PROVINCE OF KWAZULU-NATAL

Provincial-Economic Review and Outlook

2015/2016

KwaZulu-Natal Provincial Government

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Contents

List of Tables

List of Figures

List of Acronyms

CIS	Commonwealth of Independent States
CPI	Consumer Price Index
DAFF	Department of Agriculture, Forestry and Fisheries
DEDT	Department of Economic Development and Tourism
EAP	Economically Active Population
EME	Emerging Market Economies
FIFA	Federation International Football Association
GDP	Gross domestic product
GDP-R	Regional gross domestic product
GIS	Geographical Information System
GVA	Gross Value Added
ILO	International Labour Organisation
IMF	International Monetary Fund
KZN	KwaZulu-Natal
LFPR	Labour Force Participation Rate
MDGs	Millennium Development Goals
MPC	Monetary Policy Committee
MTEF	Medium Term Expenditure Framework
NAAMSA	National Association of Automobile Manufacturers of South Africa
NDP	National Development Plan
NDT	National Department of Tourism
OECD	Organisation for Economic Co-operation and Development
PMI	Purchasing Managers' Index
PPI	Producer Price Index
PWC	Price Waterhouse & Coopers
R&I	Rating and Investment Information
SA	South Africa
SADC	Southern African Development Community
SARB	South African Reserve Bank
SARS	South African Revenue Service
SAT	South African Tourism
S&P	Standard and Poor
Stats SA	Statistics of South Africa
UK	United Kingdom
US	United States
WTTC	World Travel and Tourism Council

Executive Summary

The Provincial Economic Review and Outlook (PERO) 2015 is presented by Kwazulu-Natal (KZN) Provincial Treasury during hard times of electricity constraint and national drought. Although the electricity constraint has recently stabilised but the problem still exists. The situation of national drought is a serious problem which is anticipated to have negative effects on economic growth and inflation in the sense that food production will decline and consequently lead to inflation.

This document comprises of five chapters, where chapter one is the introduction, chapter two focuses on global, national and provincial (KZN) economic review and outlook. Chapter three provides an analysis of sectors in KZN while chapter four focuses on labour market dynamics. The last chapter provides a study on spatial regression model to analyse relationships between variables by regions in KZN.

It has been indicated in chapter two of this publication that the global economic outlook remains sluggish at 3.1 per cent in 2015. Specifically, advanced economies have been retrained at 1.3 per cent and 0.9 per cent in 2013 and 2014, respectively. This is the same situation in emerging market economies (EMEs) especially those that export commodities and or trading extensively with China. The Sub-Saharan countries recorded growth of 5 per cent in 2014; however this is expected to slow down to 3.8 per cent in 2015 due to declining commodity prices as well as lower demand from China which has recently moved from an investment led to a consumption led economy.

Emanating from the world economic trend, South Africa's (SA's) economy has been adversely affected, thereby contracting by 1.3 per cent in the second quarter of 2015, quarter on quarter. Evidence from Stats SA indicates that this was due to poor national economic performance which was mainly influenced by the manufacturing, mining and quarrying as well as agricultural sector. The province of KZN is not decoupled from the South African economy and the world as it also contracted by 1.3 per cent in the second quarter of 2015 compared to 1.7 per cent recorded during the fourth quarter of 2014. However, the province of KZN continues to maintain its second position as its contribution towards the national GDP is at 16 per cent after Gauteng at 33.8 per cent. EThekwini Metro is seen as the engine of the province's economic hub,

because alone it contributes more than 50 per cent towards the provinces GDP and the rest is contributed by ten other district municipalities.

A key challenge facing the province of KZN is to reduce its current account deficit by increasing production for both domestic and international markets. This is feasible given the comparative advantage of the province with regard to agriculture and the busiest and largest ports of Durban and Richards Bay.

One of the critical indicators that affect the economic performance is the inflation. It adversely affects the consumers' disposable income. Although the South African Reserve Bank (SARB) has been able to maintain inflation within the target range however, it expects the inflation to breach the target band to 6.7 per cent in the first quarter of 2016.

The publication also looks at the contribution made by the tourism industry in the world, country and the province. This industry is one of the strategic sectors because it has the potential of adding value to increasing employment in the country. The industry contributes quite sizeably to the GDP of the country.

