

An analysis of the economic geography of labour market outcomes in South Africa

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Abstract

This study examines the determinants of unemployment at the municipal level and as such aims to answer what the place-specific drivers of unemployment in South African cities and towns are. The purpose has been to test the arguments that local economies and labour markets matter for local unemployment. The empirical analysis makes use of a balanced panel data set for the period 1996 to 2012 for across 234 local and metropolitan municipalities to estimate a regression model in which the level of unemployment in a particular place is determined by a range of place-specific explanatory variables. It is found that the place-specific determinants of unemployment are a higher population growth rate and dense populations that are associated with lower unemployment rates, indicating the benefits from agglomeration economies. A large informal sector is negatively associated with unemployment, which supports the sentiments expressed in the literature that without agglomeration, economic opportunities for individuals in informal employment are limited. If people in a city or town are better educated this is associated with lower levels of unemployment on average. High inequality does not necessarily cause high unemployment; however, they do coincide. A positive association between specialisation and unemployment is found. Furthermore, the mining, manufacturing, construction and trade sectors that are locally bigger than in the national economy are associated with lower unemployment. The results support the findings that a link exists between geography and labour market outcomes and therefore the need exists for convergence of the social safety net and integration with the economic opportunities at the thriving cities and towns.

Key words:

Unemployment, agglomeration, economic geography, labour market, municipalities, urbanisation, spatial development

Opsomming

Hierdie studie stel ondersoek in na wat werkloosheid op 'n munisipale vlak bepaal en probeer dus om die plek spesifieke drywers van werkloosheid in Suid Afrikaanse stede en dorpe te beantwoord. Die doel hiermee was om die argumente dat plaaslike ekonomieë en arbeidsmarkte noodsaaklik is vir plaaslike werkloosheid te toets. 'n Gebalanseerde paneeldata reeks word gebruik vir die periode 1996 tot 2012 wat strek oor 234 plaaslike en metropoolse munisipaliteite om 'n regressiemodel te skat waar die vlak van werkloosheid in 'n spesifieke plek bepaal word deur 'n reeks plek-spesifieke beskrywende veranderlikes. Die resultate toon dat 'n hoër populasie groei koers en digte populasies die plek-spesifieke bepalers van werkloosheid is en geassosieer word met laer werkloosheids koerse wat op die voordele van agglomerasie ekonomieë dui. 'n Groot informele sektor is nie beduidend van werkloosheid nie wat die argumente in die literatuur ondersteun dat agglomerasie nodig is ten opsigte van ekonomiese geleenthede vir individue wat werk in die informele sektor. Dit is ook bevind dat mense in stede en dorpe met hoër onderrig oor die algemeen laer vlakke van werkloosheid het. Hoë ongelykheid is nie noodwendig die oorsaak van werkloosheid nie, alhoewel daar 'n verwantskap is. 'n Positiewe korrelasie tussen spesialisasie en werkloosheid word bevind. Die mynweese, vervaardiging, konstruksie en handel sektore wat plaaslik groter is as in die nasionale ekonomie word gekoppel aan laer werkloosheid. Die resultate ondersteun die bevindinge dat daar 'n verwantskap tussen geografie en arbeidsmark uitkomst is en bestaan die nood dus vir samevoeging van die sosiale veiligheids net en integrasie met ekonomiese geleenthede vir stede en dorpe wat floreer.

Sleutelwoorde:

Werkloosheid, agglomerasie, ekonomiese geografie, arbeidsmark, munisipaliteite, verstedeliking, ruimtelike ontwikkeling

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Chapter 1: Introduction

1.1 Introduction

In 2012, The United Nations stated that world unemployment was high, at an average of nearly nine per cent of the labour force. In South Africa the latest unemployment rate by the narrow definition of unemployment is 24.9 per cent. Even though Government launched the Accelerated and Shared Growth Initiative for South Africa in 2006 with the aim to halve unemployment and poverty by 2014, it is clear that South Africa is faced with a pressing challenge. Both the causes and consequences require analysis.

Fourie (2011) examined the South African academic literature on unemployment and identified a number of key themes and findings. He shows that unemployment in South Africa has been studied from various different perspectives which could be grouped into three main clusters based on the topics, approaches, models and data. The three different views, some with sub-perspectives, on unemployment have been identified as:

- (1) a labour market perspective;
- (2) a poverty and development perspective
 - a) from unemployment to poverty and inequality dynamics;
 - b) from poverty to sustainable livelihoods and marginalisation; and
- (3) a macro/macro-sectoral perspective
 - a) from unemployment to macro-economic equilibrium; and
 - b) economic growth, employment and wages.

The labour market perspective focused on a micro-economic analysis of unemployment which includes labour market factors, segmentation and worker characteristics. In this strand of the literature little attention is given to matters such as poverty and inequality. However, the second unemployment perspective is more focused on issues pertaining to poverty characteristics of households and income inequality, as well as development aspects while much less attention is given to issues pertaining to the labour market. None of these two unemployment

perspectives consider the macro-economic concept of growth or cyclical factors relating to unemployment. These concepts are grouped within the third perspective, the macro/macro-sectoral perspective which concentrates on a broad macro-economic analysis of unemployment.

Fourie (2011) identifies substantial differences among these three perspectives, but also some commonalities. Some of the key analytical conclusions are that the South African labour market is characterised as having a formal-informal segmentation and a rural-urban segmentation. Furthermore, segmentation is also present within the informal sector. Various factors such as entry, mobility and information barriers restrain the search for jobs and entrance into labour markets. It is also found that factors which either enable or prevent persons to move to better segments may be important to understanding unemployment and poverty. Furthermore, unemployment cannot be analysed without taking several other factors such as segmentation, the informal sector, entry and mobility barriers, poverty, household inequality and marginalisation into account. Causal relationships with regard to issues like the search for jobs, migration and education are influenced by demographic aspects such as gender, race and age.

Though there are many insights to be found in the various research contributions on unemployment, few studies have investigated the economic geography of the labour market. In view of the fact that this subject matter is currently receiving attention from policy-makers, it is fundamental to investigate this matter further.

The Apartheid regime caused dramatic changes in spatial structures in South Africa. Euphemistically called 'separate development', Apartheid was a system of policies directed towards the separation of different ethnicities or racial groups. Initial emphasis was on restoring the separation of races within the urban areas. Urban apartheid involved the spatial separation of the four racial groups ("native", "white", "coloured" and "Asian") according to the Population Registration Act of 1950 into group areas according to the Group Areas Act of 1950. The four racial groups had to reside within designated areas (Impuls Centrum, 1999). A large segment of the Asian and Coloured populations was forced to relocate out of the so-called white areas. Between the passage of the Group Areas Act of 1950 and 1986, about 1.5

million Africans were forcibly removed from cities to urban peripheries like the South Western Townships (Soweto) and to rural reservations.

The abolition of the Group Areas Act in 1991 contributed to major changes in the former apartheid cities of South Africa, of which the urbanisation process is of particular interest. According to a World Bank report released in 2011, the urban population constituted 60.7 per cent of the total population of South Africa, compared to the rural population which only constituted 39.3 per cent of the total South African population. A breakdown of population growth rates has indicated that the urban population was growing at a rate of 2.13 per cent by 2010, while the rural population experienced a negative growth rate of -0.1 per cent (World Bank, 2011).

Given this history of spatial separation and post-apartheid migration in the South African context, the challenges posed have been acknowledged by government: “The most difficult aspects of the legacy of apartheid to unwind arise from its deliberately irrational patterns of population settlement. The price of labour of the poor is pushed up by the fact that many live a great distance from their places of work” (Statistics South Africa, 2010:22).

In 2011, the National Planning Commission outlined a National Development Plan (NDP) which is aimed at reducing poverty and income inequality by 2030. At the core of this plan is the focus on creating, improving and developing education, public transport, the broadening of opportunities through economic growth and the availability of jobs with the aim of improving the quality of South African citizens' lives. In terms of job creation, the plan intends to facilitate the matching of unemployed workers to jobs as well as deal with confusion over policies concerning transport, water, energy, labour and communications. Of particular importance is the fact that the plan intends to address South Africa's spatial challenges by means of transforming urban and rural spaces. Some of the main goals include stopping house-building on poorly-located land, the shifting of more resources towards the upgrading of informal settlements provided that they are located near jobs, improving public transport and providing business incentives to reposition jobs to townships (The National Planning Commission, 2011).

Based on basic economic geography and the spatial mismatch theory, location plays an important role in explaining an individual's labour market outcomes, that is, employment and earnings.

The Smith-Marshallian view of agglomeration and the labour market holds that the size and proximity of economic activity found in cities and large towns ensure a thick labour market that allows for better matching between workers and jobs. Two models characterise this approach. Helsley and Strange (1990) showed that a large city allows for a better average match between heterogeneous workers and employers' job requirements and this enhances efficiency. On the other hand, Duranton (1998) argued that a large market allows workers to become more specialised and, therefore, to be more efficient. In both cases, greater efficiency increases workers' wages and this attracts more workers.

The spatial mismatch hypothesis was first put forward by Kain (1968) who discovered that a relationship exists between residential segregation and labour market outcomes. Kain argued that being a resident in an urban separated area, isolated from main employment growth centres, result in a worsening trend of unemployment for low-skilled workers because this geographic obstacle makes it difficult for these workers to find and keep jobs.

Wasmer and Zenou (2005) have found that residing closer to the employment centre leads to higher job search efficiency and therefore shorter unemployment periods occur. In contrast, job seekers who reside further away have a lower probability of finding a job due to lower search efficiency. The conclusion is that job search efficiency decreases with distance to jobs. In Sweden, a positive relationship between local job proximity and individual outcomes such as employment and earnings in the population as a whole has also been found (Aslund, Osth and Zenou, 2009).

A positive correlation between the adequacy of transportation infrastructure, the ease of mobility and employment access and income enhancement exists (Okpala, 2003). Evidence has been found that areas which are geographically isolated are less likely to be successful in attaining population growth as well as earnings growth

(Barkley & Henry, 1997 and Drabenstott & Smith, 1996). Rural areas' employment base is also generally concentrated in low-skilled, low-wage occupations (Wojan, 2000).

Depopulation in particular of the youth, as well as the centralisation of certain services, characterises the continuous challenge which rural areas face. Rural communities face the constant danger of local businesses, schools and other key facilities closing down. This would mean that in order to access these needed services, people would have to travel further distances or relocate to bigger towns and cities. Additionally, this creates a further setback for rural communities due to the fact that they are also faced with transportation barriers such as not having access to private transport. Access to transport and the ability to travel are important for job seekers in determining which opportunities they are able to pursue in labour markets (McQuaid, Lindsay and Greig, 2003). Restricted access to jobs may also reduce labour force participation as it increases the fixed costs of employment through lengthy commutes and higher costs to search for jobs (Zenou, 2000; Zax & Kain, 1991, and Ross & Zenou, 2004). Further evidence also supports these findings which concluded that job seekers who are faced with transportation barriers such as transportation immobility, have a major drawback in competing for employment opportunities as the greater part of residential locations may be associated with a lower access level than the average (Shen, 2001). By adequately investing in infrastructure, particularly transportation infrastructure, through the provision of public transport or improving transport links, access will be allowed to markets and job opportunities (Okpala, 2003). This would be an efficient means of extending economic gains to rural areas (Wright, Nelson and Cooper, 2008).

Further literature explores how the physical disconnect of jobs can worsen unemployment among low-skilled minority workers in the United States of America (Ihlanfeldt & Sjoquist, 1998 and Gobillon, Selod and Zenou, 2007) and quite a number of studies have found that job access was positively correlated with employment and/or labour market earnings. Strong correlations have been found between an individual's neighbourhood or residential location and the outcome of the individual's employment (O'Regan & Quigley, 1998; Case & Katz, 1991; Evans, Oates and Schwab, 1992; Cutler & Gleaser, 1997; and Bayer & Ross, 2005).

Strong evidence which also supports the spatial mismatch hypothesis states that involuntary housing separation dampens a job seeker's search for job opportunities that are further away from the job seeker's residential location. It has been found that job search behaviour and outcomes are influenced by the interaction of residential location barriers which job seekers face and the job seeker's proximity to opportunities of employment (Johnson, 2006).

There have also been a number of studies on the geography of the labour market in South Africa. Havemann and Kearney (2010) constructed an urbanisation index to analyse the influence of urbanisation on socio-economic outcomes, particularly employment. They argued that a positive relationship exists between the probability of employment and the degree of urbanisation. For this reason, urbanisation plays an important role in employment outcomes. It was found that individuals located in more urbanised areas had a higher probability of being employed than individuals located in more rural areas. Individuals situated in more urban locations were also more likely to be encouraged and actively searched for jobs than individuals in rural areas.

Naudé (2008) investigated whether a spatial mismatch was evident in South Africa's metropolitan labour market and concluded that in at least some of the country's metropolitan labour markets a spatial mismatch exists. This could partially explain why unemployment rates of blacks are much higher than unemployment rates of whites. Further research by Naudé (2010) in respect of sub-urbanisation and desegregation in South Africa's cities proposed that South Africa's population in the cities is sub-urbanising more rapidly than employment opportunities are growing and that residential desegregation is slow. This could play a role in the spatial mismatch in the urban labour market and the likelihood that a spatial mismatch is contributing to unemployment being higher among the blacks; however, Naudé has suggested that further research in this field be conducted.

Banerjee, Galiani, Levinsohn, McLaren and Woolard (2008) documented reasons for the rise in unemployment in South Africa since the transition in 1994. A number of constraints to solve the unemployment problem were identified, one of which is the mismatch between the location of the unemployed and the location of formal sector

jobs. In conclusion it was stated that these constraints ought to have policy consideration. Empirical findings from low-income settlements in Durban have found that residing in the urban centre gives both men and women the benefit of availability of jobs as well as being closer to opportunities nearby the city, which also support earlier findings from developing countries (Venter, Vokolkova and Michalek, 2007).

Another study conducted on two rural settlements in the Keiskammahoek District of the Ciskei assessed the villages' employment opportunities and economic well-being based on their respective locations. The study revealed that the village situated on the main road between the local town of Keiskammahoek and the commercial centre of King William's Town (Rabula) was more accessibly located and has consequently offered its residents a direct employment advantage. In contrast, the village situated in a relatively isolated location (Chatha) was not able to take advantage of the employment opportunities which arose from the Ciskei policy, due to the fact that these residents resided too far to make commuting feasible. In addition, the results also showed that the real incomes of Rabula have grown faster than those of Chatha and that the former enjoyed greater social and economic benefits than the latter because it was favoured by its location (De Wet & Liebbrandt, 1990).

It has also been found that the lowest unemployment rate was connected to the more urbanised provinces where the industrial structure was better diversified. In contrast, the provinces with the highest unemployment rates were the more rural provinces such as the Eastern Cape and Limpopo. Differences are observable between the highest and lowest unemployment rates, absorption rates and labour force participation rates across the nine provinces of South Africa which indicate that the South African labour market has large provincial disparities. These disparities are the result of many factors, one being the different economic conditions each province is faced with. In this regard, the level of urbanisation is expected to be an important causal factor to provincial labour market outcomes (Statistics South Africa, 2010).

1.2 Problem statement

This dissertation investigates the determinants of unemployment at the municipal level. In other words, what are the place-specific drivers of unemployment in South African cities and towns?

1.3 Objectives of this study

The general objective of this dissertation is to examine the place-specific predictors of unemployment in South Africa.

This objective will be achieved by pursuing the following specific objectives:

- (1) To provide an overview of the literature on the role of geography in labour market outcomes.
- (2) To review the South African labour market literature, specifically studies that have examined the role of place-specific predictors of employment and unemployment and wages.
- (3) To use the Regional eXplorer (ReX) data from IHS Global Insight Southern Africa to estimate a regression model of unemployment at the municipal level.

1.4 Method

The methods employed in this study include a literature review and empirical analysis. The literature review includes the international literature on the importance of geography and agglomerations for labour market outcomes, as well as the South African labour market literature on explanations of employment and wages. The empirical analysis involves the estimation of a regression model, using ReX data from IHS Global Insight Southern Africa.

As the database comprises specific spatial information, it allows for the analysis of South African data from a National level, down to a local municipal level. The information produced by ReX is updated on a quarterly basis and obtained from various subject areas through a number of sources including government

departments, development agencies, private research houses, research bureaus and institutions that provide a wide range of statistics. For the purposes of this study, ReX data consisting of a number of variables for the period 1996 to 2012 across 234 local and metropolitan municipalities were used to in the empirical analysis.

The empirical analysis involves the estimation of a regression model by means of panel data methods in which place-level unemployment is the dependent variable. A number of explanatory variables are used in this analysis that measure various place-specific characteristics relating to demography, development, labour, economic and international trade which draws on the literature as outlined in chapters two and three.

1.5 Outline

The dissertation is structured as follows. Chapter 2 provides an overview of the international literature of the role of geography in labour market outcomes. Chapter 3 reviews the South African literature on the labour market, focusing on studies of the predictors of employment and wages (see Fourie, 2011) and the South African studies that have incorporated geography into labour market analysis [see Naudé, (2008), Magruder (2010) and Havemann & Kearney (2010)]. Chapter 4 reports the process of the estimation and results of empirical analysis. Conclusions and recommendations are presented in chapter 5.

Chapter 2: International literature on the role of geography in labour market outcomes

2.1 Introduction

This study aims to explain the role of geography in labour market outcomes in South Africa. Therefore, it is important to give an overview of the international literature on the links between jobs and development. The Lewis Model outlines the mechanism through which rural urban migration can drive development. This can in turn be linked to the geographical economics literature and the importance of mobile workers and thick labour markets in the process of agglomeration. Finally, the focus is on earlier studies that have estimated spatial wage equations.

2.2 Jobs as a driver of development

A job is one of the most important determinants of a person's living standard (World Bank, 2013:28). From this fact, it is then not surprising that the poor, in particular, is heavily reliant on the labour market for a living. Any change in the labour market can result in people remaining poor or falling into poverty.

In terms of employment characteristics, approximately half of the people (1,5 billion people out of 3 billion people) worldwide who have jobs, are either self-employed in small household enterprises, employed in farming or in informal related labour (World Bank, 2013:24). The above-mentioned types of work are evident amongst the largest portion of workers across the world's poorest countries where many are under-employed (World Bank, 2013:67). Furthermore, farming, self-employment and wage employment expressed as the percentage share of total employment differ sizably by gender and across countries and regions (World Bank, 2013:25). The results indicate that a much smaller percentage of women work for wages in low-and lower-middle income countries as opposed to middle-income countries (World Bank, 2013:69). In addition, individuals' jobs do not always match their aspirations, for example, the poor does not always desire to own a small business. However, in many poor countries, people revert to self-employment as a last resort as a result of

not being able to find wage employment (World Bank, 2013:75). This can also be linked to the issue relating to access to jobs where the literature has found a number of factors which determine a person's access to jobs. These factors range from conditions in which a person is born and include location, upbringing, gender, family background, language and ethnic background (World Bank, 2013:191).

