultural sectors), but lacks a significant presence in the manufacturing sector. Retaining and attracting highly skilled labour will provide the municipality with innovators and entrepreneurs that will form the basis for this sector. Policies that provide incentives for businesses that create employment for the local can be pursued, such as Preferential Corporate Tax (PCT) and Building Allowance (BA).

The results of the study indicate that the in-migrants have a comparatively higher proportion of skilled workers than the locals, but also that a large proportion have lower levels of skill. The municipality should pursue policies that deliberately target a higher proportion of skilled migrants that financially

incentivise them, such as the RAP and Scarce Skills Allowance (SSA). The municipality also needs to pursue policies that are geared towards the retention of skilled persons among the locals. To support this initiative, the municipality should promote institutions of higher learning that are within the borders and promote access to these facilities.

The study shows that there is high inequality as indicated by a high skill differentials based on the proportions of salary levels. Remuneration policies in South Africa are done nationally; however, municipalities can create effective monitoring processes to safeguard the interests of the municipality residents. There should be a database of all formal businesses in the municipality, and routine submissions to the Department of Labour should be audited for intervention. The municipality should create policies that will allow it to use the Expanded Public Works Programme (EPWP) to deal with backlogs of service delivery. One of their focus areas could be to upscale the wide use of pit toilets and to integrate features that can improve safety and health (such as ventilation to reduce airborne diseases).

The skilled out-migrants from the municipality are moving to areas that provide better public services and an improved quality of life relative to the locals. To be able to retain some of these skilled migrants, the municipality should pursue policies that are geared towards urbanisation at high densities to be able to reduce costs that are associated with the provision of infrastructure when it is provided over a long distance.

#### **5.4 Potential shortcomings of research and further studies**

The Census 2011 results were used as a source for the study, so individual questions relating to migration such as personal reasons for migrating are not available, and hence the study relied on associated questions within the census.

The study focused on characteristics of the locals and both the in-migrants and out-migrants and how they impact one another. Further studies can expand on this basis by looking at how different groupings – such as the marginalised members of the population (e.g. women and people living with disability) – participate in and are affected by migration and issues related to brain drain.

#### **5.5 Value and contribution of research**

The study was able to identify the skill levels of out-migrants from Madibeng municipality as well as some of their demographic profiles and the push or pull factors that may have influenced their decision to migrate. The adequacy of in-migrants to reverse the brain drain was assessed through their

characteristics. First, the study informs the municipality about the profile of the out-migrant that they are losing, and the cost of reversing the brain drain in the form of in-migrant characteristics. The public services that out-migrants desire give the municipality a goal to work towards.

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