Chapter three provides detailed analysis of three sectors which are primary, secondary and tertiary sectors. Sub-sectors under each of these three sectors are discussed at length. Although there are other challenges facing the agricultural sector, the main one is currently the persistent drought in the province and the country which is caused by climatic conditions. It has been indicated above that this situation is anticipated to exacerbate low growth and cause food inflation. The problem of water shortages is not isolated as it affects other sectors as well. Therefore water conservation and water demand management need to be taken into consideration.

The manufacturing subsector has been showing a downward trend in the province thus relying on the tertiary sector to contribute to the economy of the province. This is worrying as the manufacturing sector growth can be a catalyst for job creation in the economy. Surprisingly, the community service within the tertiary sector has been showing a positive trajectory where in actual fact the marginal productivity of labour in this subsector is low.

Chapter four focuses on the labour dynamics in the province of KZN. The manufacturing and the agricultural sectors' contribution to employment has been declining over the years with trade showing the largest improvement. In addition, the contribution to employment by the community services has been showing a positive trajectory. With the high unemployment rate both in SA and in the province, it is worrying that the primary and the secondary sectors are not improving as expected with regard to job creation given the comparative advantage of the province of KZN. It is therefore important to revive these sectors and ensure the beneficiation of resources as well as agro-processing. This will assist in improving the GDP of the province whilst creating more job opportunities.

Using the spatial regression model in chapter five to analyse relationships between variables by regions that are in close proximity concludes that KZN has experienced very little spatial dependence from 1996 to 2013. The results strongly suggest spatial heterogeneity indicating uneven distribution of various concentrations in the regions.

Chapter 1: Introduction

The Provincial Economic Review and Outlook (PERO) 2015 publication is presented during the period when the province is faced with challenges of water shortage due to drought that has engulf the province, and universities' protests against the hiking of fees. These challenges might fuel the problems of slower economic growth and higher inflation rate which already have shown the signs of existence.

As global and national economic growth plummeted during the years 2014 and 2015, it does not look like the situation is going to be better. This calls for the country and the province to be more innovative when handling economic matters. This publication is giving the highlights of the economic situation of the province starting by looking at global trends down to national and then provincial. The publication can be used by business people who have the interest in doing business with the province of KZN, also assist to address the economic challenges the government of the province might face. It also assists the public at large to be aware of the economic situation for the province.

Economic outlook and overview gives the overall situation of the economy of the world, country and the province of KZN with special attention to gross domestic product (GDP). This analysis gives the picture of where does the country as well as the province stand economically, compared to the rest of the world. A number of industries and certain indicators are discussed, especially the ones that contribute significantly towards the economic growth of the country as well as the province.

Strategic sectors such as agriculture, manufacturing, mining, electricity, construction, trade, finance, transport and community services are discussed. Statistics is provided in these sectors in order to analyse and find gaps that can be filled in the economy. The analysis of data is also provided but it does not limit the reader to analyse further or for the reader to utilise the publication for his or her own interests.

Labour dynamics are discussed at length focusing on the employment, unemployment, labour absorption rate and labour force participation rate in the province. Finally this document focuses

on the spatial regression model which includes relationships between variables and their neighbouring values. The main focus is on regional unemployment and their possible impact on neighbouring variables.

Chapter 2: Economic Review and Outlook

2.1 Introduction

As indicated by both the International Monetary Fund (IMF, 2015a) and the Economic Co-operation and Development (OECD, 2015a), the global economy continues to be performing at a slower pace than expected. It is however not all gloom, as advanced economies such as Britain, United States of America (US) and Germany are showing a steady progress, thereby maintaining the global recovery (OECD, 2015a). The OECD however, described the outlook for the next coming years as one characterised by "*puzzles and uncertainties"*. This is due to the growth prospects for Japan and the uneven pace of growth among eurozone countries which, according to the OECD, show a mixed and confusing picture.

It is within this perspective that this chapter provides the *Economic Review and Outlook* of the province of KwaZulu-Natal (KZN). The chapter begins with an outline of the global, national and KZN economic review and outlook. This is then followed by the brief analysis of the international trade, inflation and tourism.