Rural economies are generally characterised by predominantly agricultural activities in which household production is generally used for consumption purposes (World Bank, 2013:37). Less developed economies are generally characterised by jobs without wage payments which include farming activities and other self-employment types of jobs (World Bank, 2013:14). In developed economies, the shift occurs from home-based work to market production in which work is compensated through wage employment. However, jobs do not guarantee a continuous improvement in earnings or living standards. Poor households in many countries remain in poverty, even people with a job, due to poor remuneration earned in the particular job (World Bank, 2013:96). The only means of escaping poverty is to derive larger earnings from a job. Reduction in poverty in developing and developed countries is mainly driven by employment-related opportunities. Employment opportunities and employment transitions are the main drivers of the change in standards of living and the stance of poverty in a country (World Bank, 2013:97). Poverty reduction stems from the ways in which these employment opportunities are allocated. These opportunities range from employment of family members, family members earning higher wages and the head of the household having a new job (World Bank, 2013:97). Countries that formed part of the above-mentioned research include Canada, Ecuador, Germany and South Africa. Research conducted on low-income countries has revealed that employment and the commencement of a business were the main two reasons for people escaping from poverty. However, households that had a lack of employment opportunities were unable to improve their wellbeing. Employment is; however, not the only determining factor of households' living standards and their escape from poverty, as other demographic factors also influence a household's poverty status (World Bank, 2013:97). Rural wage gaps may be impacted by differences between those who migrated to the city and those who stayed behind. The transfer of social grants and pensions plays a role in the wellbeing of migrants, but also in some

cases, the wellbeing of families who stayed behind in rural villages (World Bank, 2013:98).

The benefits of jobs are reiterated as the majority of households are dependent on employment as their main source of income, even more so in poorer countries (World Bank, 2013:101). Employment is therefore associated with a reduction of poverty as it is perceived as the most important determinant of living standards across the world. However, living standards are also dependent on access to health, education, housing, sanitation and security (World Bank, 2013:156). Jobs not only contribute towards earnings, they also affect other elements of a person's wellbeing, either progressively or destructively. Without a job, a person's mental health is weakened, particularly in countries where it is the norm to be employed (World Bank, 2013:95).

Access to economic activities and wage employment are ground-breaking prospects on the way to success (World Bank, 2013:223). One way through which access to economic activities can be obtained is through rural-urban migration. Better opportunities in the form of migration to cities generally improve the wellbeing of individuals (World Bank, 2013:223). Due to structural and technological changes, more people are migrating from rural areas to cities (World Bank, 2013:67). Structural transformation is defined as the process by which substantial changes in the configuration of the labour force occur as a result of economic development (World Bank, 2013:71). This phenomenon has an impact on living standards, levels of production and social interconnectedness. People's migration trends will be determined by demographic factors, cultural features, geographical distance and other economic factors. The trend of urbanisation has not yet picked up in countries with mainly agricultural activities; however in urbanising countries, productivity growth has increased to such an extent that many people have been able to move to and be employed in the cities (World Bank, 2013:37). This urbanisation trend will, over the next 15 years until 2030, result in a significant portion of the population of developing countries migrating to urban areas. These rapid urbanisation trends will cause a shift from work in farming towards work in the factory or the street. Hence, the non-agricultural labour force will be growing at a much higher rate than the agricultural labour force (World Bank, 2013:67).

This rural-urban shift usually improves the wellbeing of individuals as it provides access to employment and wages and as such can sustain a higher standard of living (World Bank, 2013:67). Urbanisation is furthermore associated with high economic growth as urban employment has a tendency to be more productive than rural employment (World Bank, 2013:71). In developing countries, spatial concentration of activity is an important contributor to productivity growth (World Bank, 2013:186). An example of that is Bangladesh, which due to the density of its population, has benefitted from urban locations' proximity to agricultural areas which enabled the movement of labour from agricultural areas to urban areas. These migrants found employment in the garment, construction and manufacturing industries, some of which have a strong export orientation. Not only did those in the cities benefit, but also the population that remained in the rural areas as the links from proximity allowed for increased productivity in those rural areas (World Bank, 2013:216). However, in instances where cities do not function effectively, the potential for gains from proximity weakens. Unproductive labour, land and housing markets result in the poor functionality of cities (World Bank, 2013:186). Hence, employment in efficient and well-working cities has a tendency to be good for development; however, when cities become overcrowded, congested and malfunctioned, the effects become negative (World Bank, 2013:180).

The above-mentioned population movements away from agriculture have not been proven to produce the same level of economic growth for all countries. Country-specific conditions determine the nature of employment activities. Pakistan and Uganda are examples of studies that indicated that for rural economies, factors of production such as access to land, higher yields on crops and higher agricultural productivity are fundamental for growth. The biggest poverty reductions were associated with agricultural employment (World Bank, 2013:100). Similar studies conducted for China and Vietnam have emphasised the importance of agricultural productivity. Workers in rural China were engaged in off-farm activities and earned higher incomes due to obtaining education which led to poverty reduction. Hence, skills are also essential for employment. The access to off-farm opportunities and migration made the workers less prone to income shocks (World Bank, 2013:100). In other Asian and Sub-Saharan African countries, studies have revealed that in Asia, poverty reduction in rural areas occurred as a result of non-farm activity

diversification; however in Sub-Saharan Africa, poverty reduction was associated with increased farm productivity. For most parts of sub-Saharan Africa, urbanisation has failed to produce productivity and income growth. This was mainly as a result of ineffective cities and migration driven by desperation. Being a resource-rich developing country does not necessarily guarantee a higher quality of life (World Bank, 2013:101). In the case of Papua New Guinea, large-scale mining projects have resulted in a very unequal distribution in living standards, with the majority of the population remaining mired in poverty (World Bank, 2013:219).

As mentioned earlier, developing countries are generally characterised by workers who work in small units and family farms which are associated with agricultural activities. Apart from agriculture, small enterprises and household businesses constitute a large portion of employment in many developing countries (World Bank, 2013:68). In fact, more than half of micro-enterprises are based in rural areas in most countries. These micro-enterprises assist the poor in diversifying their income. Due to the fact that jobs are created, but also destroyed simultaneously, it consequently results in structural change and spatial labour reallocation which is the structural shift from agricultural activities in rural areas to services and industry in cities, that is, the spatial distribution of employment (World Bank, 2013:117). The promotion of labour reallocation from rural to urban areas will generate productivity growth and as such lead to an improvement in living standards.

One cannot, however, focus solely on the relationship between employment and growth (World Bank, 2013:117). By focusing only on the aggregates, one might be unsuccessful in measuring the impact of jobs on gender equality, urbanisation and collective decision making. This is also dependent on the nature of the job challenge facing a particular country. Specific job strategies also come with trade-offs between the improvement of living standards, faster productivity growth and the encouragement of social cohesion. In terms of broader points on rural-urban migration, jobs play a role in social interactions and as such, migrants without social bonds (that is, disconnected from people), may be disregarded in terms of employment opportunities and ultimately be unsuccessful in a new environment. Migrants, who choose destinations where they have no connections, might find access to jobs challenging. In essence, jobs connect people and serve as an

integration mechanism for rural migrants into urban environments (World Bank, 2013:145). In the context of structural transformation, when large numbers of people migrate from rural to urban areas, this exclusion from job opportunities is a concern. An appropriate job strategy should assess the type of job that would contribute towards development in a particular country context. The type of job, the opportunities associated with the job and the way in which jobs connect people, may be more applicable to the development of social cohesion in developing countries (World Bank, 2013:147). Job strategies may vary from focusing on increased gender participation, creating job opportunities for the youth or creating a supportive environment for job creation in cities, depending on the country-specific needs. The features and profiles of the poor can also assist in identifying the types of jobs required and the locations, which would make the necessary difference. Nevertheless, jobs improve living standards, are a driver of development and reduce poverty and as such, should remain a priority especially for developing countries.

2.3 Lewis Model of Migration

The preceding section provided an overview of the importance of jobs in terms of development and economic well-being. In addition, access to economic activities through rural-urban migration was also highlighted as a factor that can improve an individual's wellbeing. The concept of rural-urban migration was used by Arthur Lewis to develop the Lewis Model, in which a dualistic economy exists and is divided by different levels of development. For this reason, an overview of the Lewis Model is provided in this section.

The Lewis Model has produced a vast amount of literature that focused on development theory (Ranis, 2004). Labour market dualism was at the core of the Lewis Model in which workers' wages differed according to the sector of the economy in which a worker found employment. A dualistic labour market is characterised by two labour markets, one of which is generally referred to as the "capitalist", "formal", "modern", "industrial" or "urban" sector, and the other commonly denoted as the "non-capitalist", "subsistence", "informal", "agricultural" or "rural" sector (Fields, 2004). The difference in wages stemmed from a labour surplus in the non-capitalist sector. As a result of the surplus labour supply in rural areas, the

marginal productivity of labour was very low, in fact close to zero. As such, the capitalist sector pursued higher profits and employed labour at a higher wage rate compared to the agricultural sector (Taylor & Martin, 2001).

The surplus labour of the non-capitalist sector was hired by the capitalist sector in order to sell outputs at a profit. As the capitalist sector expands, it draws labour from the agricultural sector. This reallocation of populations and workforces from rural to urban areas became known as internal migration. If the capitalist sector were to be concentrated in an urban area, the transfer of labour would imply a geographical labour movement (that is, the movement of labour from rural areas to urban areas).

In greater detail, Lewis (1954) aimed to provide insights into the classical framework which argued that an unlimited supply of labour was available at subsistence wage levels. The purpose of his research was to solve the problems of distribution, accumulation and growth from both a closed and open economy perspective. From a closed economy perspective, an unlimited supply of labour existed in those countries where the population, relative to capital and natural resources, was so large that the marginal productivity of labour was zero or negative. For these economies, the price of labour comes in the form of a subsistence wage. Hence, for assessing the impact of economic development on wages, an unlimited supply of unskilled labour existed. From this finding, it was determined that capital and natural resources were the impediments to the expansion of the economy.

Lewis (1954) made use of the terms “capitalist” sector and “subsistence” sector. The capitalist sector was explained as the part of the economy that used capital that could be reproduced and for the use of the capital the capitalists then got paid. On the other hand, the subsistence sector was that part of the sector that did not use reproductive capital. The subsistence sector was characterised by a lower output per head, compared to the capitalist sector. Hence, the distinction between productive and unproductive can be explained through workers who are drawn from the subsistence to the capitalist sector as a result of more available capital which leads to an increase in output per head.

With regard to the wage level, this was determined by the wage that could be earned outside the capitalist sector, as one would not seek other employment where the wage is worth less. But due to the unlimited supply of labour, the earnings were set at a minimum level. This level of earnings served as the earnings floor for the capitalist sector; however, in practice, wages had to be above this level as a result of higher costs of living in the capitalist sector due to its presence in overcrowded towns. A large difference in real wages between the two sectors was also found (Lewis, 1954).

Returning to the matter of economic expansion, this occurs through surplus capital being reinvested to create new capital, which in turn results in the expansion of the capitalist sector, and ultimately leads to more people being drawn into capitalist employment out of the subsistence sector. This process would continue until the surplus labour supply disappears which means that the model of the closed economy no longer holds. As the surplus labour supply disappears, wages increase above the subsistence level. However, due to the fact that a country would be surrounded by other countries with surplus labour supply, it will lead to immigration. This would consequently keep wages for all countries close to the subsistence level of the poorest countries (Lewis, 1954).

To this day, the relevance of the Lewis Model is still seen in countries such as China, India, Bangladesh, Central America and parts of sub-Saharan Africa. However, the empirical evidence based on his theory varies from country to country.

Ercolani and Wei (2010) used the Lewis-Ranis-Fey theory of dualistic economic development to determine what had contributed to China's growth between 1965 and 2002. In view of China being a dualistic developing economy, characterised by an agricultural sector in rural areas and a non-agricultural sector mainly clustered in urban areas, with a surplus supply of labour, the Lewis-Ranis-Fei theory provided a suitable framework for such a study to be conducted. The main driver of China's economic growth was found to be the development of the non-agricultural sectors, those being the industrial and service sectors. Labour migration and capital accumulation were the main drivers that contributed to the development of the non-agricultural sector. National-level data between the periods 1965 and 2002 was used

in the estimation of a Cobb-Douglas production function for both the agricultural (representing the traditional) and non-agricultural (modern) sectors (in the Lewis theory) of China. The accumulation of non-agricultural capital resulted in the development of the non-agricultural sector. This finding concurs with the suggestion of the Lewis theory that economic growth is driven by the expansion of the non-agricultural sector. Furthermore, in terms of labour reallocation, it was concluded that the reallocation of labour away from agriculture contributed to the economic growth of China. The findings also indicated a continued widening productivity gap between the agricultural and non-agricultural sectors.

Dubey, Palmer-Jones and Sen (2006) attempted to identify a) the likelihood of rural-urban migration occurring from regions with surplus labour in India, and b) the determinants of rural-urban migration. India, a country characterised by a surplus labour supply due to its high population densities and low labour productivities in agriculture, provided an appropriate empirical analysis based on Lewis' theory. Owing to significant differences between labour-land ratios (the ratio of labour supply to land availability) across states in India, the phenomenon of rural-urban migration based on surplus labour supply allowed for the examination of whether rural-urban migration stemmed from states with high labour-land ratios or states with low labour-land ratios. Data, which was collected by the Indian National Sample Survey Organisation between July 1999 and June 2000 and based on a national representative household survey of employment and unemployment, was used to conduct a probit analysis to determine rural-urban migration probability. A sample of 15 of the largest states in India was drawn to ensure a 96 per cent representative portion of the total Indian population. It was established that rural-urban migration was a higher probability in states with a surplus labour supply and in areas where agricultural productivity was low. These findings supported Lewis' prediction of rural-urban migration driven by surplus labour in the agricultural sector. This finding was, however, dominated by the higher social classes in the social hierarchy. Furthermore, the ownership of human capital had been identified as an important determinant of rural-urban migration probability which suggests that other factors also play a role in rural-urban migration.

With its dense population, Bangladesh benefits from labour-intensive industries. From this perspective, the existence of a Lewis turning point in Bangladesh was studied by Zhang, Rashid, Ahmad, Mueller, Lee, Lemma, Belal and Ahmed (2013). The Lewis turning point is the point at which the economy absorbs the surplus labour of the rural sector into the non-farm sector, resulting in a rise in wages. Three data sources were used to determine whether real wages have increased in Bangladesh. These included 1) monthly rural and urban wage data between 2001 and 2011 from Monthly Statistical Bulletin, obtained from the Department of Agricultural Marketing 2) data from the national representative Bangladesh Household, Income and Expenditure Survey of 2010, and 3) administrative payroll data from a privately-owned sweater factory for June 2010, May 2011 and February 2012. Their results indicate that rural real wages, particularly those of women, have been increasing at a faster rate since the late 2000s, thereby implying that a Lewis turning point in Bangladesh has been reached. As such, the country has experienced a reduction in poverty as a result of sufficient employment opportunities provided by the non-farm sector and the outcome of higher real wages. The study called for government intervention in the form of redesigning its safety net programmes in order to address the vulnerabilities of those who are unable to participate in the labour market.

As part of earlier research conducted, Knight (2007) conducted a further study of China and South Africa's labour market progress through the use of the Lewis Model. These two economies have similar characteristics as both are labour-abundant; known for their rural-urban divides; have types of migrant labour; are characterised by rural-urban migration; and are experiencing increasing real wages in their formal sectors. However, they are also characterised by differences between growth rates in their formal sectors in terms of output and employment and labour force growth. China, being a country with surplus labour supply, has experienced rapid growth in its urban economy as people migrated from rural to urban areas as a way to improve their incomes. A large gap between rural and urban income per capita was observed. The results indicated a rapid reallocation of labour away from agriculture towards the urban areas. In the case of South Africa, increasing unemployment as a consequence of economic, social and political circumstances has been posing a risk to the country's future economic growth. Between 1995 and 2003, the country experienced rapid growth in its labour force. These labour market

developments since the country's introduction of democracy have been noted in the form of rural-urban migration. With its large rural-urban income divide, wages for unskilled labour in the formal sector were greater than market-determined levels. This was mainly as a result of collective bargaining and institutional arrangements. It was concluded that although the Lewis Model served as a supportive framework for China and South Africa's labour market analysis, the evidence did not correspond very well to that of the model in theory. In both countries, the wages in the formal sector were above the market-clearing level. The countries' labour markets were furthermore regarded as being segmented and inflexible. The rapid rural-urban migration trend of South Africa has not led to efficient absorption thereof into the urban sector.

From the above-mentioned, it is certain that Lewis' Model is important as workers transfer from the low productivity sector to the more productive and higher urban wage sector. In this regard, the economic geography models that were mentioned previously assist in explaining economic development across space through the concentration of economic activities.

2.4 Review of geography and jobs

Based on the aforementioned overview of jobs as a contributor to economic well-being and a driver of development as well as insights into access to economic activities, explained by the Lewis Model of rural-urban migration to determine differences in wages and development, it is evident that an inter-linkage between geography and jobs exists as a result of the nature of economic activity which is concentrated in certain places. The reason for this is proximity which, in conjunction with spill-overs, ultimately drives economic activity. Hence, economic development across space occurs through the concentration of economic activity. In this way, agglomeration has a labour aspect through thick labour markets, labour matching and knowledge sharing. This will be explained in greater detail in the section to follow.

The poorest people across the world are those who are distantly located from economic opportunities, most often those who are living in villages and rural areas (World Bank, 2009:14). This phenomenon is attributable to the nature of economic opportunities, which present themselves in the form of economic agglomerations. Economic agglomeration implies benefiting from economic opportunities by being near other people. Fundamentally, this means that being far from economic agglomeration will most probably result in a person being under-employed or unemployed and poor (Smith-Marshallian view of agglomeration). Furthermore, the situation is worsened by inadequate access to economic opportunities, a lack of sufficient infrastructure and the absence of efficient policies (World Bank, 2009:14). Hence, without economic agglomeration and economic development, the improvement of living standards is difficult to attain. Changes such as the expansion of cities, the migration of people and the interconnectedness of countries are key drivers of the success of developing countries (World Bank, 2009:20). However, World Bank (2009:21) emphasises that in order to generate economic well-being, the above-mentioned changes cannot be promoted without incorporating them with the three dimensions of economic geography (that is, higher densities, shorter distances and fewer divisions through economic integration).