2.2 Global economic outlook

According to the IMF (2015a), the world economy is characterised by low productivity growth. In some advanced economies, particularly in the euro zone, many countries are heavily indebted and Greece is one critical example. The financial sector has not fully recovered since the 2009 global financial crisis, which brought the global economy into recession. The emerging economies are faced with lower commodity prices triggered by weaker demand as well as higher production capacity, which inherently lead to weaker currencies (IMF, 2015a).

Subsequently, the global economic outlook still remains sluggish and the revised global economic growth rate is expected at 3.1 per cent in 2015, 0.2 percentage point below the forecasts in October 2014. The global economic growth is projected to expand slightly to 3.6 per cent in 2016 (table 2.1).

The OECD (2014a) maintains that global economic growth will remain below expectations as recovery is progressing at a slow pace, particularly in some advanced economies. The IMF (2015a) also argues that this is also evident in many emerging market economies (EMEs), especially those exporting commodities and or trading extensively with China. It is however expected that some strengthening will emerge in 2016. The IMF further maintains that the downside risks[1] to the world economy appear more pronounced than they did earlier in 2015.

Table 2.1: World economic estimates and projections, 2012 to 2016

	Estimates			Projections	
	2012	2013	2014	2015	2016
World	**3.5**	**3.2**	**3.4**	**3.1**	**3.6**
Developed countries	**1.4**	**1.3**	**0.9**	**1.5**	**1.6**
Japan	1.4	1.5	-0.1	0.6	1.0
Euro Area	-0.7	-0.4	1.1	1.1	1.5
United States of America	2.8	1.9	2.4	2.6	2.8
Emerging countries	**5.1**	**4.7**	**4.6**	**4.0**	**4.5**
Brazil	1.0	2.5	0.1	-3.0	-1.0
Russia	3.4	1.3	0.6	-3.8	-0.6
India	4.7	5.0	7.3	7.3	7.5
China	7.7	7.7	7.3	6.8	6.3
Sub-Saharan Africa	**5.1**	**5.4**	**5.0**	**3.8**	**4.3**
South Africa	**2.5**	**1.9**	**1.5**	**1.4**	**1.3**

Source: IMF, 2015a

Table 2.1 indicates that growth in advanced economies has been restrained at 1.3 and 0.9 per cent in 2013 and 2014 respectively. This is however, expected to gain momentum and rise moderately to 1.5 per cent and 1.6 per cent in 2015 and 2016 respectively. The IMF (2015a) anticipates this moderate growth rate to be primarily, a reflection of the modest recovery in the euro area and a return to positive growth in Japan. This is expected to be supported by declining oil prices, accommodative monetary policy, and in some cases, currency depreciation.

In Japan, a strong rebound in the first half of 2015 was followed by a slow-down in economic activity which led to a fall in aggregate expenditure on consumption by households. Exports also plunged substantially in the second quarter of 2015. The Euro area returned to the positive trajectory in 2014 and 2015 at 1.1 per cent and is projected at 1.5 per cent in 2016 (IMF, 2015a).

[1] According to Investopedia, a downward risk is an estimation that the probability of a security to decline is much higher. This therefore implies that there is a potential to suffer a decline in value if the market conditions change, see http://www.investopedia.com/terms/d/downsiderisk.asp, accessed on 15 October 2015.

As pointed out by the IMF, economic growth in the US is weaker than expected, reflecting subdued performance in the first three months of 2015. This, according to the IMF, was partly as a result of unfavourably winter weather and port closures, as well as much lower capital spending in the oil sector.

Compared to the past five years, growth outlook in the emerging market and developing economies outlook is generally deteriorating, partly due to weaker growth in oil exporters; slower economic performance in China, adjustment in the aftermath of credit and investment booms and a weaker outlook for exporters of other commodities. In overall, emerging market and developing economies grew by 4.6 per cent in 2014 (table 2.1). This economic block contributes more than 66 per cent of the global growth and is projected to grow by 4 per cent and 4.5 per cent in 2015 and 2016 respectively (table 2.1 and IMF, 2014).

Economic growth in Brazil is projected to contract by 3 per cent this year (table 2.1). Though the OECD (2015b) expects a slow recovery in 2016, driven initially by strengthening exports, its growth outlook for 2016 is still on the negative trajectory. The OECD further projects business investment to gain momentum in 2016 as activity accelerates and some of the previous risks are being addressed.