From an employment perspective, it is then not surprising that the largest portion of workers across the world's poorest countries are involved in self-employment in small household enterprises, in farming activities or informally related labour (World Bank, 2013:67). Without economic agglomeration, the economic opportunities for these people are limited, and as such, they are unable to find better wage employment opportunities. The World Bank (2013) stresses the importance of jobs as it provides greater earnings, leads to poverty reduction and ensures sustainable development. It is essential to implement the appropriate policies in accordance with the unique challenges the different countries are facing, as each labour market has its own geographical characteristics and dynamics, in order to address the jobs challenges of the respective countries.

2.4.1 Economic geography and sustainable development

Economic activities are geographically clustered and as such, the forces of agglomeration produce a concentration of economic production and a convergence of living standards (World Bank, 2009:27). Hence, economic growth is driven by agglomeration forces. But how is economic geography linked to the labour market, employment and wages?

A billion people out of the world's population are located in the most secluded and poorest areas and must survive on less than two per cent of the world's wealth. Due to the fact that these people are living in remote areas, they are economically and geographically disadvantaged. They are faced with the fact that development brings economic prosperity faster to some places than others, creating geographic inequalities in income. In more simplistic terms, some places are poor while others prosper. Policies aimed at improving people's living standards through economic integration will produce living standards that are more uniform across space. Economic integration ranges from the establishment of institutions to provide access to basic services, setting up infrastructure to enable the movement of goods, services and people as well as targeted interventions for a community's benefit. In essence, the right strategies to reduce poverty of people located in geographically disadvantaged places. This will pave the way for sustainable development in the future (World Bank, 2009:14).

The above-mentioned is confirmed by Gallup, Sachs and Mellinger (1999), in their research conducted to explain the relationship between geography and macro-economic growth. While controlling for economic policies and institutions, they have tried to determine in which ways geography matters for growth. It was found that both location and climate impacted largely on income levels as well as income growth by means of, amongst others, agricultural productivity, transport costs and disease burdens. Many of the regions that experienced high population density and population growth were also those that were not conducive to economic growth. This was even more so in the case of regions more distantly located from coastal areas.

The World Bank (2009:14) states that "more than two-thirds of the developing world's poor live in villages". For these developing worlds, and for any given geographic distance, accessibility to cities tend to be lower as people need to rely on alternative and time consuming types of transportation, that is, walking and cycling due to inefficient or poor quality infrastructure (World Bank, 2009:79). Some of the poorest nations are geographically disadvantaged due to their isolated locations and would have to live with the fact that wealth and economic wellbeing by means of development are not created simultaneously across all places, as some places are favoured above others (World Bank, 2009:14). However, the expansion of cities, the mobile nature of people and increased specialisation are changes necessary for development and economic prosperity as proven by the developed world. The most prosperous and developed countries have reaped the benefits of these big cities, the migration of people, the countries' connectedness and trade as represented by these countries' gross domestic product (World Bank, 2009:21). Hence, the above-mentioned changes should also be endorsed in the developing world as this would foster economic well-being (World Bank, 2009:20). It is as such important to promote these three changes (big cities, mobile people and specialisation) in conjunction with the three dimensions of economic geography (higher densities, shorter distances and fewer divisions) to generate economic well-being (World Bank, 2009:21). Of importance here is what is necessary for economic well-being.

Location and place is an important predictor of a person's well-being (World Bank, 2009:27). In America, the economic activities are clustered in only a number of locations across the country, and as such, in order to obtain a share of this wealth, one needs to be near these activities. For this reason, approximately eight million Americans migrate through different states every year with the purpose of reducing the distance between their residential locations and these economic opportunities (World Bank, 2009:20). Another example is China, where many migrating workers travel long distances to job opportunities, often leaving their families behind, in an effort to escape poverty. In this way, they also contribute to the economic well-being of the country. As one of the fastest growing economies in the world, it has experienced the migration of workers since the early 1990s as a result of economic opportunities that were clustered in the coastal areas, and as such, workers desired closer locations to these economic opportunities (World Bank, 2009:21;38). For this

same reason (i.e. location close to economic opportunity), millions of people live in the city of Tokyo, as it contributes significantly to Japan's economic fortune (World Bank, 2009:20). Mumbai is a similar example of people who are located very close to their places of work and as such commute less than two kilometres (World Bank, 2009:80). The contribution towards development lies in the migration of workers closer to economic activities which is a natural way to reduce distance to markets (World Bank, 2009:102). Overman, Redding and Venables (2001) reviewed the empirical evidence on the economic geography of trade flows, factor prices and the location of production. The evidence established that geography was a key determinant of factor prices and that access to foreign markets explained a large portion of variation in countries' per capita income. The World Bank (2009:34) states that "people move to make their own lives better". These moves are driven by the need for higher wages, enhanced educational opportunities and a better quality of life (World Bank, 2009:125). For this reason, people should migrate to opportunities.

Location is essential across all phases of development; however, for poor countries, it matters even more in terms of living standards (World Bank, 2009:23). Places benefiting from economic development cause spill-overs to neighbouring areas, hence those nearby also share in the prosperity. Uneven economic growth occurs as a result of places, in close proximity to large markets, benefiting from the wealth faster than places located further away (World Bank, 2009:27). The world is characterised by uneven growth, income-inequality and different standards of living which are attributable to unbalanced economic development that varies across space (World Bank, 2009:26). For this reason, economic well-being is not created simultaneously across all places. Some places are favoured above others, due to their location (whether it means being near a city, close to a coastal area or connected to another country). As such, economic activities become more spatially concentrated in these locations (World Bank, 2009:52) and as a result, they encounter faster economic development owing to the benefits of these economic opportunities, compared to places in isolated locations where distance from economic opportunities remains a challenge. However, this does not mean that some places should permanently remain in poverty. Though economic growth is unbalanced, The World Bank (2009:22) emphasises the fact that development can still occur, by which people distant from economic opportunities can still benefit from

economic well-being and wealth, even when clustered in only a small number of locations. One way to address it is through the implementation of effective policies that can create concentrations of economic activity and ensure the convergence of people's standards of living (World Bank, 2009:26). Being near other people creates agglomeration economies that are very beneficial (World Bank, 2009:38).

2.4.2 Economic geography models, agglomeration and spatial economic growth

The distribution of economic activity across space is referred to as concentration and agglomeration. But what determines economic activity and its growth across space? This section provides an overview of the economic geography models used to explain agglomeration and spatial economic growth.

A number of factors cause economic activities to cluster which include sharing of inputs, better labour matching and knowledge spill-overs. In developing countries, spatial concentration is a strong driver of productivity growth. Through jobs, the benefits of agglomeration can be reaped as forces of agglomeration drive economic growth. Jobs in cities which function effectively tend to gain from agglomeration effects as these jobs are good for development. However, the potential for agglomeration effects weaken in cities characterised by congestion, pollution and overcrowding. As a result of poor city functionality in many developing countries (driven by unproductive labour, land and housing markets), the potential for gains from proximity weakens.

The spatial structure of urban areas stems from the mono-centric city model of Von Thünen. The working of the model was explained by Brakman, Garretsen and Van Marrewijk (2001:25-26) in which a farmer's choice of location is determined by a trade-off between the cost of transport and land rents. However, due to the competition for land, the equilibrium allocation of land is efficient. This model is, however, based on the assumption that external effects do not influence the location of economic activity. But the reason as to why cities exist was explained by Fujita and Thisse (2000:6-9) who argued that economies of scale (cost advantages emanating from a firm's production) resulted in urban agglomeration. In this regard,

Henderson (1988) constructed a model which focused on the determinants of city size and the interactions between cities. In this model, the external economies of scale (external factors influencing a firm's costs and productivity of the industry) explained urban agglomeration. These external economies of scale are industry-specific which in essence means that a firm which is located near similar firms in a city benefitted from positive spill-over effects. These spill-overs include knowledge sharing, a clustered labour market and suppliers who are specialised. In conclusion, urban economics explains that the concentration of economic activities determines economic growth across space.

Von Thünen, Christaller, Weber and Losch introduced regional economics which entailed the economy-wide space to analyse the location of economic activity (Brakman *et al.*, 2001:31). Their explanations of the location of production rested in central place theory and the market potential approach. The central place theory argues that centrality determines the types of goods provided by that location. The central place is the city where all the functions are performed and then there are villages that only provides a number of functions. However, central place theory focuses explicitly on the location of economic activity and provides no foundation for the behaviour of customers and firms. It does, however, support the concept that increasing returns to scale favour the agglomeration of economic activity in specific locations and through this, drives spatial economic growth. The second location of production is the market potential approach which was explained by Brakman *et al.* (2001:35) through which a market potential equation provided by Harris (1954) indicated the general proximity of a location to total demand. The market potential is higher in those areas where production is located. As such, demand is a driver in the agglomeration of economic activity and becomes a determinant of spatial economic growth. In an effort to develop an economic theory of central places, Eaton and Lipsey (1982) concentrated on the demand externalities generated by multipurpose shopping. Their model has demonstrated that these demand externalities must give rise to higher order central places, and that equilibrium satisfies a hierarchical principle. As such, the model proves how important it is to provide a behavioural economic theory of central places.

Economic growth in the short run, explained by capital accumulation, is known as the neo-classical growth theory. The accumulation of capital is subject to the law of diminishing returns which leads to absolute convergence and an equilibrium level of output per capita. However, the real world shows little evidence of absolute convergence which has led to the study of conditional convergence. Conditional convergence entails the modification of the neo-classical growth theory to allow for differences between countries, regions and locations and as such, these countries, regions and locations ought not to converge to the same long-run equilibrium level of output per capita. In this way, a link existed between the neo-classical growth theory and the location where growth occurred (Brakman *et al.*, 2001:51). As location of production matters for conditional convergence, physical geography brings about agglomeration of economic activity.

An alternative model known as the new growth theory also allows for a link between growth and the location of economic activity. This model is an extension of the neo-classical growth theory. This theory makes economic growth endogenous and allows for increasing returns to scale. Brakman *et al.* (2001:52) explained that if spill-overs associated with external economies are localised, only then does location matter and is it possible to explain agglomeration and account for differences in growth rates. Venables (2005) analysed the consequences of increasing returns to scale that are spatially focused for economic development. Based on the outcome of the models used, the existence of economies of scale is important in obtaining an understanding of the features of economic development. Spatial differences have the probability of increasing during development and economic growth tend to be rather unsmoothed as some locations and sectors will grow and expand at a faster rate than others, hence some locations will lag behind. Kim (1995) found evidence to support the hypothesis that changes in the use of resources and scale economies, instead of external economies, describe the long-run trends in regional specialisation and localisation in the United States of America. Location and agglomeration of economic activity in development economics are based on the theories of Rosenstein-Rodan, Myrdal and Hirschman which provided insights into economies of scale and the core-periphery of location. They found that locations where growth occurred were those locations with positive external economies and as such determined spatial economic growth.

From all the models, the new trade theory provides the foundation to explain agglomeration. The theory explains that trade can occur in locations with symmetrical technology and resources. The theory is based on increasing returns to scale as firms open up to trade and the market size increases. The basis of trade is hence a combination of firms benefiting from increasing returns to scale and customers preferring the variety of products being produced (Brakman *et al.*, 2001:42). However, this initial form of the new trade theory of Krugman (1979) is based on firms being indifferent about the location of production and as such, cannot explain the concentration of economic activity. The model was expanded by Krugman in 1980 to include transport costs (which help to explain location) and to introduce the “home-market effect”. This implies that a firm will base itself where home demand of its products is reasonably strong and transport costs are minimised. Hence, operating for the firm becomes cheaper because of returns to scale. This version of the model now includes the location of production and can be linked to the concentration of economic activity. However, due to a number of shortcomings in his model, it does not allow for location agglomeration as this is determined outside the model. The shortcomings include not allowing for the movement of firms or endowments; location decision is based on the geographical concentration of industries; and market size allocation for the variety of products is provided exogenously. The further expansion of the model by Krugman and Venables (1990) to allow for countries to differ in size indicated what the impact of reduced transport costs was on locations which initially started with a larger or smaller number of firms in the manufacturing sector. This version of the model allows for the agglomeration of economic activity; however, the determinants of economic activity and the drivers of growth across space cannot be fully explained. It does, however, provide an analysis of producer and consumer behaviour (Brakman *et al.*, 2001:45) and shows that market size and transport costs are important determinants of location and growth.

Owing to the fact that the above-mentioned models not only provided a variety of reasons for the location of production in space, but also had a number of shortcomings, the core model of geographical economics has subsequently been developed. The model specifically aims at explaining the determinants for the location of production in space (Krugman, 1991). It is also referred to as the “New

Economic Geography” that serves as an expansion to the spatial insights of urban economics, regional economics, growth theory, development economics and trade theory. Porter (1998), in his book on *Competitive Advantage of Nations*, emphasised the importance of competitiveness for growth and reasoned that location has an impact on competitive advantage through locations’ influence on productivity and productivity growth which occurred in the form of producers clustered together.

Venables (1995) argued that the combination of input-output linkages and imperfect competition produced forces for agglomeration of activity and that these forces were to some extent stronger at lower trade costs. Returning to the core model of geographical economics, the spatial structure of economic activities is as a result of two kinds of forces, one being agglomeration forces and the other dispersion forces (Fujita & Thisse, 2002:5). Agglomeration stems from economies of scale and transport costs through the mobility of labour and inter-industry linkages (Neary, 2001). In essence, for a manufacturer to minimise its transport costs, a location with a strong local demand will be chosen. Strong local demand is created by a cluster of manufacturers in a location. In this way, the geographical economics approach explains the location of production in space. Location and agglomeration therefore drive growth.

2.4.3 Economic integration

As previously mentioned, unequal economic growth stems from some places benefiting from wealth creation faster than other places due to their location. Economic integration is one measure called for to acquire both benefits of economic wellbeing and wealth, even when people are distantly located from economic opportunities or when clustered in only a small number of locations (World Bank, 2009:22).

Meaning many different things, economic integration refers to the integration of rural and urban areas, lagging and leading areas, urbanisation and territorial development (World Bank, 2009:23). In the early stages of development, the concentration of economic activity results in the convergence of living standards (measured by factors such as income or earnings) between leading and lagging areas; however, living standards sometimes diverge initially, before converging (World Bank, 2009:33).

Economic integration is at the core of policy debates on development. Insights into how these policies could be altered in order to adapt better to reality in terms of growth and development are essential. The policies, in their current form, are aimed at geographic targeting; however, these spatial interventions only play a small role in assisting governments to develop lagging places (World Bank, 2009:24). A lagging area is generally characterised as an area situated in a remote part of a country with high poverty and unemployment along with low productivity, income and growth (World Bank, 2009:23;49;62). The establishment of an institutional foundation and infrastructural development, in addition to spatial interventions, might be more appropriate and effective instruments governments can use to assist places that are not doing well (World Bank, 2009:63). This implies policies orientated away from geographic targeting and more in the direction of economic integration. In order to put these principles in practice, governments should identify the policies that best support the challenges faced by their respective countries (World Bank, 2009:47).

The biggest development challenges globally are manifested in the harsh reality of a billion people across the developing world living in slums, a billion people across countries that are situated in remote areas and a billion people who form the bottom rung of the global ladder (World Bank, 2009:29). There is a need to understand the changes along the three dimensions of economic geography, that is, the dimensions of higher densities, shorter distances and fewer divisions in order to identify the appropriate policies to be implemented (World Bank, 2009:24).

The World Bank (2009:32) classifies the first dimension, density, as an important local dimension which is characterised by the density of rural and urban settlements (relates closely to human geography). The rate of urbanisation, expressed as the growth rate of economic density and population density occurring in cities and towns (World Bank, 2009:33), increases as countries grow to reach higher per capita incomes. The success of economic development lies in urbanisation (World Bank, 2009:49). Cities perform better than rural areas in terms of income and non-income indicators of welfare (World Bank, 2009:87). However, the high growth rate of cities should be managed carefully, especially in countries characterised by low incomes and weak institutions. High urbanisation rates cause congestion and parts of cities

can develop into slums (World Bank, 2009:32). The challenge posed for policy makers in this regard is getting the right density.

The second dimension, distance (relates closely to physical geography), is perceived as an important national dimension where the distance is between areas of concentrated economic activities (referred to as leading areas) and lagging areas are eminent (World Bank, 2009:32). Leading areas are characterised by development where the concentration of people and production follows (World Bank, 2009:34). People and finance are attracted by agglomeration economies (World Bank, 2009:40). It provides incentives for both firms and workers to move to these areas through its market opportunities and as such become more economically dense as income rises. Lagging areas are described as those areas distant from economic opportunities (World Bank, 2009:23). Being more distantly located from economic density decreases productivity and incomes fall behind. The more distant an area is from a leading area, the more likely it comes to be a lagging area as greater distance-to-density indicates the absence of integration into economic activities of leading areas. Distance-to-density is also associated with lower per capita income, lower labour productivity and lower earnings and as such, high poverty and unemployment (World Bank, 2009:103). Policy-makers will be challenged as to how to reduce the distances for firms and workers.

The last dimension, division, is referred to as the international dimension, where the economic production of goods and services is clustered in only a number of countries globally. Distance to large world markets is also an important factor (World Bank, 2009:32). Nations in closer proximity to wealthy nations share in the wealth of those nations due to the fact that nations either progress or deteriorate together. For developing countries, economic integration with other countries, hence creating fewer divisions, can play an important role in their production and wealth (World Bank, 2009:33).

Some places are doing well due to the fact that they have promoted transformations along these three dimensions of economic geography (World Bank, 2009:21). In this way it assisted them to understand the market forces driving the transformations

(that is, agglomeration, migration and specialisation) and in identifying the appropriate policy responses.

Although international migration (migration between countries) has slowed down in recent years, there has been an increasing trend in internal migration (migration between cities within a country) across the developing world (World Bank, 2009:42). Internal migration is not a new phenomenon as various countries, among others Brazil and Japan, experienced rapid internal migration during the 1960s and 1970s (World Bank, 2009:42). World Bank (2009:43) distinguishes between pull and push migration, the former being better than the latter as both places will benefit from skilled workers being attracted towards a cluster of skilled people. However, when people are forced to move out of certain areas due to, for example, a lack of basic services or a lack of security, the move might be beneficial for the migrant, but not necessarily for the country as a whole. Countries with immobile people are not able to succeed as the capability and willingness of people to move are a good measure of the country's potential for development (World Bank, 2009:43). Hence, governments have the responsibility to enable labour mobility. Not only the mobility of people and labour, but also the mobility of capital and reduced transport and communication costs are of interest to researchers. Their insights with regard to the above-mentioned should advise governments on how to promote development through geographical changes (World Bank, 2009:45).