In Russia, gross domestic product (GDP) is projected to fall by 3.8 per cent in 2015 and 0.6 per cent in 2016 (table 2.1). The OECD (2015c) maintains that the gloomy economic outlook in Russia reflects the economic impact of lower oil prices and increased geo-political tensions. The sharp slowdown in Russia and the depreciation of ruble[2] are also cited by the OECD as having severely weakened the outlook for other economies in the Commonwealth of Independent States (CIS).

The 2015 economic outlook in India is expected to be stable at 7.3 per cent recorded in 2014. It is however projected to strengthen moderately to 7.5 per cent in 2016. The projected economic growth in India remains the highest across the globe (table 2.1). This robust growth rate is anticipated to be supported by a revival in investment (OECD, 2015d). The report further projects export growth to be held back by the currency appreciation, while the decline in oil

[2] Ruble is the basic monetary unit or currency of Russia and some other former republics of the Union of Soviet Socialist Republics (USSR).

prices is expected to reduce pressures on the current account deficit, inflation and subsidies. The OECD (2015e) projects a slower growth rate in China to continue to plunge down to 6.7 per cent by 2016. This is slightly above the 6.3 per cent expected by the IMF (table 2.1). The IMF cites the financial market volatility that spiked in the third quarter of 2015 was to a larger extent triggered by uncertainty about the implementation of China's new exchange rate regime.

With the 5 per cent recorded in 2014, the Sub-Saharan Africa region is expected to slow to 3.8 per cent in 2015, before accelerating moderately to 4.3 per cent in 2016 (table 2.1). The slowdown in 2015 is to a larger extent driven by the declining commodity prices, particularly oil, as well as lower demand from China[3]. As reflected by the IMF (July 2014), economic growth rate in the region was strong and relatively stable in 2012 and 2013 at 5.1 per cent and 5.4 per cent respectively. The bank cites mining activity, agricultural production and investment in natural resources and infrastructure as the key contributing factors to this robust growth rate. Domestic demand is also high due to strong credit growth in the private sector.

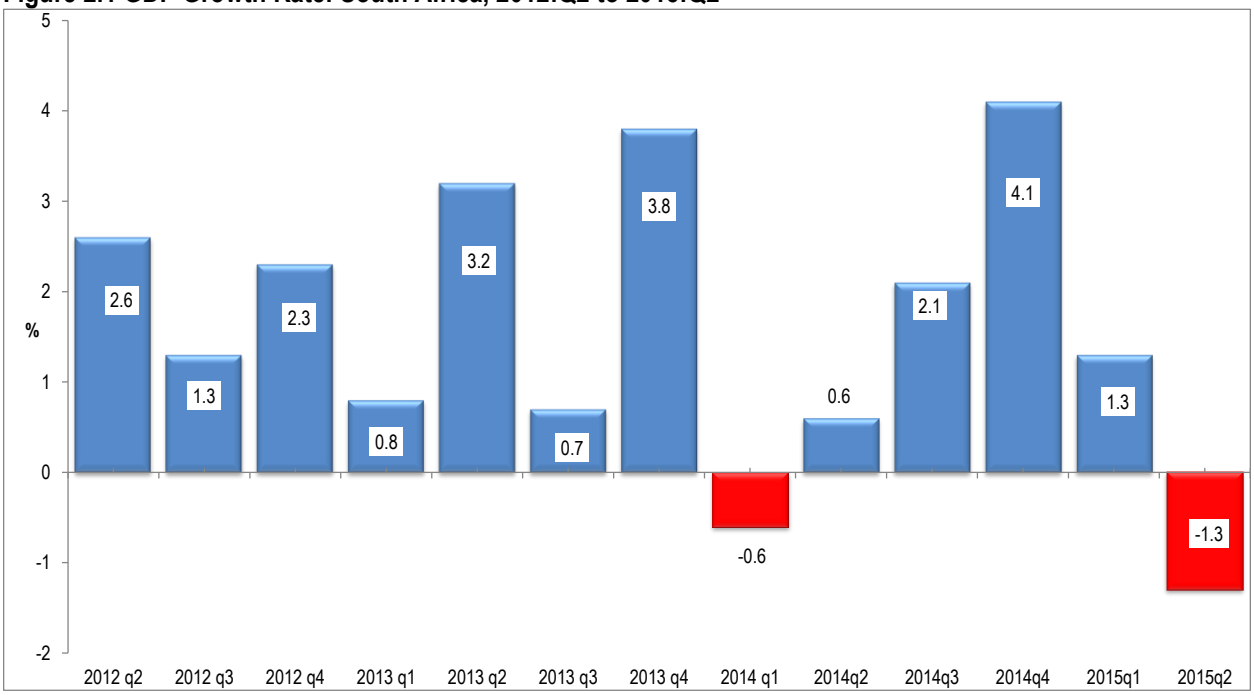
2.3 National economic outlook

Following the global trajectory, the economic performance of South Africa (SA) plummeted further to 1.5 per cent in 2014, down from the overall 1.9 per cent recorded in 2013. According to the IMF (2015b), this sluggish economic growth rate in the country was to a large extent due to the mining strikes, particularly in the first half of 2014 and electricity supply constraint.

Further to the world economic trend, the country's economic performance has been adversely affected, thereby contracting by 1.3 per cent in the second quarter of 2015, quarter-on-quarter, seasonally adjusted and annualised (figure 2.1). Evidence from Statistics South Africa (Stats SA, 2015a) indicates that this poor national economic performance was mainly influenced by the manufacturing; mining and quarrying as well as agriculture, forestry and fishing industries which contracted by 6.3 per cent, 6.8 per cent and 17.4 per cent respectively.
In line with projections by the IMF, the South African Reserve Bank (SARB, 2015a) and National Treasury have since revised down the national economic outlook to 1.5 per cent in 2015. The 2016 outlook by the SARB and National Treasury is projected at 1.6 per cent and 1.7 per cent respectively.

[3] China is the largest single trade partner of sub-Saharan Africa (IMF, 2015).

Figure 2.1 GDP Growth Rate: South Africa, 2012:Q2 to 2015:Q2



Source: www.tradingeconomics.com, 2015 and Stats SA, 2015

The SARB composite business cycle indicator[4] as well as both low business and consumer confidence also followed a moderate downward trend in the second quarter of 2015, confirming the subdued economic outlook. Furthermore, the Standard Bank purchasing managers' index (PMI)[5] fell to 47.9 in September indicating that operating conditions for private sector companies had been deteriorating since May this year. This sluggish economic performance is clearly not boding well with unemployment rate which is estimated at 25.5 per cent as at the end of the second quarter of 2015 (Stats SA, 2015a).

Since the beginning of the year to September 2015, the rand has depreciated by more than 18 per cent against the US dollar, possibly boosting exports. According to the SARB (2015a), the rand has been negatively affected by "developments in China, continued speculation regarding the timing of US policy take-off, and the weaker-than-expected domestic GDP growth outcome".

[4]The composite leading indicator shows the direction of economic activity in the next 6 to 9 months (http://www.investopedia.com/terms/c/cili.asp), accessed 10 September 2015

[5]The PMI is an indicator of the economic performance of the manufacturing sector. It is based on five major indicators: new orders, inventory levels, production, supplier deliveries and the employment environment. A PMI of more than 50 represents expansion of the manufacturing sector, compared to the previous month. A reading under 50 represents a contraction, while a reading at 50 indicates no change (http://www.investopedia.com/terms/p/pmi.asp), accessed 10 September 2014.

Despite the lacklustre economic performance, the country is currently experiencing the sound macroeconomic framework with a stable fiscal position, inflation targeting, a floating exchange rate and largely unhindered international capital flows has earned the confidence of financial markets. It is therefore not by coincidence that in September this year, Moody's Investors Service's affirmed SA's sovereign ratings by maintaining a stable outlook on the rating. This was based on the expectation that the fiscal consolidation path outlined in budget for 2015/16 medium term expenditure framework (MTEF) would be maintained.

The affirmation by Moody's and other rating agencies such as Standard & Poor (S&P) and Rating and Investment Information (R&I) is in recognition of SA's commitment to sound macroeconomic policies and its efficient financial institutions. This therefore is an indication that SA has a compelling case to make in terms of encouraging investment to the country.