The interventions of governments usually aim at distributing economic well-being evenly across space. This is often the incorrect way of addressing spatial disparities and as a result, has economic consequences which can be very costly and long-lasting (World Bank, 2009:59). The policies in their current form aim at fostering rural-urban transformations to reduce poverty in lagging areas, hence the focus is on geographic targeting. The majority of the world's poor still live in villages in the belief that cities are the way out of poverty; however, when poverty in cities increases, the cities become slums. A shift away from spatial targeting to integration is called for (World Bank, 2009:63). Governments should promote economic integration between leading areas where economic production concentrates and lagging areas, places known for long distance-to-density (World Bank, 2009:52). Integration will pull people towards cities by way of agglomeration economies. The outcome of agglomeration

and city periphery is the development of metropolitan areas and leading areas with dense economic populations (World Bank, 2009:99). These interventions will assist people in taking advantage of economic opportunities, regardless of where it occurs. This will promote both the convergence of living standards and the concentration of economic production (World Bank, 2009:26).

The fact remains that economic development is uneven, which results in the economic mass being clustered in some places and as such, the living standards in those places get better much faster compared to places where there is less economic activity causing widening welfare inequalities. The aim is to acquire sustained economic growth which will converge living standards and substitute divergence. Although this remains a challenge to policy-makers, the economic geography needs to be reshaped through the promotion of economic integration (World Bank, 2009:22).

2.5 Spatial wage equations

Based on economic geography and the spatial mismatch theory, location plays an important role in explaining an individual's labour market outcomes as it affects a person's employment and earnings. The spatial structure of an economy can have implications for the labour market, and for this reason, this section provides an overview of labour market outcomes, specifically wages, in a spatial context.

The United States of America has an anti-poverty policy which aims to, among others, decrease the spatial disconnect between low-income populations and the economic opportunities searched for by these low-income populations. However, in order to implement effective strategies to help overcome the spatial obstacles faced by these low-income populations, a decent understanding of the economic geography of metropolitan areas is essential. Shen (2001) argued that job seekers could take advantage of economic opportunities through job openings (that is, jobs that are available). Hence, he conducted a study on the spatial analysis of job openings and access in a United States of America metropolitan area in order to determine whether there were answers to questions such as the spatial distribution of job openings in the metropolitan area and variation patterns in access to job

openings. However, answering these questions was challenging as no systematically collected data on the distribution of job openings in intra-metropolitan areas were available. His analysis, based on the Boston metropolitan area, entailed a research methodology that comprised three components: (1) obtaining information on the number of job openings by means of estimating the number of job openings for various geographic locations; (2) measuring job accessibility for job seekers by estimating the number of workers in each location that are unemployed and who are searching for open positions; and (3) analysing spatial patterns of job openings and job accessibility through the use of a mapping technique. Data from various data sources for the years 1980 to 1990 were used as this was the most recent time period during which data were systematically collected for intra-metropolitan areas. His primary findings to the questions he raised revealed that: (1) on a usual day, the metropolitan area of Boston had approximately 32 910 job openings; however, only 30 per cent of these job openings were suitable for low-skilled job searchers; (2) the spatial distribution of these job opportunities was primarily reflected by the distribution of jobs turnover, rather than opportunities that were created by employment growth and the majority of job openings were concentrated in the central city where low-skilled job searchers were also found to be somewhat more concentrated, specifically in the low-income neighbourhoods; and (3) access to jobs for these job searchers that were located in central-city low-income neighbourhoods was more difficult. Hence, the low-income neighbourhoods located in the central parts of the city had fewer job opportunities due to the fact that the number of job searchers exceeded the number of jobs that were available in these areas. From the above, it was concluded that job growth was negative in a large number of zones in the central city, specifically those zones that were located in or near low-income neighbourhoods. On the other hand, the central business district and a large number of suburban areas were rich with job opportunities. The willingness to travel also appeared to be a predominant factor in terms of accessibility in metropolitan areas. In this regard, low-skilled job searchers who resided in the central city had an advantage in terms of access to jobs if they were willing to commute. As such, the average job searcher who resided in the central city and who was not able to commute could not access opportunities located outside low-income neighbourhoods. Shen raised the importance of these findings for urban researchers' policy implications, in that the barriers to economic wellbeing should be removed by

means of the appropriate strategies. This will enable the conquering of spatial separation between economic opportunities and low-income populations.

In a study conducted by Wasmer and Zenou (2005), the existence of an equilibrium in which employed and unemployed workers were segregated was showed. However, both were moving at each employment transition. The assumption that a person's job search efficiency reduces with distance to employment opportunities was made in this study in order to determine whether a job location depends on spatial elements and labour elements. In simpler terms, the study investigated the effects of space by focusing on the interface between land and labour markets. The various roles of space were used to determine the unemployment equilibrium. The study found that job search efforts marginally increased the costs associated with job search, and as such, job search efficiency was lower in distant places which also reduced the probability of finding a job. On the contrary, residing closer to the employment centre led to higher job search efficiency and therefore, shorter unemployment periods occurred. The main conclusion formed indicated that job search efficiency decreases with distance to jobs.

In Sweden, the impact of local job proximity on individual outcomes such as employment and earnings were investigated by Aslund *et al.* (2009). The data used for the study were extracted from samples of those residing in Sweden and comprised two groups: (1) refugees who arrived in Sweden in 1990 and 1991; and (2) a sample of the Swedish population. Data relating to the samples' earnings, employment and characteristics with regard to access to jobs were combined. The data were compiled by Statistics Sweden and contained a comprehensive record of residents in Sweden between the periods 1990 and 2002. By using a baseline econometric model, variables such as employment, annual earnings and demographic characteristics were used to measure job access. The results indicated that a positive relationship existed between employment and job access. An increase in the number of jobs within a five-kilometre distance from a person resulted in higher employment. Hence, local job proximity had a positive effect on individual outcomes when taking the Swedish population into consideration. In order to overcome the criticism often associated with the literature that a person's residential location is endogenous, the researchers used a dispersal policy of Swedish

refugees. This provided them with the exogenous differences in individuals' locations which signified a strong positive relationship between employment and job access. In particular, it was found that refugees who were placed in areas where they were surrounded by only a few jobs, suffered employment disadvantages, compared to the higher employment probability they experienced when the number of jobs in the surrounding areas were doubled. This study was, however, limited to minority workers with a deprived labour market status.

2.6 Conclusions

This chapter provided an overview of the international literature, which concentrated on the role of geography in labour market outcomes. More specifically, it aimed at explaining how and to what extent economic geography impacts on employment and wages. It was noted that the nature of economic opportunities presents itself in the form of economic agglomerations which implies that one can benefit from economic opportunities by being near other people. Hence, when distantly located from economic agglomeration, economic opportunities are limited and for this reason, the higher the probability becomes of being under-employed or unemployed and poor. Furthermore, the literature indicated that economic activities are geographically clustered, meaning that the forces of agglomeration produce a concentration of economic production and a convergence of living standards. This concentration of economic production ultimately leads to economic growth by means of employment and higher wages. However, have the geography of and the impact on the worker in South Africa been properly examined? Chapter three deals with the South African literature of the labour market in the context of studies conducted on employment and wages and the role of geography in labour market analysis.

Chapter 3: South African literature on the labour market

3.1 Introduction

The literature review in chapter two focused on the international literature which explained the role of geography in labour market outcomes. This chapter reviews the South African literature on the labour market in the context of studies conducted on employment and wages as well as studies that have incorporated geography into labour market analysis. The first section provides an overview of the various South African academic literature studies which have been conducted on unemployment. Based on these aforementioned studies' respective research methods, inputs and findings, the unemployment research is grouped into three main perspectives. The following section moves to the studies which specifically examined the labour market from a spatial perspective.

3.2 Review of the unemployment debate in South Africa

Fourie (2011:2;6) conducted an in-depth study on the South African academic literature on unemployment and poverty over the last ten to fifteen years to determine whether the various research findings provided a consistent representation of the unemployment issue in South Africa and how policy-makers should address these findings. Roughly two hundred papers of South African and international published research on unemployment were used in Fourie's survey.

It was found that unemployment in South Africa has been studied from various different perspectives as different sub-disciplines, methods and techniques were used in the studies. The research contributions revealed that the South African discussions on unemployment are broad and diversified. A variety of contributions, approaches, models, findings and policy recommendations indicated substantial differences.

On the other hand, similarities could also be found - a number of key themes, characteristics and findings were identified. The research conducted on unemployment was grouped into three main clusters (labour, poverty-development and macro) based on comparable topics, approaches, models and data. The three different views, some with sub-perspectives, on unemployment have been identified as:

- (1) a labour market perspective;
- (2) a poverty and development perspective
 - c) from unemployment to poverty and inequality dynamics;
 - d) from poverty to sustainable livelihoods and marginalisation and;
- (3) a macro/macro-sectoral perspective;
 - c) from unemployment to macro-economic equilibrium;
 - d) economic growth, employment and wages.

Although grouped into three clusters, with each asking different questions, all of this research relates in some way to unemployment and therefore provides valuable insights. In the following paragraphs, a more detailed overview of the three research perspectives is provided.

3.2.1 The labour market perspective on unemployment

The first view of unemployment comprised the analysis of the labour market to obtain an understanding of the workings and changing aspects of the labour market. The research mainly focused on the micro-economic analysis of unemployment which included labour market factors, segmentation and worker characteristics. The method most commonly used in the research of this strand of the literature entailed a great deal of technical econometric studies which were based on quantitative data derived from statistical surveys (Fourie, 2011:10; 27).

Kingdon and Knight (1999; 2000; 2001; 2004; 2006a; 2006b; 2008) have published a series of research papers on issues pertaining to the labour market. Their methods were largely based on econometric analysis in which estimations of logit and probit models and earning functions across characteristics and conditions of the unemployed and employed were used (Fourie, 2011:10). Through the Layard Model,

Kingdon and Knight identified the South African labour market to be segmented along the lines of the country's formal and informal sectors. The results showed a labour market characterised by sticky, non-clearing wages and it was found that the unemployed were voluntarily and involuntarily unemployed; however, most unemployment was involuntary (Fourie, 2011:11). Other key findings from the research of Kingdon and Knight include a) a comparison of the searching to the non-searching unemployed revealed that the non-searcher was more deprived, more gloomy, more discouraged about the likelihood of being employed and faced higher job search costs than the searcher. For this reason, they were discouraged workers whose unemployment was involuntary. In addition, high unemployment rates gave rise to the unemployed becoming discouraged workers (2000:6). Therefore, the broad definition of unemployment was appropriate as South Africa's high unemployment rate (1999:8; 2000:15-17; 2006b:485); b) the greater part of the unemployed have never been employed and this worsened in the cases of black persons, especially females, often also being located in a homeland or rural area, being young and unskilled (2004b:218); c) urban unemployment rates were lower than rural unemployment rates; and d) the informal sector employed a small percentage of the broad labour force (2004a:395).

Apart from Kingdon and Knight, further research contributing to this cluster includes work by Hofmeyr (2000), who used multivariate analysis by which he determined that segmentation was present in the formal sector between unionised and non-unionised workers. He highlighted the importance of unions in the setting of wages. Through the use of more recent data, Heintz and Posel (2008) confirmed the findings by Kingdon and Knight that segmentation between the formal and informal sectors exists. In addition, they concluded that the informal sector worker was faced with entry and mobility barriers. These entry and mobility barriers might help to explain the high rates of open unemployment observed. Several studies by Kingdon and Knight (2001:93; 2004a:403), Nattrass and Walker (2005) and Heintz and Posel (2008:29) provided evidence that high reservation wages did not cause unemployment.

Research by Borat and Leibbrandt (2001) focused on black individuals and male and female demographics which represented a shift towards a poverty and development-oriented analysis of unemployment. By means of econometric analysis, they estimated employment probability and earnings functions and found that unemployment was involuntary as a result of specific factors that hindered participation (2001:113). Their research also hinted at the magnitude of structural unemployment in developing an understanding of the participation decision of the discouraged worker that there exists a mismatch of skills and characteristics and jobs (2001:127). Furthermore, Borat and Leibbrandt found substantial differences between rural and urban work-seekers as rural work-seekers fell short in terms of the characteristics needed to compete in the urban labour market which implied spatial rigidities and segmentation, specifically that barriers existed to the entering of urban labour markets (2001:127). A related paper by Leibbrandt, Borat and Woolard (2001:84) also found the rural unemployed to be disadvantaged in terms of access to labour market information. Dinkelman and Pirouz (2002:884) used OHS data from 1993 for logit regressions and found higher job search efficiency among those living in urban areas and lower unemployment areas hence concluding that residing in high unemployment areas and rural areas hampers the search for jobs. Research conducted on the labour market effects of old-age pensions and other grants presented different results as it seemed rather difficult to empirically determine the labour market effects of old-age pensions and other grants owing to gender, age and generational aspects (Fourie, 2011:20). Banerjee, Galiani, Levinsohn and Woolard (2006) used panel data of Labour Force Survey (LFS) waves of 2004 to analyse transitions between employment states as well as transitions between the informal and formal sectors (2006:36). The results showed that large flows of workers across employment states occurred; however, access to employment was difficult. In general, job search and job finding appeared not to be easy due to various constraints such as remoteness from labour markets and high costs of job search. The effect of the transition between the informal and the formal sector appeared to be limited (2006:36). This was also confirmed by earlier work of Cichello *et al.* (2005) who used Kwazulu-Natal Income Dynamics Study (KIDS) data for the period 1993 to 1995 which found that a larger fraction of informal sector workers end up being unemployed (2005:169). Extensive studies of the relationship between education

and employment have also been conducted as part of the labour market perspective of unemployment (Fourie, 2011:23).

All these contributions encompass the views of employment in the South African labour market (Fourie, 2011:26). The research concentrated largely on the micro-economic labour market analysis of unemployment which included aspects such as the informal sector labour market, segmented labour markets and sticky/efficiency/non-clearing wages (2011:27). Main findings of the aforementioned research suggested that

- most of the unemployment was involuntary,
- discouraged workers formed a fundamental part of labour markets,
- segmentation between the formal and informal sector was evident,
- segmentation within the informal sector was apparent owing to unionisation and mobility barriers,
- rural-urban segmentation existed, and
- the rural poor were faced with barriers to the entering of labour markets

Although this labour market analysis applied some measures of poverty throughout the research, in this strand of the literature little attention was given to poverty and inequality as matters of real concern (2011:27). Furthermore, the analysis also excluded the effect of macro-economic factors.

3.2.2 The poverty and development perspective on unemployment

The second and newly identifiable unemployment perspective shifts from a labour market analysis to a poverty and developmental viewpoint. This perspective is more focused towards issues pertaining to poverty characteristics, income inequality of households and development aspects while much less attention is given to issues pertaining to the labour market. It entails two sub-perspectives which differentiate between 1) the effects of poverty and inequality on labour market access and 2) the impact of poverty, sustainable livelihoods and marginalisation on employment. The first perspective gives more attention to aspects such as inequality and poverty and their subsequent impact on access to employment opportunities. Similar research

methods to that of the labour market analysis were used in which technical econometric studies are based on quantitative data from statistical surveys. The second perspective focuses more on issues pertaining to poverty relief and reduction and the effect it has on employment in which the research method entailed an analysis of both quantitative and qualitative data (Fourie, 2011:28;31;37;40).

The first sub-perspective is addressed by research conducted by Borhat and Leibbrandt (2001) [(SALDRU-DPRU) which embedded unemployment in an inequality-poverty nexus] on black individuals and male/female demographics. It comprised labour markets but also represented a shift towards analysis of inequality and poverty in South Africa as it focused on measuring, understanding, explaining and addressing inequality and poverty. Using an inequality breakdown, that is, the Gini-coefficient, by income sources for Income Expenditure Survey Data (IESD) of 1995, it was found that household wage income determines the households' poverty status as well as the position of the household in the distribution of total income (2001:30-31). This suggests that household inequality is driven by wage income and that access to wage income plays a key role in determining whether a household is able to avoid poverty (2001:34). Leibbrandt *et al.* (2001:80) also found that without access to wage income, the probability of being unemployed is higher. Hence, unemployment causes poverty (Fourie, 2011:29). Woolard and Klasen (2005) conducted a study to determine the factors which cause households to avoid or fall into poverty. Cross-section econometric analysis of a constructed panel of household data was used to determine income mobility. It was found that the most important factor causing a household to move out of or into poverty was a family member obtaining employment (or losing a job). Changes to wages were to a lesser extent significant. In addition, four poverty traps were distinguished. A poverty trap is explained as a temporary situation that hampers the efforts of a household to improve their income. These poverty traps included large family units, poor access to employment, poor access to asset endowment and fewer educational opportunities. This meant that households with little labour market experience were disadvantaged and segmented (2005:884). By using a range of household surveys from 1993 to 2006, Klasen and Woolard (2009) estimated a multinomial logit analysis to determine the survival strategies, regional immobility and location rigidities in labour markets. Their analysis found that the unemployed based its survival on the attachment to households with some type of income such as old-age pensions or social grants

(2009:25-27). This behaviour causes the unemployed to remain in rural areas or be isolated from areas with employment opportunities (2009:31). Hence, the main causal factor of the location decision of the unemployed is based on survival rather than employment opportunities (2009:40) which result in the development of regional immobility and locational inflexibility in the labour market. This can assist in explaining the continuous trend of high rural unemployment (Fourie, 2011:30).

The second sub-perspective of unemployment is different from the research encountered before, as it covers the studies of poverty and sustainable livelihoods between the formal and informal sectors and urban and rural areas (Fourie, 2011:31). Du Toit (2005) presents a large part of research conducted on this approach based on work performed on the Programme for Land and Agrarian Studies at the University of the Western Cape (PLAAS) which concentrates on the structural aspects of poverty, and particularly chronic poverty as well as the strategies pertaining to the livelihood of the poor which draws attention to a different dimension of poverty. By using a combination of quantitative and qualitative research, poverty in three types of areas is examined: rural homeland, platteland town and city township. The surveys are based on a variety of livelihood elements which include, among others, access to services, human capital, aspects of health and household assets. The survey results indicated that the deprivation indicators revealed aspects that undermine livelihood and survival strategies, including access to labour markets. In addition, it was found that the interface of these aspects allows for a difficult escape from poverty by means of employment. In this research cluster, the unemployment-inequality-poverty perspective is set in a framework of social networks and relationships, power relationships and systemic historical and political-economic influences. Du Toit (2005:14;19-20) found the encounters among the unemployed, employees, employers and marginal workers in the labour market to be shaped by a history of colonialism, capitalism, racism, sexism and apartheid. For that reason, poverty, inequality and unemployment would be better understood and dealt with if better engagement occurred within social, sociological and political realities. Du Toit highlighted that the poverty of the poor is worsened by the way in which they are enabled and allowed to participate in the economy as well as the way in which labour markets functioned (2005:20). Du Toit and Neves (2007) examined segmentation and dualism, specifically in the context of the informal sector, which

were applied to rural and urban circumstances. They found that the problem of poverty and unemployment related to the way in which many people were integrated. This caused them to be marginalised and powerless to change their position (2007:36). Of importance is to adjust the way the economy functions in order for the marginalised and the powerless to be empowered and supported in their livelihood and employment strategies. Seekings (2003) examined evidence of the unemployed representing an underclass. Analysing the 1993 PSLSD and 1995 OHS data, he observed that a large segment of the unemployed and their dependants are in an underclass which is defined in terms of severe disadvantage. The results suggested that these individuals and households were severely disadvantaged in terms of access to employment opportunities (2003:4) which is explained by a number of labour market characteristics such as long-standing unemployment, shortage of skills, lost connections to social networks, secluded from employment opportunities and limited financial capital (2003:19).