The national economy suffered another blow in the beginning of the third quarter of 2015, whereby inflation rate increased to 5 per cent in June and thereby approaching the upper limit of the inflation target band of 3 percent to 6 percent. This was despite the falling of oil price; as a result, the SARB[6] has further raised the repurchase (repo)[7] rate by 25 basis points to 6 per cent per annum in July 2015. The domestic economic outlook has since worsened significantly.

2.4 Kwazulu-Natal Provincial Review and Outlook

KZN is one of the key provinces in the South African economy in terms of regional gross domestic product (GDP-R) contribution. The estimated real GDP-R generated by the province amounted to approximately R476.1 billion in 2014, making KZN the second largest contributor to the national output at 15.8 per cent after Gauteng with 36.1 per cent (Figure A2.1 in appendix A).

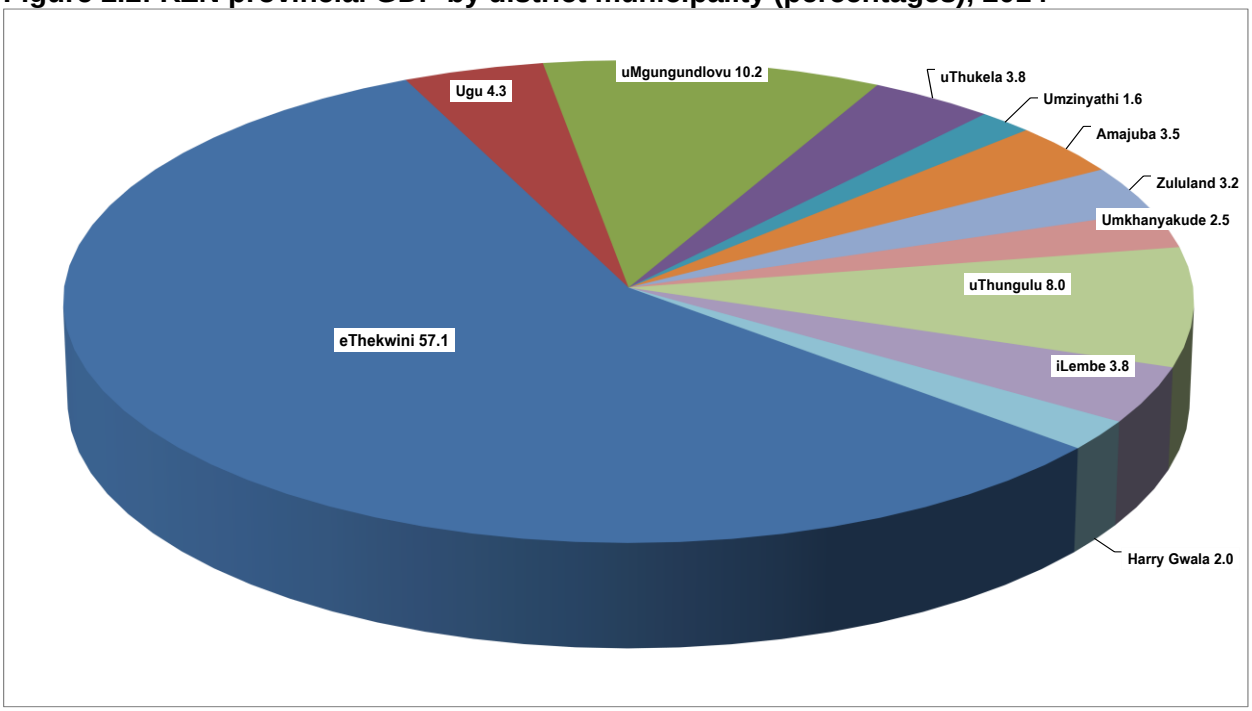
Given the economic activities that take place within eThekwini Metro, it is therefore not surprising that the total provincial output is predominantly concentrated in the metro at 57.1 per cent. This is followed by uMgungundlovu with 10.2 per cent and uThungulu with 8 per cent. The

[6]SARB (2014a): Statement of the Monetary Policy Committee, Issued by Lesetja Kganyago, Governor of the SARB (23 July 2015), accessed on the 23rd July 2015, available online: http://www.resbank.co.za

[7] Repo rate is the level of interest rate charged by the SARB to the commercial banks when they borrow from the reserve bank.

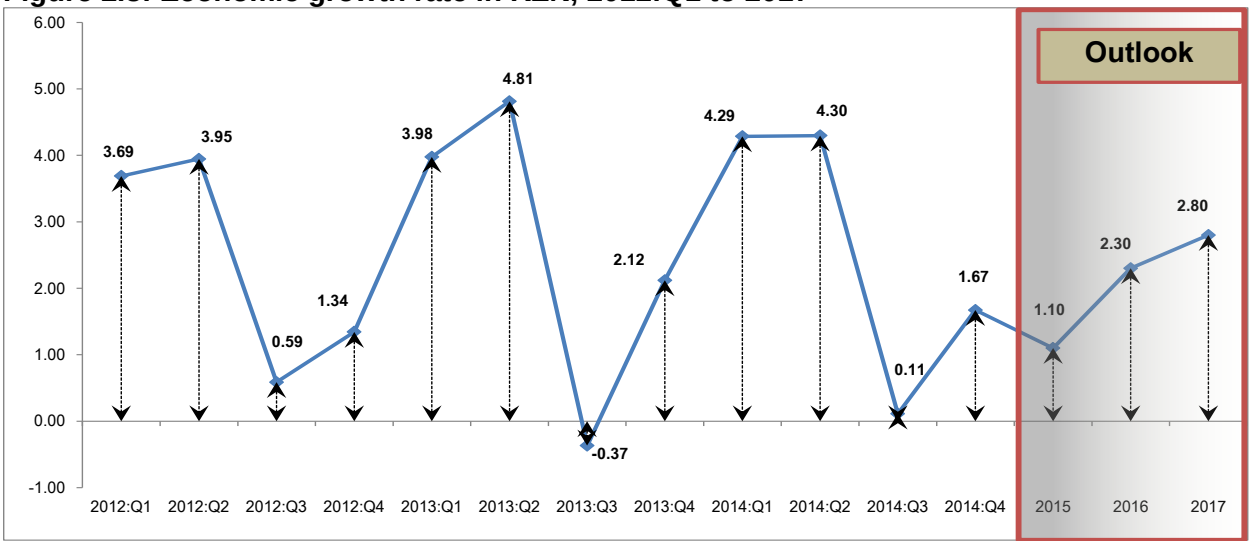
least contributing districts are Umzinyathi, Harry Gwala and Umkhanyakude at the estimated rate of 1.6 per cent, 2 per cent and 2.5 per cent respectively (figure 2.2).

Figure 2.2: KZN provincial GDP by district municipality (percentages), 2014



Source: Global Insight, 2014

Figure 2.3: Economic growth rate in KZN, 2012:Q1 to 2017



Source: KZN Treasury Economic Model, 2015 and Global Insight, 2015

Following the global and national trends, the provincial economy contracted by 1.3 per cent in the second quarter of 2015, compared to the 1.7 per cent recorded during the fourth quarter of

2014. This lacklustre economic performance by the provincial economy during the second quarter of 2015 was due to agricultural, mining, manufacturing, electricity and trade industries, which contracted by 18.7 per cent, 7 per cent, 4.9 per cent, 3 per cent and 0.4 per cent respectively.[8] The provincial economy is expected to grow by 1.1 per cent at the end of this year before accelerating moderately to 2.3 per cent and 2.8 per cent in 2016 and 2017 respectively (figure 2.3).

2.5 International trade

International trade allows a country to expand its market penetration while influencing growth and development in an economy.This is influenced by comparative advantage over its foreign competitors in the production of tradable goods. South Africa's (SA's) trade and industrial policy has evolved over the years, as it has moved away from the highly protected, inward looking economy, towards a more open economy. A key challenge for SA and KZN is reducing the current account deficit by increasing the country's production for both domestic and international markets.

Encouragingly, KZN is the second largest contributor to the South African's economy, as it is home to the busiest and largest ports of Durban and Richards Bay. This section therefore provides an analysis of international trade with reference to exports, imports, percentage share of South African exports by provinces as well as exports as a percentage of GDP-R.