The aforementioned research comprised the poverty and development perspective with two sub-perspectives about unemployment in South Africa. The appearance of some labour market aspects in the poverty and development perspective provides evidence that notwithstanding the clustering, a variety of themes and contributions relate to one another; however, the research landscape on unemployment has broadened significantly. The first sub-perspective focused mainly on poverty, inequality and development as it comprised an analysis of labour markets, household inequality and factors inhibiting access to labour markets such as poverty traps, survival strategies and spatial immobility in poor (rural) areas. Hence it highlighted how circumstances of structural poverty constrain access to labour markets and information pertaining to employment opportunities. Furthermore, it provided insights into the impact of unemployment on poverty. The second sub-perspective, from poverty to sustainable livelihoods and marginalisation, involved the analysis of long-lasting poverty conditions on an individual's employment status, long-lasting marginalisation and helplessness of the unemployed and poor which relentlessly constrain their entrance to labour markets and hence employment, the positioning of the poor in social networks and social power relations all of which are exceptionally unfavourable and the negative impact that poverty-related problems have on job search. What is apparent is that none of these unemployment

perspectives consider the macro-economic concept of growth, sector analysis or cyclical factors relating to unemployment (Fourie, 2011:36-44).

3.2.3 The macro-economic perspective on unemployment

Lastly, concepts grouped within the third perspective consist of the macro/macro-sectoral perspective which concentrates on a broad macro-economic analysis of unemployment. This perspective entails the analysis of sectoral changes in the economy as well as the aggregate analysis of macro-economic concepts such as output, growth, investment, trade, government expenditure, interest rates, exchange rates and inflation. The macro/macro-sectoral perspective prominently features in governmental, political, economic and industrial discussions; however research related to these topics are limited. Fourie (2011:46) explains that this might be as a result of limited reliable unemployment data series. Although the research contributions in the macro-field are quite narrow compared to the previous two unemployment perspectives, a conceptual background of this perspective can be formed. One common characteristic of the research is the focus on the formal sector. Similar to the previous perspective, the macro/macro-sectoral perspective of unemployment also comprises two sub-perspectives, namely (1) the macro-analysis of unemployment and (2) unemployment within the context of employment, economic growth and sectoral shifts of which the latter part is undoubtedly the largest (Fourie, 2011:45-46).

Banerjee *et al.* (2006; 2008) link the labour market and macro-economic analysis in their conceptual framework of an equilibrium level of aggregate unemployment. They wanted to obtain an understanding of the large increase in the unemployment rate since 1995 and found that these increases in unemployment between 1994 and 2005 were as a result of labour force participation changes (2006:18-19). Furthermore, the results suggested that the decline and stagnation of labour demand contributed to the rising unemployment problem. They concluded that the increase observed in the unemployment rate since 1995 was due to structural changes in the economy which resulted in an increase in the long-run equilibrium rate of unemployment and would in all probability not correct itself (2006:6). Schoeman, Blaauw and Pretorius (2008) used the rate of unemployment between the period

1970 and 1982 as well as the period between 1983 and 2002 to determine whether the long-run equilibrium rate had increased. Compared to the first period in which unemployment remained at the same level, the unemployment rate in the subsequent period increased. Their analysis indicated that structural changes had taken place and that a once-off increase in unemployment led to an increase in the long-term rate of unemployment. Despite high Gross Domestic Product (GDP) growth rates after 1994, South Africa has experienced continual high unemployment rates. These circumstances led to the testing of Okun's law¹ by Marinkov and Geldenhuys (2007) who investigated the correlation between South Africa's unemployment and cyclical changes in aggregate output. By estimating Okun's coefficient for South Africa over the period 1970 to 2005, they concluded that a significant negative Okun-type correlation between cyclical unemployment and cyclical output exists (2007:389).

Further macro-analysis of unemployment reflects on economic growth, employment and wages (Fourie, 2011:49). Hodge (2009) made use of constructed annual time series data of total formal sector employment for the period from 1946 to 2007, using six-year moving averages to determine whether a statistical relationship existed between economic growth rates and formal sector employment, over time. He discovered that economic growth led to growth in the formal sector of only half the real growth rate. A large increase in employment in the formal sector was noted for the period from 1995 to 2007. This indicated that the increase in the unemployment rate since the mid-1990s was not as a result of historically poor growth or the performance of employment of the economy (2009:502) but rather as a result of a large increase in the labour supply (2009:501). The increase in the labour force is attributable to an increase in formerly discouraged and informal sector workers utilising more employment opportunities. Hodge accentuated that in light of the fact that South Africa has an excessive number of people in the labour force, it is unlikely that growth in the formal sector alone would be able to absorb an adequate number of people to decrease the rate of unemployment (2009:502). Inconsistent results and numerous variations have been found throughout the studies of the estimation of the output elasticity of employment (Fourie, 2011:50). Fedderke (2004) is a well-known

¹ The relationship between an economy's unemployment rate and its gross national product.

author in the field of growth and has written a number of papers which focused on the declining trend in employment in the formal economy. In order to identify the factors constraining growth in South Africa, Fedderke (2004:9) uses two important indicators of the rate of development in South Africa, namely the output growth rate and the level of employment. He identifies the poor performance of the labour market, that is, by means of contributing the least as well as negatively to GDP, as a structural constraint on economic growth rather than unemployment per se (2004:19). South Africa's labour market is characterised by labour market rigidities, resource misallocation and mispricing bringing about a negative wage elasticity (2004:56). In this regard, Fedderke highlights the importance of real wages in employment trends. By using econometric analysis to invert a standard Cobb-Douglas production function, Fedderke (2004:71-72) derives a labour requirements function to show that employment is a function of output, capital stock and the real wage. The results indicate the existence of wage elasticities; however, these elasticities vary across sectors which are also confirmed by Fedderke and Mariotti (2002:858-862) in their estimation of panel data on the 28 subsectors as well as by Rodrik (2006:17). Regardless of the value of the elasticity, Fedderke and Mariotti (2002:848) highlight that in addition to a decrease in employment observed in a sub-sector, a strong negative correlation occurred between employment and real labour remuneration. In addition, Fedderke (2004:86) found different wage elasticities for unskilled workers compared to the labour force as a whole. Notwithstanding the different values calculated and methods used for wage elasticities, an obvious pattern of high negative real wage elasticities in the South African economy is observed (Fourie, 2011:55). By analysing real remuneration, labour productivity and employment growth rates, it is concluded that constraints occur in labour markets due to inadequate wage adjustments to clear the market which consequently result in a prolonged high unemployment rate in the economy (Fourie, 2011:56). However, on the contrary, Kingdon and Knight (2008:302) argued that more flexibility of wages would not have been able to avoid the increase in unemployment rates in the 1990s as the unemployment was not essentially as a result of wage rigidities but rather caused by unusual increases in the labour force. In view of the above and in accord with the conclusion from Du Plessis and Smit (2007:14), the fact remains that the results on real wages remain uncertain. Following a different approach, Rodrik (2006) conducted a sectoral analysis of shifts in the employment patterns of the

formal sector and identified large structural changes in macro-sectoral employment and as such had significant consequences in terms of unemployment of low and unskilled workers among which unemployment is strongly concentrated (2006:2-3;8). To obtain a better understanding of unemployment trends, one needs to understand the structural changes of diverging from the main low-skills intensive parts. Rodrik (2006:9) foresees growth in the manufacturing sector as the only viable option to reduce unemployment as a decline in real wages for low-skilled workers would be prevented by political constraints. Hausman (2008) recommends the increase of exports of non-mineral tradable goods which would be relatively low-skill intensive in order to address the unemployment problem in South Africa. Due to the fact that their analysis is only relevant to the formal sector and only applies to strictly defined unemployment, their frame of reference excludes discouraged workers and structural long-term unemployment.

A large amount of research on the topic of unemployment in the South African economy has been conducted by international organisations (Fourie, 2011:60). Lewis (2002) provided a World Bank analysis of numerous matters pertaining to the South African economy which specifically focused on (1) investment and job creation, (2) growth constraints and (3) South Africa's apartheid legacy, including labour (2002:726). It is believed that the unemployment problem is the outcome of distortions in the labour market caused by the political and historical environment. In terms of the formal sector, attention is given to labour market regulation and labour market flexibility. With reference to new labour market legislation, the inflexibility of labour market institutions and regulations prevented faster growth in employment. However, on the subject matter of the impact of real wages on unemployment, he concluded that this remained a complex issue (2002:748-749). Polin *et al.* (2006) report on findings from the United Nations Development Programme in which an employment-targeted economic programme is suggested for South Africa. The identified causes of South Africa's unemployment include both demand and supply side causes and is in contrast to other findings (2006:10). On the demand side, low GDP growth and a decrease in labour intensity contributed to low growth in employment; however, on the supply side, attention is rather given to the impact of labour costs on employment. In addition, they highlighted that the recent trend of low employment growth in South Africa is attributable to the constraining effect of

Growth, Employment and Redistribution (GEAR) based macro-economic policy rigidity pertaining to growth and employment creation. Fourie (2011:64-65) makes mention of the contributions in the form of formal reports from foreign institutions such as the International Monetary Fund (IMF) and the Organisation for Economic Cooperation and Development (OECD) as well as some local organisations such as the Centre for Development and Enterprise (CDE) that influence the public macro-economic discussions of unemployment and are clustered as the growth-oriented macro-economic sub-perspective. These reports are characterised by their policy orientation with less focus on theoretical and analytical aspects. In the main, these reports address issues pertaining to unemployment and the labour market which in general forms part of a larger package of macro-economic findings and proposals. It typically involves subjects such as monetary policy, exchange rates, government expenditure, fiscal policy, labour market regulations, poverty, trade unions, social grants, inequality and economic growth.

These contributions describe the broad macro-economic analysis of South Africa's unemployment. When comparing the two macro-economic sub-perspectives, the first perspective was characterised by only a few contributions which focused directly on the macro-economic analysis of unemployment. It was found that the labour market together with other shocks has an effect on the long-run rate of unemployment and that unemployment at a macro-level does not return to a stationary long-run equilibrium. In addition, the research provided evidence that cyclical output influenced cyclical unemployment. The second and largest macro-sub-perspective has moved towards economic growth and production and a more specific focus on employment, instead of unemployment. It also covered matters pertaining to labour market flexibility, wages that clear markets, sectoral employment shifts, labour market constraints on growth and real wage elasticities. The only similarity between the above-mentioned sub-perspectives is their focus on the formal sector (Fourie, 2011:66-68).

It is evident that the academic literature and research discussions, each by means of different perspectives, approaches and models provide a wide variety and an abundance of insights into the unemployment issue. Regardless, unemployment and poverty remain matters of concern in the South African context, yet little effect has

been felt from numerous policy initiatives stemming from the input of several researchers. It has been shown that these various inputs of research into unemployment in South Africa can be grouped together into three “research perspectives of unemployment”, some with sub-perspectives, according to key themes which have been identified through common topics, approaches, models and data used in the studies (Fourie, 2011:70-71).

Fourie (2011) identifies substantial differences among these three perspectives, but also some commonalities. Some of the key analytical conclusions are that the South African labour market is characterised by formal-informal segmentation and rural-urban segmentation. Furthermore, segmentation is also present within the informal sector. Understanding the features of these segmentation and the correlations between the segmentation as well as factors influencing employment transitions is necessary to unemployment and poverty. Various factors such as entry, mobility and information barriers restrain the search for jobs and entrance into labour markets. Furthermore, unemployment cannot be analysed without taking several other factors such as segmentation, the informal sector, entry and mobility barriers, poverty, household inequality and marginalisation into account. Without taking movements of wages or output-elasticity into consideration, employment as a whole cannot be completely analysed or understood. The role of pensions and social grants should also not be overlooked as it links inequality, the supply of labour, employment, unemployment and macro- and fiscal deliberations. Causal relationships with regard to issues like the search for jobs, migration and education are influenced by demographic aspects such as gender, race and age. The two-way causality between unemployment and poverty, that is, whether unemployment causes poverty or whether poverty in itself causes unemployment, is also important for policy purposes in order to enable access to labour markets, especially the poor. The above-mentioned is also essential in view of the challenges posed to both researchers and policy-makers in understanding and addressing unemployment in South Africa.

As noted above, a few studies from the general literature on unemployment provided insights from a spatial perspective on labour market outcomes. With regard to the rural-urban divide, substantial differences between rural and urban work seekers have been found. Rural work-seekers lacked the necessary characteristics that were

required to compete in the urban labour market. This was an indication of spatial segmentation and inflexibilities and confirmation that impediments to entering urban labour markets existed (Bhorat & Leibbrandt, 2001:127). The above-mentioned was substantiated by a related paper of Leibbrandt *et al.* (2001:84) which also found the rural unemployed to be disadvantaged in terms of accessing labour market information. Furthermore, urban residents and those who resided in lower unemployment areas had higher job search efficiency compared to residents of rural and high unemployment areas (Dinkelman & Pirouz (2002:884). This was also demonstrated by Banerjee *et al.* (2006) whose results indicated that job search and employment were constrained by the high costs of job search and distance from labour markets. Klasen and Woolard (2009) also studied survival strategies, regional immobility and location rigidities in labour markets. They found that behaviour characteristics such as being attached to households with some type of income, for example old-age pensions or social grants, caused the unemployed to remain in rural areas and as such, remained in isolation from employment opportunities. In view of the above, the next section will explicitly focus on the spatial aspects incorporated into labour market analysis.

3.3 Studies that have incorporated geography into labour market analysis

From the vast scope of the literature reviewed in the preceding section, it's worth noting that very little of the academic literature in this area focused on the spatial aspects of the labour market. In terms of spatial analysis, not much research beyond the rural-urban distinction has been conducted. This section specifically focuses on these spatial aspects. South Africa's apartheid's regime signalled dramatic changes in the country's spatial structures and subsequent to the eradication of the Group Areas Act in 1991, South Africa encountered a trend of rapid urbanisation. It is imperative to understand the reasons behind the spatial patterns of migration and employment, as it will enable one to understand South Africa's future growth path and in addition will contribute towards spatial, economic and infrastructural policies in the future.

3.3.1 A spatial mismatch in South Africa's labour market

Naudé (2008) investigated the existence of a spatial mismatch in South Africa's metropolitan labour market due to the fact that, in the past, residential areas in South Africa were racially segregated. Naudé was hoping that the existence of a spatial mismatch could explain the variance in unemployment rates between the black and white populations. His investigation was driven by the rapid urbanisation of the country's population and high unemployment rates of which the outcome could be relevant for policy-makers and infrastructure planners. Data on population and employment growth for six metropolitan cities for the periods 1996 and 2001 were used. The six metropolitan cities included Cape Town, Nelson Mandela Metro, Durban, Johannesburg, Ekurhuleni Metro and Pretoria. The data were acquired from Quantec Research's Standardised Regional Database which was built on census and survey data of Statistics South Africa. The aforementioned years also relate to the years in which official censuses were conducted by Statistics South Africa. His examination comprised a broad approach in which a combination of various methods was used as found throughout the literature studied.

An empirical analysis was used in order to determine the existence and extent of a spatial mismatch in South African labour markets in which the following three aspects were analysed: sub-urbanisation of the population and employment, the relationship between residential segregation and unemployment as well as commuting distances. In terms of sub-urbanisation, it was found that the percentage of the population residing in the central areas have declined as opposed to the increase which was observed in the percentage of the population residing in the suburbs between 1996 and 2001. However, in most metropolitan areas, a larger proportion of the black population resided closer to the city centres. Furthermore, the findings indicated that, generally, and in most cities, an inverse relationship existed between the proportion of a population and the distance from the city centre. The spatial mismatch hypothesis also indicated a mismatch between the residential location of a population group and employment opportunities. In cities where central city employment growth has been the highest, the proportion of the black population in those central-city areas has increased. The findings further implied that if education is controlled for in the analysis, distance from the city centre may be a

significant determinant of unemployment. His analysis of residential segregation demonstrated an overall decline in residential segregation in the majority of South Africa's metropolitan cities between 1996 and 2001. The largest declines in segregation occurred amongst the white population which was consistent with findings from other literature studies which found that most of the developments leading to integration occurred in the former white areas. This could suggest that the formerly spatially excluded black population, in particular those who earn higher incomes and are more skilled, are relocating into former white areas, which are in closer proximity to employment opportunities in centres of economic activities. Finally, a regression analysis of the relationship between commuting distances and unemployment suggested that, when controlling for education and income levels, distance from the city centre is substantiated when explaining black unemployment in South Africa, that is, the further the commuting distance from the city centre, the higher the unemployment of the black population. However, it should be noted that even though distance is a noteworthy determinant in explaining black unemployment, the impact of education is much larger. In the instance of the unemployment rates of whites, distance from the city centre is insignificant. It is implied that search cost is a significant determinant for the black population in South Africa's metropolitan cities as opposed to the insignificant role played by it in determining white unemployment rates. Hence, this paper found that location matters in explaining black unemployment. Naudé concluded that in at least some of the country's metropolitan labour markets, a spatial mismatch exists. This could partially explain why unemployment rates of blacks are much higher than unemployment rates of whites, with specific relevance to the large metropolitan labour markets of the inner cities. The evidence further suggested that spatial limitations may influence unemployment in some of South Africa's metropolitan labour markets. These spatial constraints make it challenging for job seekers to match vacancies and as a result, the search costs for job seekers increase. Naudé (2008) urged for further research in this field, in particular the spatial structures of South African cities in order to obtain a better understanding of the existence, implications and causes of a spatial mismatch in South Africa's metropolitan cities.

As a result of the increasing trend observed in South Africa's urbanisation literature in consequence of the country's particular history of apartheid and the burden on the cities' infrastructure and labour markets, further research on the topic of suburbanisation and residential desegregation in South Africa's cities was conducted by Naudé (2010) in view of the fact that the outcome of the study could assist in urban planning and the development of anti-poverty strategies. Data from the 1996 and 2001 censuses as well as published data extended up to 2004 were obtained from Global Insight Southern Africa and Quantec Research and used to determine whether suburbanisation of employment and population existed in South Africa's cities. Suburbanisation was addressed by means of the measurement and the determinants thereof. The measurement of suburbanisation entailed the calculation and estimation of the density gradient of employment and population as well as the estimation of cubic-spline functions for population and employment density. The determinants of suburbanisation were estimated using a varying parameter regression model. In terms of desegregation, the degree of segregation in a city was calculated using the index of dissimilarity. The population density gradients for South Africa's cities were found to be quite small in absolute value which indicated that a fairly flat population distribution across South Africa's cities existed (Naudé, 2010:1; 7-8). On the other hand, employment distribution was found to be less flat, compared to the population. Furthermore, the density of the population was gradually declining from the city centre with distance, with the exceptions of Cape Town, Ekurhuleni and the Johannesburg city where population density was increasing with distance from the city centre. Thus, population density in South Africa's cities was highest near to the central city areas. It therefore indicates that higher income earned per capita of the population would result in the decline of population density in the central city areas. Often, individuals and households with higher income favour residing in suburban areas and commuting to work in central areas, as the transport costs are affordable to these individuals. However, the correlation between the density of employment and distance across South African cities has persistently been stable between 1996 and 2001 which suggests that growth in employment does not significantly impact on suburbanisation. This indicates that population settlement does not inevitably go along with jobs and allows for the possibility of a spatial mismatch in labour markets. In terms of residential desegregation, the results suggested that decreases in segregation in South Africa's metropolitan cities since

1996 have occurred; however, these were fairly small. It was further found that, in the main, declines in segregation were among the white population which could indicate that the previously spatially excluded black population is gradually progressing into previous white areas, which are also in closer proximity to the location of economic activities. Hence, the above-mentioned results conclude that South Africa's population in the cities is suburbanising more rapidly than employment opportunities and that residential desegregation is slow. This could play a role in the spatial mismatch in the urban labour market and the likelihood that a spatial mismatch is contributing to unemployment being higher among the blacks (Naudé, 2010:11; 13); however, Naudé (2010:13) underlined the need for further research in this field.

3.3.2 Location and labour market outcomes

The study conducted by Havemann and Kearney (2010) was prompted by South Africa's history of apartheid which consequently resulted in spatial structure changes. This history of spatial separation and the subsequent developments post-apartheid, such as the abolition of the Group Areas Act, initiated a process of rapid urbanisation. From the above-mentioned, it is unsurprising that the literature Havemann and Kearney (2010) studied; found a distinct relationship between socio-economic outcomes and location. For this reason, Havemann and Kearney (2010) conducted a study to determine the relationship between urbanisation and employment outcomes.

In an attempt to quantify the aforementioned, an urbanisation index was constructed and used in standard employment regressions to analyse the influence of urbanisation on socio-economic outcomes, particularly employment. Their approach in the construction of an urbanisation index was quite different to previous studies conducted. Earlier analysis on this topic used dummy variables (i.e., respondents located in either urban areas or rural areas) for comparisons which caused the problem of not being able to determine the degree of urbanisation. In contrast, their urbanisation index estimated the degree of urbanisation by district council by means of measuring the fraction of individuals that were urbanised in a district council and

was accordingly allotted an urbanisation value. Furthermore, this was the only study that analysed labour market outcomes at a district council level.

Using the constructed urbanisation measure, it was found that the six metros, namely City of Johannesburg, City of Cape Town, City of Tshwane, Nelson Mandela Metro (Port Elizabeth), Ekurhuleni Metro (East Rand) and Emfuleni Metro (Durban) had an average urbanisation index of 95.4 per cent. The 44 district councils had an average urbanisation index of 47.1 per cent and the five cross-border district councils (which were divided into two provinces), had two high urbanisation indices and three low urbanisation indices respectively. Comparing the data across provinces, it was found that Gauteng was, on average, the highest urbanised province at 96.4 per cent, followed by the Western Cape with 79 per cent and the Free State with 75.5 per cent. The Kwazulu-Natal and Limpopo provinces were least urbanised with percentages of 30.3 per cent and 16.4 per cent respectively.

In order to determine the relationship between the degree of urbanisation and socio-economic outcomes, particularly employment, and from the viewpoint that urbanisation increases the probability of employment, the urbanisation index aimed to provide an indication of aspects that will affect an individual's employment outcome given the degree of urbanisation of a person's residential location. By using a multinomial logit model, the probability of being employed (which was categorised into four labour market outcomes, namely non-economically active by choice, employed, unemployed and discouraged) was estimated. A number of variables which would significantly affect an individual's employment outcome were used for the purpose of differentiating between the four aforementioned labour market outcomes. These variables included the urbanisation index, province, whether someone in the household is employed, whether the individual was supported by a pension, social or disability grant, gender, marital status, age, education level, population group, skills training, whether the individual was supported by any other income such as grants, study loans or bursaries and household size. The regression model performed relatively well in predicting the non-economically active by choice and the employed; however, the differentiation between the unemployed and discouraged seemed more difficult.

Table 3.1: Urbanisation results

High level of urbanisation	
	+
	-
	+
	+

Source: Havemann and Kearney (2010:2; 5; 9)

Table 3.2: Demographic factors and employment outcomes

	Employment probability
Age (to maximum 40 years)	+
Education	+
Skills training	+
Race (White, Coloured, Indian)	+
Gender (Male)	+
Head of household	+

Source: Havemann and Kearney (2010:10-11)

The findings from the urbanisation results indicated that individuals who were located in more urbanised areas had a higher probability of being employed than individuals located in more rural areas. A reasonably low level of urbanisation was linked to an absence of job opportunities. Skills training could also partly explain the relationship between employment probability and urbanisation. Individuals situated in more urban locations were also more likely to be encouraged to search for work. Some outliers were; however, identified where the employment probability was significantly higher than expected, given the level of urbanisation. Six district councils have been identified which had higher employment probability, namely Swellendam, Carletonville, Stellenbosch, Malmesbury, Knysna and Bronkhorstspuit. A number of factors were identified that could explain the higher than expected employment probabilities such as being more closely located to national highways, linkages to railways, proximity to metropolitan areas, surrounded by employment opportunities, being more highly skilled or having higher education levels. These factors could be important for policy purposes by which the improvement of transport infrastructure could overcome the gap that exists between the two economies, being the rural poor and the urban rich. In contrast, a few district councils have also been identified where the employment probability was even lower than expected, even though these

district councils had a fairly low level of urbanisation. Towns falling within this scope included Greyton, Pampierstad, Marble Hall and Groblersdal. A factor that could explain the low level of employment probability is these towns' limited linkages to national roads and railways.

The above-mentioned findings were further investigated by categorising the district councils according to different urbanisation classes. The six metros, as mentioned earlier, were grouped together as "metros". The district councils which were highly urbanised and non-metro and had an urbanisation index above 75 per cent were grouped as "urban". Furthermore, district councils with an urbanisation index of between 50 and 74 per cent were categorised as "semi-urban", followed by "rural" with an urbanisation index of between 25 and 49 per cent and "deep rural" with an urbanisation index of between zero and 24 per cent. The results indicated that individuals located in metro, urban and semi-urban district councils had a higher employment probability but at the same time, in some cases, had a higher probability of being discouraged as a consequence of migration. Individuals looking for employment opportunities migrate from rural to urbanised areas but are likely to end up having a lower probability of being employed. On the other hand, a further analysis between the level of urbanisation and the probability of being discouraged found the correlation to be generally negative. Summarising by province, the findings indicated that the Western Cape had the highest employment probability followed by Gauteng. The Limpopo and North West provinces not only had the lowest employment probability but also had a high probability of being discouraged.

Returning to the matter of skills training and its partially positive effect on the relationship between employment probability and urbanisation, as mentioned earlier, the results illustrate that the metropolitan areas had more individuals with some level of skills training than those of less urbanised district councils. Again, a few outliers were identified in terms of their high levels of skills training, given the levels of urbanisation and include towns such as Carletonville, Bloemfontein, Welkom and Bronkhorstspuit. The towns of Carletonville and Bronkhorstspuit have also been referred to earlier as having a higher employment probability, given the level of urbanisation, due to surrounding employment opportunities and linkages to nearby national highways. Furthermore, the district councils with low levels of skills training

have been confirmed as being Groblersdal and Greyton. These two towns have also been alluded to earlier as having a lower employment probability than expected. Further analysis of the relationship between skills training and employment outcome, revealed that skills training played an important role in an individual's employment outcome as having skills training increases employment probability. However, some findings contradict the above-mentioned statement.

In terms of education, the results indicated that the metropolitan areas (which have the highest degree of urbanisation) have the highest levels of education. A higher level of education increases an individual's probability of being employed. Individuals with post-matric qualifications had the highest employment probability and hence the lowest probability of being discouraged. In contrast, the probability of being discouraged increases with lower levels of education. There are, however, district councils with high levels of education although their employment probability is fairly low (and lower levels of urbanisation) for example Polokwane, Rustenburg and Musina. A shortage of employment opportunities could possibly be the reason for these towns having higher levels of education but lower employment probability. Some of the education results did not illustrate the expected outcome in terms of employment probability and further investigation was recommended in this regard.

The study also revealed other demographic factors which also affect employment outcomes, namely age, race, gender and the head of the household. A positive correlation has been found between an individual's employment probability and age, but only up to the age of 40 years after which the correlation turns negative. The results showed a number of racial differences with regard to employment probability. It has been found that Whites, Coloureds and Indians had a higher employment probability as opposed to Africans who had the highest probability of being discouraged. This could be attributable to South Africa's apartheid legacy and related policies. Progress over the period since 1994 in this regard had not been taken into account. Being a male also increased a person's employment probability; however, no subsequent developments in respect of affirmative action were accounted for in the study. Lastly, being the head of the household was also positively correlated to a person's employment outcome, that is, such an individual would have a higher probability of being employed.

In conclusion, this study provided valued insights into the relationship between urbanisation and socio-economic outcomes through the construction of an urbanisation index. The socio-economic characteristics of individuals were found to be significantly different between the various district councils which are connected to the degree of urbanisation. It furthermore provided evidence that, after conditioning for other factors, the level of urbanisation matters for employment outcomes as it was found that the rich and educated were clustered in the urban councils and the poor, unskilled and marginalised were concentrated in the more rural councils. The study's empirical results illustrated the above-mentioned as location in urbanised areas increased an individual's employment probability. In some cases, the employment probability was higher than expected, given the level of urbanisation, as a result of proximity to urban areas and being connected to infrastructure which creates additional opportunities. It is therefore imperative to consider the impact of location/proximity-to-location seeing that it can provide access to education, services and jobs. However, the level of urbanisation was not the only aspect influencing employment probability as skills training, education, age, race, gender and the head of a household was also considered to be important factors. The authors did; however, question whether urbanisation influenced socio-economic outcomes or was the latter part the cause of the former. This might also be important for policy consideration. All of these findings are essential for policy-makers' decisions, whether to promote development beyond urban areas or plan for the expected increase in urbanisation as South Africa's population continues to grow.

3.3.3 Unemployment, geography and bargaining councils

Magruder (2010) examined South Africa's high unemployment in the context of regulation. More specifically, in terms of geography, he studied the way in which bargaining council agreements were differently applied in different places and the effects these had on employment opportunities within firms.

South Africa's employment opportunities within both small and large firms are quite different compared to those in many developing countries. In these developing countries, employment in large firms is characterised by scarcity and higher wages. As a result of this, the majority of these developing countries have created a large

number of informal sector small firms to keep their population employed. South Africa's formal sector is also highly regulated, wages are higher and employment scarce; however, compared to other developing countries, the country has a limited number of employees of small firms of any kind, whether these are informal or otherwise. As a result, South Africa is faced with a very high unemployment rate. One explanation for this high unemployment rate can be analysed in the context of labour regulation.

South Africa's labour market is highly regulated and has several legislated labour standards in addition to privately bargained arbitration decisions. Of these many labour regulations, the bargaining council system, in particular, seems to be differently applied in small and medium-sized firms. A bargaining council system is a system in which registered trade unions and employer organisations deal with collective agreements, attempt to resolve labour disputes and make suggestions regarding labour regulations and policies. Magruder (2010) developed a model in which he showed that employment will increase with large unionised firms in response to a bargaining council agreement; however, for non-unionised firms and small firms, employment will decrease. It is expected that bargaining councils would feature in places where it would be beneficial for most of the large firms to have a bargaining council:

- places where a reduction in small firm production will result in a significant increase in prices,
- places where the presence of a bargaining council agreement will result in a substantial decrease in small firm production, or
- places where the presence of a bargaining council agreement will result in a large reduction in wages for unionised large firms.

If these large firms and unions reach an agreement such as high standards with the specific aim to reduce competition for small firms, it could constrain the capability of people to escape unemployment by opening a small firm. Small firms argue that these labour standards enforce unfair costs, whereas large firms affirm that these

labour standards are not retributive and unions claim that it is needed to safeguard workers.

Magruder's (2010) study entailed an empirical estimation to determine the effect of a bargaining council on employment, firm size and wages. Labour market data at the magisterial district level were obtained from the September surveys of The South African Labour Force Surveys for the period 2000 to 2003 while the presence of bargaining council agreements was obtained from the published South African Government Gazette. From the aforementioned, a database was constructed which indicated which industries in which magisterial districts had agreements in every year.

In South Africa, these bargaining council agreements are imposed in a spatially discontinuous way (i.e. agreements vary with space, across industries, and over time) whereas the local labour markets are spatially continuous across the intra-national political boundaries. In Magruder's (2010) study a spatial fixed effects approach was used, rather than the border restriction approach which is generally used, in order to identify the continuity, as he argued that the spatial fixed effects approach had a number of advantages. The spatial discontinuity indicated that centralised bargaining agreements (industry agreements within a particular town) reduced employment in the industry generally between 8 and 13 per cent, resulted in higher wages of between 10 and 21 per cent in the same industry and identified that the majority of employment losses occurred among small firms. Furthermore, Magruder (2010) illustrated that firms did not move across borders to stay clear of these agreements, hence the employment reductions represented a net loss for the economy. He concluded that these bargaining councils have a significant impact on the economy and should thus be of interest to policy-makers. However, bargaining councils are not able to explain most of South Africa's unemployment as other problematic factors also contribute to South Africa's unemployment and should therefore be viewed as a factor that worsens a current and critical problem.

3.3.4 Other contributions that consider spatial labour markets

Job scarcity in South Africa, specifically among the black population, as well as the changes observed in the distribution of unemployment, urged Magruder (2009) to investigate the importance of inter-generational networks and their impact on unemployment. In his study, longitudinal data on young South Africans were used to determine whether parents could assist their children to be successful in the labour market, specifically by being a network member. This means that parents can assist children with job references, information pertaining to jobs or social linkages. The role of parents as network members may be particularly vital in circumstances where unemployment is high, where the information pertaining to jobs and job references signifies rare or highly valued commodities and where mobility is restricted and as such has caused poverty traps. A panel data set of young adults in Cape Town, South Africa was used by Magruder (2009) to determine whether parents have become important network connections for their children. Gender segregation and geographic specificity in jobs were used to develop two control groups which are unable to benefit from network support. The estimation results indicated that when the fathers' industries were hiring, only the sons had a higher probability to work if their fathers were present in the province. In the absence of fathers, the sons had a smaller probability of working.

Banerjee *et al.* (2008) examined South Africa's high unemployment rate since the country's democratic transition in 1994 and documented the reasons for the rise in and constantly high levels of unemployment. It was argued that South Africa's unemployment rate was as a result of either structural or temporary changes. Using nationally representative panel data from household surveys, factors such as unemployment, the characteristics of the South African labour force, wage trends and labour unions were analysed. It was noted that the demand for labour has decreased while the supply of labour has increased, resulting in increased unemployment. Compositional changes at the sectoral level also occurred with the employed becoming more skilled and the tendency of the less-skilled to become unemployed. Their analysis further indicated that the continuous high levels of unemployment were attributable to the ineffective search for jobs experienced by African job searchers as opposed to whites, which was probably as a result of the

existence of spatial separation between the residential areas of the African job seekers and the business areas. The unaffordable public transportation needed to gain access to employment opportunities exacerbated the problem further. Informal sector employment outside these business centres also seemed to be low to non-existent. Although a number of constraints to solve the unemployment problem have been identified, a substantial part indicated structural (rather than transitional) labour market changes. These structural constraints, such as the mismatch between the location of the unemployed and the location of formal sector jobs and the mismatch between the skills of the unemployed and the required labour market skills ought to have policy consideration as it is doubtful that unemployment near equilibrium will self-correct.

3.4 Summary and comparison

Table 3.3 provides a summary and comparison of the various South African research contributions pertaining to unemployment and factors influencing labour market outcomes.

Table 3.3: South African research contributions pertaining to unemployment

Author	Manner in which spatial aspects of labour market are studied	Modelling method	Results
Kingdon & Knight (2004)	Unemployment (Rural-urban divide)	Regression with R-U dummy	Rural unemployment rates are higher than urban unemployment rates
Bhorat & Leibbrandt (2001)	Probability of participation (Rural-urban)	Econometric analysis (employment probability and earnings functions)	The participation rate is lower in rural areas
	Rural-urban work seekers	Econometric analysis (estimate separate models for rural and urban areas)	a) Rural work-seekers lack the required characteristics to compete in urban labour markets, which implies spatial rigidities b) Barriers bind the entering into urban labour markets
Leibbrandt <i>et al.</i> (2001)	Access to employment information (Rural-urban)	Analysis	Rural unemployed are disadvantaged in terms of access to labour market information
Dinkelman & Pirouz (2002)	Factors that determine labour force participation (Rural and high unemployment vs. urban and lower unemployment)	Logit regressions	Higher job search efficiency for those living in urban areas (men and women), hence residing in a rural area hampers the search for jobs
Woolard & Klasen (2005)	Determinants of income mobility (factors that cause movement in/out of poverty)	Cross-section econometric analysis	Poor initial employment access (i.e. links to labour market) is a type of poverty trap, that is, an initial condition that impede efforts of households to improve their incomes
Klasen & Woolard (2009)	Survival of the unemployed (Pension and employment probabilities), location decisions of the unemployed	Multinomial logit analysis	a) Old-age pensions cause the relocation of adult children to rural areas and away from job opportunities b) The location decision is the causal factor of unemployment

			(the unemployed gives priority to economic support rather than employment/search opportunities), thereby creating regional immobility and locational rigidities in labour market which explains persistence of high rural unemployment
Banerjee <i>et al.</i> (2006)	Transitions from unemployment to employment states (Rural-urban)	Quantitative analysis	Urban residents are less likely to make the transition from unemployment to employment
Seekings (2003)	The unemployed as an underclass - access to employment opportunities (location)	Analysis	A significant portion of the unemployed and their dependents are in an underclass, that is, acute disadvantage (located a significant distance from areas with employment opportunities)
Naudé (2008)	The existence and extent of a spatial mismatch in South Africa's metropolitan labour market (suburbanisation, residential segregation, commuting distances)	Empirical analysis	a) Location matters in explaining black unemployment b) The existence of a spatial mismatch in some of South Africa's metropolitan labour markets c) Spatial limitations may influence unemployment in some of South Africa's metropolitan labour markets
Naudé (2010)	Suburbanisation and residential desegregation in South Africa's metropolitan cities	<i>Measurement of suburbanisation:</i> estimation of density gradient of employment and population and estimation of cubic-spline functions for population and employment density <i>Determinants of suburbanisation:</i> parameter regression model <i>Degree of desegregation:</i> Index of	a) South Africa's population in the cities is suburbanising more rapidly than employment opportunities b) Slow residential segregation c) The above-mentioned could play a role in a spatial mismatch in the urban labour market and the probability that a spatial mismatch is contributing to higher unemployment among blacks

		dissimilarity used	
Havemann & Kearney (2010)	The relationship between urbanisation (location) and employment outcomes	Urbanisation index constructed (to estimate degree of urbanisation by district council) into standard employment regressions (multinomial logit model)	<p>a) Individuals located in more urbanised areas had a higher probability of being employed than individuals located in more rural areas</p> <p>b) Low level of urbanisation is linked to the absence of employment opportunities</p> <p>c) Location is not the only factor in explaining the relationship between employment probability and urbanisation (skills and education play role)</p> <p>d) Other demographic factors affect employment outcomes (such as age, race, gender and head of household)</p>
Magruder (2010)	How the implementation of bargaining council agreements in terms of geography influence employment opportunities within firms	Constructed database (spatial fixed effects approach); empirical estimation	<p>a) In South Africa, bargaining council agreements are enforced in a spatially discontinuous way (agreements vary with space, across industries and over time) and have significant impact on the economy</p> <p>b) Bargaining councils are not able to explain most of South Africa's unemployment</p>
Magruder (2009)	The impact of network-based intergenerational correlations on unemployment (residential location)	Empirical analysis (linear probability model)	<p>a) The presence of fathers within the same geographical area (province) as their sons increased the employment probability of their sons. b) The results for daughters proved to be insignificant.</p>
Banerjee <i>et al.</i> (2008)	Reasons for the rise in and constant level of unemployment in South Africa (Residential spatial separation)	Analysis	<p>a) Structural labour market changes caused during post-apartheid substantially constrain the solution to the unemployment problem</p> <p>b) One of the structural constraints is the mismatch between location of the unemployed and the location of formal sector jobs</p>
Venter <i>et al.</i> (2007)	The effect of residential location of low-income communities on opportunities	Empirical analysis	Low-income communities benefit from residing in urban centres in terms of employment availability

De Wet & Liebbrandt (1990)	Comparison of two rural settlements' employment opportunities based on location		a) The village situated in a relatively isolated location could not take advantage of employment opportunities due to distant residential location b) The village situated closer to the main road offered its residents a direct employment advantage
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3.5 Conclusions

This chapter reviewed South African literature on the labour market with the aim of uncovering studies conducted on unemployment and factors influencing labour market outcomes. Research contributions on unemployment were grouped into three main clusters. Although substantial differences among these clusters were identified, some common characteristics of the South African labour market were also found. In addition, in a number of studies conducted, the spatial aspect of the labour market was considered. The findings from the respective literature reviews have been set out in the table above. From the results, it follows that a link exists between geography, location and labour market outcomes, but what are the channels through which location would influence labour market outcomes? The next chapter will focus on this analysis and report on the process of the estimation of the predictors of unemployment and the results of the empirical analysis.

Chapter 4: Estimation of predictors of employment and wages

4.1 Introduction

The key question that this dissertation wants to answer is: what are the place-specific drivers of unemployment in South African cities and towns? The review of the international literature in Chapter 2 showed that there are important links between the agglomeration of economic activity and labour market outcomes like employment/unemployment and wages. The Lewis model makes the case that migration from rural to urban areas, from subsistence to wage employment, are drivers of economic growth and development. Employment is created in thick urban labour markets through better matching of workers and jobs.

The overview of the South African literature presented in Chapter 3 showed that many different aspects of the challenge of unemployment have been examined and a number of studies have considered spatial aspects of the labour market. At the individual level there are substantial differences between rural and urban work seekers. The rural unemployed are disadvantaged in terms of skills and access to labour market information. For them job search is constrained by distance from formal labour markets. At the level of cities and towns, urbanisation is positively associated with employment, but there is also a spatial mismatch between workers and jobs in the metropolitan labour markets.

This chapter focuses on the place-specific drivers of unemployment at the level of municipalities. It is an empirical test of the arguments that local economies and labour markets matter for local unemployment. It also has policy implications – local governments have a responsibility to develop their areas and knowing more about the drivers of local unemployment will aid these efforts.

The following sections describe the data and methods and discuss the results of the regression analyses.

4.2 Data

For the empirical analysis, Regional eXplorer (ReX) data from IHS Global Insight Southern Africa are used. It provides annual observations for a range of socio-economic variables at the municipal level. The ReX data are compiled from a number of different sources, including:

- Bureau for Market Research (BMR) at UNISA
- Statistics South Africa (StatsSA)
- South African Reserve Bank (SARB)
- South African Revenue Service (SARS)
- Council for Scientific and Industrial Research (CSIR)
- Chamber of Mines of South Africa (CM)
- Cement and Concrete Institute (CNCI)
- South African Petroleum Industry Association (SAPIA)
- National Electricity Regulator (NER) and Eskom
- Various Government departments, including National Treasury and the Department of Trade and Industry
- Various development agencies
- Selected private research houses

In order to ensure that the data are consistent, reliable and accurate, verification tests are performed and a number of modelling techniques are used to estimate certain series. A complete explanation of the compilation of the data is provided in the REX encyclopaedia (see <http://www.ihsglobalinsight.co.za/Products/ReX/>)

For the purposes of this study, a balanced panel data set is used for the period 1996 to 2012 for across 234 local and metropolitan municipalities.

4.3 Method

The empirical analysis involves the estimation of a regression model by means of panel data methods in which the level of unemployment, that is, unemployment rate in a particular place, is the dependent variable, being determined by a range of place-specific explanatory variables.

A number of explanatory variables are used in different versions of the estimating equation. The aim is to find the variables that characterise the local agglomeration and predict the local unemployment rate. This includes measures of demography, development, the economy and international trade. This draws on the literature as outlined in chapters two and three. Total population and population growth rates give an indication of the demographic features. The population density, urbanisation rate, levels of education of the population and levels of inequality also describe agglomeration forces at work. Economic variables include GDP growth rate, a tress index and location quotient that measure the specialisation or diversification of the local economy. The openness of the economy is measured by its imports, exports and trade share.

Drawing on the literature discussed in Chapters 2 and 3, there are a number of *a priori* expectations. Dense agglomerations of people and economic activity are expected to have a negative relationship with the unemployment rate. Negative coefficients are expected for population density and urbanisation rate. Higher local GDP growth rates and a large informal sector are also expected to be negatively associated with unemployment. If the population is better educated that should also contribute to lower levels of unemployment. *A priori* it is not clear whether openness and inequality are associated with higher or lower levels of unemployment. There are arguments either way about whether specialisation or diversification of the local economy will be associated with higher or lower levels of unemployment.

The explanatory variables are defined and measured as follows:

- Total population in thousands.
- Population growth rate is the annual growth rate in percentage.
- Population density is the number of people per square kilometre.
- Urbanisation rate is the percentage of the population classified as urban.
- Informal employment is the number of people employed in the informal sector.
- Education is the proportion of the population with matric and the proportion of the population with a bachelor's degree.
- The trade share is the exports plus imports as percentage of GDP.
- Export share is the exports as percentage of GDP.
- The Gini-coefficient measures the income distribution – closer to zero means greater equality, closer to 1 means greater inequality.
- The Tress index measures diversification (closer to zero) or specialisation (closer to 1) of sectors' contribution to local GDP.
- The location quotient measures a sector's contribution to the local economy relative to the sector's national contribution – a quotient greater than 1 means that the municipality is more specialised in a sector than the national economy is.

A GLS random effect estimator is used for models 1 through 6 reported in table 4.1. The fixed-effects regression results are shown in table 4.2 and the dynamic model in table 4.3.

4.4 Discussion of results

Table 4.1 shows the results of different specifications of the random effects regression models of the determinants of local unemployment.

Table 4.1: Summary of GLS Random Effects Regression Results

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Variable	Coefficient (Std. Err.)					
Total population	2.12* (1.15)	2.30** (7.62)	1.43 (1.16)	1.44 (1.14)	3.13** (1.07)	2.75** (1.02)
Population growth rate	-1.18** (0.19)	-1.17** (0.19)	-1.47** (0.19)	-1.48** (0.19)	-0.49** (0.18)	-0.50** (0.18)
Population density	0.00 (0.00)		0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Urbanisation rate		0.00 (0.04)				
Informal employment	-3.41** (7.66)	-3.38** (7.65)	-2.39** (7.74)	-2.30** (7.67)	-4.16** (6.94)	-3.65** (6.67)
GDP growth	0.16** (0.07)	0.15** (0.07)	0.34** (0.07)	0.34** (0.07)	-0.18** (0.07)	-0.24** (0.07)
Proportion of population with matric	1.72** (0.17)	1.73** (0.18)				
Proportion of population with bachelor's degree			0.11 (0.14)	0.13 (0.15)	-0.38** (0.14)	-1.18** (0.15)
Trade share	0.40 (0.89)	0.48 (0.88)	0.58 (0.90)			
Export share				0.73 (0.64)	0.84 (0.58)	0.76 (0.55)
Tress index	0.00** (0.00)	0.00** (0.00)	0.00** (0.00)	0.00** (0.00)	0.00* (0.00)	
Gini-coefficient					3.55** (0.12)	3.17** (0.12)
Location – agriculture						0.02** (0.00)
Location – mining						-0.03** (0.01)
Location - manufacturing						-0.03 (0.03)
Location - construction						-0.07** (0.02)
Location – trade						-0.07** (0.03)
Location –						0.24**

community services						(0.02)
	R² within: 0.063 R² between: 0.025 R² overall: 0.013	R² within: 0.063 R² between: 0.029 R² overall: 0.016	R² within: 0.021 R² between: 0.128 R² overall: 0.108	R² within: 0.022 R² between: 0.118 R² overall: 0.101	R² within: 0.028 R² between: 0.009 R² overall: 0.022	R² within: 0.284 R² between: 0.192 R² overall: 0.199
	Number of obsv.: 3744 Number of groups: 234					

**Significance at the 5%, and *at the 10% levels.

Table 4.1 shows that in all six models, population growth is significant at the 5 per cent level and negatively associated with unemployment. On average, a growing population does not mean growth in unemployment, rather, municipalities with higher population growth rates are the sort of dynamic agglomerations associated with lower unemployment rates. The population density variable was used in models 1, 3, 4, 5 and 6 and is insignificant throughout. In models 1, 3 and 4 it has an unexpected positive sign which contradicts the expectation that areas with high population density would benefit from agglomeration economies. However, in models 5 and 6, population density enters with an expected negative sign. In model 2, urbanisation rate was used in the place of population density, but the coefficient was practically zero and therefore insignificant.

Models 5 and 6 are the only specifications where the Gini-coefficient was added as an explanatory variable and it changed the results quite dramatically. In both instances the Gini-coefficient is significant at the 5 per cent level and portrays a positive relationship with the level of unemployment. This is not to say that high inequality causes high unemployment, but the two go together. The inclusion of the Gini-coefficient also results in the GDP growth and proportion of population with a bachelor's degree coefficients changing to the expected negative signs in models 5 and 6.

Informal employment across all six models is significant at the 5 per cent level and shows a negative relationship with the level of unemployment. The literature sheds light on this by stating that without agglomeration, the economic opportunities for those in informal employment are limited.

GDP growth was used across all six models; however, the results display some differences. The results in models 1 to 4 show a positive and significant relationship with unemployment. Possibly, fast-growing municipalities attract people, some of them unemployed. The relationship turns to the expected negative sign in models 5 and 6 (owing to the inclusion of the Gini-coefficient as mentioned above); with both being significant at the 5 per cent level.

Only models 1 and 2 include the education variable – proportion of population with matric. In both instances the variable is significant at the 5 per cent level and is positively associated with the level of unemployment. From model 3 onwards the education variable – proportion of population with bachelor's degree (i.e. a higher education level) is used. This improves the fit of the model. In models 3 and 4, the variable is insignificant with a positive coefficient, but changes to significant at the 5 per cent level and negatively associated with the level of unemployment.

The trade share variable is used in models 1, 2 and 3 where it was insignificant and had an unexpected positive coefficient. One would expect that more open economies would grow faster and create more jobs, but it may also be that more open economies are more exposed to the pressure of foreign competition. In models 4, 5 and 6, trade share was replaced by export share. The coefficient remains positive and insignificant.

The tress index was included in the first 5 models. It measures the degree of specialisation, but it is not clear whether local specialisation or diversification would be associated with lower unemployment. The results show a positive association between specialisation and unemployment. The variable is significant at the 5 per cent level in models 1 to 4, and 10% in model 5. In model 6, the tress index is replaced with the different location quotients – this increases the R^2 significantly. Having mining, manufacturing, construction and trade sectors that are locally bigger

than in the national economy can be associated with lower levels of unemployment. However, having a community service sector that is locally larger than in the national economy is associated with higher unemployment.

Table 4.2 displays the results of the fixed effects specification of the last model (model 6).

Table 4.2: Fixed Effects Regression Results (specification of model 6 of Table 4.1)

Variable	Coefficient (Std. Err.)
Total population	4.49** (1.32)
Population growth rate	-4.1** (0.17)
Population density	-0.00** (0.00)
Informal employment	-2.98** (6.86)
GDP growth	-0.25** (0.07)
Proportion of population with a bachelor's degree	-0.92** (0.16)
Export share	1.93** (0.58)
Gini-coefficient	3.28** (0.012)
Location – agriculture	0.04** (0.00)
Location - mining	-0.04** (0.01)
Location - manufacturing	-0.08** (0.04)
Location - construction	-0.02 (0.02)
Location - trade	-0.09** (0.03)
Location – community services	0.18** (0.02)
	R² within: 0.292 R² between: 0.057 R² overall: 0.069
	Number of observations: 3744 Number of groups: 234

**Significance at the 5%, and *at the 10% level.

Table 4.2 shows that population growth remains significant at the 5 per cent level with a negative coefficient. Population density is now significant and remains with a negative coefficient as one would expect. Informal employment also stays significant at the 5 per cent level with a negative coefficient. Local GDP growth is significant and has a negative expected coefficient. The education variable is significant and has a negative sign as anticipated. Export share is now significant but remains positively related to unemployment. The Gini-coefficient remains significant at the 5 per cent level with a positive sign. High income inequality goes hand in hand with higher unemployment. In terms of the economic location quotients, the manufacturing location quotient is now significant; however, construction becomes insignificant. The mining, manufacturing, construction and trade sectors remain negatively correlated to unemployment, indicating that sectors which are locally bigger than in the national economy are associated with lower unemployment.

Table 4.3 presents the results of a dynamic panel data model where change in unemployment is also explained by the level of unemployment in the previous year.

Table 4.3: Dynamic Panel Data Results

Variable	Coefficient (Std. Err.)
Unemployment Lag1	0.86** (0.01)
GDP constant	-8.82** (1.04)
Total population --	4,14** (1.41)
Lag1	-3.86 (2.71)
Lag2	2.56 (1.46)
Population growth rate --	0.47* (0.25)
Lag1	-0.66* (0.37)
Lag2	0.54** (0.25)

Population density --	0.00* (0.00)
Lag1	0.00 (0.00)
Lag2	0.00 (0.00)
Informal employment --	6.54 (6.85)
Lag1	5.47** (5.93)
Lag2	-6.03 (4.69)
GDP growth --	0.42** (0.03)
Lag1	-0.27** (0.04)
Lag2	-0.26** (0.03)
Proportion of population with bachelor's degree	3.52
Lag1	(2.63)
Lag2	-1.43 (1.27)
Export share --	0.06 (0.36)
Lag1	0.33 (0.40)
Lag2	0.64* (0.37)
Gini-coefficient --	0.03 (0.19)
Lag1	2.43** (0.29)
Lag2	-2.00** (0.19)
	Number of observations: 3744 Number of groups: 234

**Significance at the 5%, and *at the 10% level.

The coefficients of the levels model (--) look somewhat different to those of the coefficients of the random and fixed effects models. Table 4.3 shows that in contradiction to the previous models, population growth is now significant at the 10 per cent level, but has a positive coefficient. Similar to population growth, population density is significant at the 10 per cent level and also changes to a positive coefficient. Informal employment is now insignificant and has a positive sign. Local GDP growth remains significant but is now positively correlated to the level of unemployment. Similar to the random effect models, export share is insignificant with a positive coefficient. In this model, the Gini-coefficient is insignificant, but retains the positive sign.

4.5 Conclusions

The purpose of this chapter was to determine the place-specific drivers of unemployment at the level of municipalities through the use of three empirical models to test the arguments that local economies and labour markets matter for local unemployment. Through the measures of demography, development, the economy and international trade, the results support the findings that a link exists between geography and labour market outcomes.

The results indicate that a number of variables characterised the local agglomeration and predicted the local unemployment rate. These include the population growth rate which at a higher level is the sort of dynamic agglomeration associated with lower unemployment rates. Furthermore, some results showed population density to be negatively correlated to the unemployment rate, indicating that dense populations of people would benefit from agglomeration economies. A large informal sector was found to be negatively associated with unemployment which supports the literature that without agglomeration, the economic opportunities for those in informal employment are limited. Differences in results were displayed in terms of local GDP growth. In some instances, higher local GDP growth rates were negatively associated with unemployment which is to be expected; however, this seemed not to be the case as some results indicated a significant positive relationship with unemployment. Possibly, fast-growing municipalities attract people, some of them then being unemployed. By having a population with better education contributed to

lower levels of unemployment. By adding the Gini-coefficient, the fit of the model was improved; however, it is not to say that inequality is associated with higher or lower levels of unemployment. The results were not clear on whether openness of an economy is associated with lower levels of unemployment. Some economic sectors that are locally bigger than in the national economy were associated with lower unemployment.

By knowing more about the drivers of local unemployment, local governments can develop their areas through the relevant policies. The next chapter, chapter 5, concludes this study by summarising the findings of the place-specific drivers of place-specific unemployment in South African cities and towns, and proposes a number of recommendations for policy-makers at the local and national levels and identifies areas of future research to be conducted.

Chapter 5: Conclusions and recommendations

The introduction to this study highlighted the fact that the high unemployment levels in South Africa require analysis from both a causes and a consequences point of view. Chapter 3 showed that the unemployment challenge in South Africa has been studied from different perspectives, some of which relate to the spatial features of the labour market. This study investigates the determinants of unemployment at the municipal level and as such, aims to answer what the place-specific drivers of unemployment in South African cities and towns are.

5.1 Summary

Chapter 2 reviewed the international literature on the links between jobs and development where employment, perceived as the most important determinant of living standards, was associated with a reduction in poverty. Through the Lewis Model of rural-urban migration, it outlined the mechanism through which migration from rural to urban areas, from subsistence to wage employment, can drive economic growth and development. The literature furthermore highlighted the importance of geography and agglomerations for labour market outcomes like employment/unemployment and wages. As a result of the nature of economic activity which is concentrated in certain places, proximity to these places, in conjunction with spill-overs associated with the agglomeration, drives economic activity. In this way, economic development across space occurs through the concentration of economic activity which ensures a thick labour market through better matching of workers and jobs. The study also touched on economic integration as a measure to pull people towards cities and wage employment. Lastly, the chapter focused on earlier studies that have estimated spatial wage equations given that the spatial structure of an economy can have implications for the labour market.

Chapter 3 provided an overview of the South African literature on the labour market which focused on studies of the predictors of employment/unemployment and wages. South African studies that have incorporated geography into labour market analysis were also reviewed. A large amount of research has been conducted on

unemployment, which can be grouped into clusters and differentiated according to their focus on the labour market, poverty and development, and a macro-economic perspective. Some of the above-mentioned studies focused on the spatial aspects of the labour market. Owing to South Africa's history of apartheid, spatial structural changes, such as rapid urbanisation, are important. For this reason, a relationship between socio-economic outcomes and location exists. At the individual level, there are substantial differences between rural and urban work-seekers. The rural unemployed are disadvantaged in terms of skills and access to labour market information. For them, job searching is constrained by distance from formal labour markets. At the level of cities and towns, urbanisation provides access to economic activities and is positively associated with employment. However, the literature review showed that a spatial mismatch exists between workers and jobs in the metropolitan labour markets. Furthermore, from a geography perspective, bargaining councils partly explain some reasons for South Africa's unemployment.

Chapter 4 examined the drivers through which location would influence labour market outcomes at the level of municipalities. A balanced panel data-set was used for the period 1996 to 2012 across 234 local and metropolitan municipalities to determine the place-specific drivers of unemployment. A regression model was estimated by means of a panel-data method to test whether the arguments that local economies and labour markets matter for local unemployment hold true. The results show that the place-specific determinants of unemployment are a higher population growth rate that is associated with lower unemployment rates. Dense populations are also associated with lower unemployment rates indicating the benefits from agglomeration economies. The fact that a large informal sector was negatively associated with unemployment supports the insight from literature that without agglomeration, economic opportunities for individuals in informal employment are limited. If people in a city or town are better educated this is associated with lower levels of unemployment on average. High inequality does not necessarily cause high unemployment; however, they do coincide. A positive association between specialisation and unemployment was found. However, when the Tress index measure of specialisation was replaced with different economic location quotients, the results showed that mining, manufacturing, construction and trade sectors that

are locally bigger than in the national economy are associated with lower unemployment.

5.2 Conclusions

Insights into place-specific drivers of unemployment at the level of municipalities will aid local as well as national government in identifying the appropriate policy responses.

At the individual level, the focus of policymakers is on reducing unemployment by improving human capital through education and training. National initiatives like a youth wage subsidy are often mentioned in the media. However, studies like this one, as well as Havemann and Kearney (2010) and Naudé (2008, 2010) show that the challenges are far broader than education and training. They also include investment in housing and transport infrastructure that links to urbanisation and town and city planning. Local growth and development policies that would cause a local economy to become more specialised or diversified will have long-term implications for employment/unemployment.

As explained in Chapter 2, policy-makers often want to make spatially targeted interventions in the forms of rural development plans or industrial development zones. The World Bank cautions against efforts that run against agglomeration forces. Agglomeration forces are often much stronger than policy interventions and end up as costly diversions of scarce resources. The conclusion is to rather aim for convergence of the social safety net and integration with the economic opportunities at the thriving cities and towns.

5.3 Recommendations

Further research in this field can proceed in both macro- and micro-directions. At the macro-level it may be possible to examine the labour market outcomes of specific spatial policy case studies like the industrial development zones. Is there evidence of specialisation or diversification for a better match between workers and jobs? Do the thick labour market benefit wages? At the micro-level the new panel data-set from

the National Income Dynamics Study (NIDS) may provide labour market data at the individual level along with identification of location and the individuals that have moved. This can be used to follow the work by Havemann and Kearney (2010), or of Naudé (2010) and update their results. The questions remain the same – how do the characteristics of places influence the labour market outcomes for the people living there?

List of references

ASLUND, O., OSTH, J. & ZENOU. 2009. How important is access to jobs? Old question-improved answer. CreAM Discussion Paper No 25/09. Centre for Research and Analysis of Migration, University College London.

BANERJEE, A., GALIANI, S., LEVINSOHN, J. & WOOLARD, I. 2006. Why has unemployment risen in the new South Africa? Working Paper No 134, Centre for International Development (CID), Harvard University.

BANERJEE, A., GALIANI, S., LEVINSOHN, J., MCLAREN, Z. & WOOLARD, I. 2008. Why has unemployment risen in the new South Africa? National Bureau of Economic Research Working Paper No 13167.

BARKLEY, D.L. & HENRY, M.S. 1997. Rural industrial development: To cluster or not to cluster? *Review of Agricultural Economics*, 19:308-325.

BAYER, P. & ROSS, S.L. 2005. Place of work and place of residence: Informal hiring networks and labour market outcomes. Working Paper No 8, Yale University, Department of Economics.

BHORAT, H. & LEIBBRANDT, M. 2001. Correlates of vulnerability in the South African labour market and modelling vulnerability and low earnings in the South African labour market. (In: Borat, H., Leibbrandt, M., Maziya, M., Van der Berg, S. & Woolard, I., eds. *Fighting Poverty, Labour Markets, and Inequality in South Africa*. Cape Town: University of Cape Town Press).

BRAKMAN, S., GARRETSEN, H. & VAN MARREWIJK, C. 2001. *An introduction to geographical economics: Trade, location and growth*. Cambridge: Cambridge University Press.

CASE, A.C. & KATZ, L.F. 1991. The company you keep: The effects of family and neighborhood on disadvantaged youths. National Bureau of Economic Research Working Paper No 3705.

CUTLER, D.M. & GLEASER, E.L. 1997. Are ghettos good or bad? *The Quarterly Journal of Economics*, 112(3): 827-872.

DE WET, C. & LIEBBRANDT, M. 1990. Geographical location, access to services and employment, and economic well-being in two rural Ciskei villages. *Reality*, 22(1):32-34.

DINKELMAN, T. & PIROUZ, F. 2002. Individual, household and regional determinants of labour force attachment in South Africa. *South African Journal of Economics, Economic Society of South Africa*, 70(5):865-891.

DRABENSTOTT, M. & SMITH, T.R. 1996. The changing economy of the rural heartland. Federal Reserve Bank of Kansas City.

DUBEY, A., PALMER-JONES, R. & SEN, K. 2006. Surplus labour, social structure and rural to urban migration: Evidence from Indian data. *The European journal of development research: Journal of the European Association of Development Research and Training Institutes*, 18(1):86-104.

DU PLESSIS, S. & SMIT, B. 2007. South Africa's growth revival after 1994. Stellenbosch Economic working Paper 01/2006, University of Stellenbosch.

DURANTON, G. 1998. The economics of productive systems: Segmentation and skill-biased change. CEPDP. 398. Centre for Economic Performance, London School of Economics and Political Science, London, UK.

EATON, B.C. & LIPSEY, R.G. 1982. An economic theory of central places. *The Economic Journal*, 92(365):56-72.

ERCOLANI, M.G. & WEI, Z. 2010. An empirical analysis of the Lewis-Ranis-Fei Theory of Dualistic Economic Development for China. Discussion papers 10-06, Department of Economics, University of Birmingham.

EVANS, W.N., OATES, W.E. & SCHWAB, R.M. 1992. Measuring peer group effects: A study of teenage behavior. *Journal of Political Economy*, 100:966-991

FEDDERKE, J. 2004. From Chimera to prospect: Towards an understanding of the South African growth absence. Research report, School of Economics. UCT.

FEDDERKE, J. & MARIOTTI, M. 2002. Changing labour market conditions in South Africa: a sectoral analysis of the period 1970-1997. *South African Journal of Economics*, 70(5):830-864.

FIELDS, G.S. 2004. Dualism in the labour market: A perspective on the Lewis Model after half a century. *The Manchester School*, 76(6):724-735.

FOURIE, F.C.V.N. 2011. The South African unemployment debate: Three worlds, three discourses? Southern Africa Labour and Development Research Unit Working Paper No 63. *Economic Papers*.

FUJITA, M. & THISSE, J-F. 2000. Economics of agglomeration. (In: Huriot, J-M. & Thisse, J-F., eds. *The economics of cities: Theoretical perspectives*. Cambridge: Cambridge University Press).

FUJITA, M. & THISSE, J-F. 2002. *Economics of agglomeration*. Cambridge: Cambridge University Press.

GALLUP, J.L., SACHS, J.D. & MELLINGER, A.D. 1999. Geography and economic development. *International Regional Science Review*, 22(2):179-232.

GOBILLON, L., SELOD, H. & ZENOU, Y. 2007. The mechanisms of spatial mismatch. *Urban Studies*, 44(12):2401-2427.

HAVEMANN, R. & KEARNEY, M. 2010. Where you live matters: Urbanisation and labour market outcomes. Policy Paper 17. Economic Research Southern Africa.

HEINTZ, J. & POSEL, D. 2008. Revisiting informal employment and segmentation in the South African labour market. *South African Journal of Economics*, 76(1):26-44.

HELSLEY, R. & STRANGE, W. 1990. Matching and agglomeration economies in a system of cities. *Regional Science and Urban Economics*, 20:189-212.

HENDERSON, J.V. 1988. Urban development: Theory, fact and illusion. Oxford: Oxford University Press.

HOFMEYR, C. 2000. The changing pattern of segmentation in the South African labour market. *Studies in Economics and Econometrics*, 24(3):109-128.

IHLANFELDT, K. & SJOQUIST, D. 1998. The spatial mismatch hypothesis: A review of recent studies and their implications for welfare reform. *Housing Policy Debate*, 9:849-892.

IMPULS CENTRUM. 1999. Spatial transformation in the post-apartheid era: South Africa. http://www.impulscentrum.be/south_africa/glossary.asp Date of access: 27 Mar. 2012.

JOHNSON, R.C. 2006. Landing a job in urban space: The extent and effects of spatial mismatch. *Regional Science and Urban Economics*, 36(3):331-372.

KAIN, J. 1968. Housing segregation, Negro employment, and metropolitan decentralization. *Quarterly Journal of Economics*, 82:175-197.

KIM, S. 1995. Expansion of markets and the geographic distribution of economic activities: The trend in U.S. regional manufacturing structure, 1860-1987. *The Quarterly Journal of Economics*, 110(4):881-908.

KINGDON, G.G. & KNIGHT, J. 1999. Unemployment and wages in South Africa: A spatial approach. Working Paper 99-12. Centre for the Study of African Economies (CSAE), University of Oxford.

KINGDON, G.G. & KNIGHT, J. 2000. Are searching and non-searching unemployment distinct states when unemployment is high? The case of South Africa. Working Paper 2000-2. CSAE, University of Oxford. Published version: Kingdon and Knight (2006a).

KINGDON, G.G. & KNIGHT, J. 2001. What have we learnt about unemployment from micro datasets in South Africa? *Social Dynamics*, 27(1):79-95.

KINGDON, G.G. & KNIGHT, J. 2004. Unemployment in South Africa: The nature of the beast. *World Development*, 32(3): 391-408.

KINGDON, G.G. & KNIGHT, J. 2006a. The measurement of unemployment when unemployment is high. *Labour Economics*, 13: 291-315.

KINGDON, G.G. & KNIGHT, J. 2006b. How flexible are wages in response to local unemployment in South Africa? *Industrial and Labour Relation Review*, 59(3): 471-495.

KINGDON, G.G. & KNIGHT, J. 2008. Unemployment: South Africa's Achilles' heel. (In Aron, J., Kahn, B. & Kingdon, G. *South Africa Economic Policy under democracy*. Oxford: Oxford University Press).

KLASEN, S. & WOOLARD, I. 2009. Surviving unemployment without state support: Unemployment and household formation in South Africa. *Journal of African Economies*, Centre for the Study of African Economies (CSAE), 18(1):1-51.

KNIGHT, J.B. 2007. China, South Africa, and the Lewis Model. World Institute for Development Economic Research (UNI-WIDER) RP 2007/82.

KRUGMAN, P.R. 1979. Increasing returns, monopolistic competition and international trade. *Journal of International Economics*, 9(4):469-479.

KRUGMAN, P.R. 1991. *Geography and Trade*. Cambridge MA, MIT Press.

KRUGMAN, P.R. & VENABLES, A.J. 1990. Integration and the competitiveness of peripheral industry. (In Bliss, C. & Braga de Macedo, J., eds. *Unity and diversity in the European economy*. Cambridge: Cambridge University Press).

LEIBBRANDT, M., BHORAT, H. & WOOLARD, I. 2001. Household inequality and the labour market in South Africa. *Contemporary Economic Policy*, 19(1):73-86.

LEWIS, W.A. 1954. Economic development with unlimited supplies of labour. *Manchester School of Economic and Social Studies*, 22 (2): 139-191.

MAGRUDER, J.R. 2009. Intergenerational networks, unemployment, and persistent inequality in South Africa. *American Economic Journal: Applied Economics*, 2(1):62-85.

MAGRUDER, J.R. 2010. High unemployment yet few small firms: The role of centralized bargaining in South Africa. Policy Paper 16. Economic Research Southern Africa.

MCQUAID, R.W., LINDSAY, C. & GREIG, M. 2003. *Wired for work? ICT and job seeking in rural areas*. Joseph Rowntree Foundation, York. Employment Research Institute.

NATIONAL PLANNING COMMISSION. 2011. *The National Development Plan*. The Presidency. <http://www.npconline.co.za/pebble.asp?reid=25> Date of access: 10 Aug. 2012

NATTRASS, N. & WALKER, R. 2005. Unemployment and reservation wages in working class Cape Town. *South African Journal of Economics*, 73(3):498-509.

NAUDÉ, W.A. 2008. Is there a spatial mismatch in South Africa's metropolitan labour market? *Cities*, 25:268-276.

NAUDÉ, W. 2010. Suburbanisation and residential desegregation in South Africa's cities. WP/24. United Nations University – World Institute for Development Economics Research.

NEARY, J.P. 2001. Of hype and hyperbolas: Introducing the new economic geography. *Journal of Economic Literature*, 39(2):536-561.

OKPALA, D.C.I. 2003. Promoting the positive rural-urban linkages approach to sustainable development and employment creation: The Role of UN-HABITAT.

O'REGAN, K. & QUIGLEY, J.M. 1998. Where youth live: Effects of urban space on employment. *Urban Studies*, 35(7):1187-1205.

OVERMAN, H.G., REDDING, S. & VENABLES, A.J. 2001. The economic geography of trade, production and income: A survey of empirics. CEPR Paper No. 465, London.

PORTER, M.E. 1998. Location, clusters and the 'new' microeconomics of competition. *Business Economics*, 33(1):7-13.

RANIS, G. 2004. Arthur Lewis' contribution to development thinking and policy. Center Discussion Paper No. 891. Yale University.

REGIONAL EXPLORER. 2012. Database supplied by Global Insight Southern Africa.

ROSS, S. & ZENOU, Y. 2004. Shirking, commuting and labor market outcomes. IUI Working Paper 627. Stockholm.

SCHOEMAN, D., BLAAUW, D. & PRETORIUS, A. 2008. An investigation into the determinants of the South African unemployment rate 1970-2002. *Acta Academica*, 40(3):67-84.

SEEKINGS, J. 2003. Are South Africa's cities changing? Indications from the mid-1990s. *International Journal of Urban and Regional Research*, 27(1):197-202.

SHEN, Q. 2001. A spatial analysis of job openings and access in a U.S. Metropolitan Area. *Journal of the American Planning Association*, 67(1):53-68.

STATISTICS SOUTH AFRICA. 2010. Labour Market Dynamics in South Africa, 2009.

TAYLOR, J.E. & MARTIN, P.L. 2001. Human capital: Migration and rural population change. Science Direct. *Handbook of Agricultural Economics*, 1:457-511.

VENABLES, A.J. 1995. Economic integration and the location of firms. *The American Economic Review*, 85(2):296-300.

VENABLES, A.J. 2005. Spatial disparities in developing countries: Cities, regions and international trade. *Journal of Economic Geography*, 5:3-21.

VENTER, C., VOKOLKOVA, V. & MICHALEK, J. 2007. Gender, residential location and household travel: Empirical findings from low-income urban settlements in Durban, South Africa. *Transport Reviews*, 27(6):653-677.

WASMER, E. & ZENOU, Y. 2005. Equilibrium search unemployment with explicit spatial frictions. *Labour Economics*, 13(2):143-165.

WOJAN, T.R. 2000. The composition of rural employment growth in the new economy. *American Journal of Agricultural Economics*, 82:594-605.

WOOLARD, I. & KLASSEN, F. 2005. Determinants of income mobility and household poverty dynamics in South Africa. *Journal of Development Studies*, 41(5):865-897.

WORLD BANK. 2011. Urban population growth in South Africa. <http://www.tradingeconomics.com/south-africa/urban-population-growth-annual-percent-wb-data.html> Date of access: 27 Mar. 2012.

WORLD BANK. 2013. World Development Report 2013. Jobs. Washington D.C: World Bank.

WORLD BANK. 2009. World Development Report 2009. Reshaping economic geography. Washington D.C: World Bank.

WRIGHT, S., NELSON, J.D. & COOPER, J.M. 2008. Development and evaluation of the Transport to Employment (T2E) Service: Overcoming transport barriers to job opportunities leading to more sustainable rural communities in Highland Scotland. *Local Economy*, 23(3):180-194.

ZAX, J. & KAIN, J. 1991. Commutes, quits and moves. *Journal of Urban Economics*, 29:153-165.

ZHANG, X., RASHID, S., AHMAD, K., MUELLER, V., LEE, H.L., LEMMA, S., BELAL, S. & AHMED, A. 2013. Rising wages in Bangladesh. International Food Policy Research Institute Discussion Paper 01249.

ZENOU, Y. 2000. Unemployment in cities. *Economics of cities: Theoretical perspectives*. Cambridge: Cambridge University Press.