Table 2.2 shows the balance of payments on current account in 2014 and the first quarter and second quarter of 2015. It is clear from the table that the South African current account recently improved from a deficit realised in 2014 which averaged at R69 billion to a surplus of R14 billion in the second quarter of 2015. As correctly pointed out by the SARB (2015) the improvement in the current account emanates from the depreciation of the South African rand, the increase in global demand for domestically produced goods and the decline in imports. This also resulted to an improvement of the current account as a percentage of GDP of -3.1 per cent in the second quarter of 2015 from -4.7 per cent realised in the first quarter of the same year.

[8] See KZN Economic Model as compile by Dr Coetzee, which is available on request.

Table 2.2: Balance on current account (R billion, seasonally adjusted and annualised) in 2015

	2014				Year	2015	
	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter		1st Quarter	2nd Quarter
Merchandise exports	966	909	931	959	941	937	1001
Net Gold exports	62	64	63	62	63	62	71
Merchandise imports	-1099	-1064	-1071	-1056	-1072	-1067	-1059
Trade balance	-72	-90	-77	-35	-69	-68	14
Net service, income and current transfer payments	-101	-142	-145	-163	-138	-117	-138
Balance on current account	-173	-232	-223	-198	-207	-185	-124
As a percentage of GDP	-4.6	-6.2	-5.8	-5.1	-5.4	-4.7	-3.1

Source: SARB Quarterly Bulletin, September 2015

2.5.1 KwaZulu-Natal exports

Table 2.3 depicts the values of exports in South Africa by provinces for the years 2003 and 2014. Although exports in the province of KZN had been trending behind that of the Gauteng province, it has increased by more than double to an estimated R118 billion recorded in 2014 from an estimated R50.9 billion in 2003. This is a contribution of 19.4 per cent as a proportion of GDP as compared to 49.6 per cent recorded by the Gauteng province in 2014. This constitutes 11.8 per cent of the South African exports which is second after Gauteng (64.7 per cent). It has to be noted that given the comparative advantage of the province of KZN with regard to having the largest and busiest ports as indicated above, the province has a potential of increasing its export even further.

Table 2.3: South African exports by provinces in 2003 and 2014

	2003			2014		
	Exports (R000)	Share of South African exports (%)	Exports as a proportion of GDP (%)	Exports (R000)	Share of South African exports (%)	Exports as a proportion of GDP (%)
South Africa	291 433 999		22	1 003 825 998		26.4
Western Cape	37 618 915	12.9	19.8	113 044 260	11.3	21.5
Eastern Cape	22 328 309	7.7	21.7	42 470 623	4.2	14.4
Northern Cape	6 037 785	2.1	21.3	13 649 207	1.4	17.6
Free State	1 848 978	0.6	2.6	9 662 395	1.0	5.1
KwaZulu-Natal	**50 898 001**	**17.5**	**23.2**	**118 006 121**	**11.8**	**19.4**
North-West	12 459 732	4.3	16.7	18 300 516	1.8	8.1
Gauteng	154 053 941	52.9	33.3	649 360 192	64.7	49.6
Mpumalanga	4 180 584	1.4	4.6	18 423 245	1.8	6.4
Limpopo	2 007 755	0.7	2.3	20 909 440	2.1	7.6

Source: Global Insight, 2015

2.5.2 KwaZulu-Natal imports

Table 2.4 shows the value of imports and percentage share of South African imports by provinces in 2003 and 2014. KZN imported an estimated value of R118 billion worth of goods in 2014 which grew by 251.7 per cent from imports realised in 2003 (R33.6 billion). As expected the Gauteng province was the largest importer with an estimated value of R646.1 billion in 2014 which was 60.2 per cent of South African imports.

Table 2.4: Percentage share of South African Imports by provinces in 2003 and 2014

	2003		2014	
	Imports (R000)	Share of South African imports (%)	Imports (R000)	Share of South African imports (%)
South Africa	264 751 997		1 072 463 997	
Western Cape	46 435 680	17.5	238 523 515	22.2
Eastern Cape	22 092 028	8.3	50 134 236	4.7
Northern Cape	3 532 774	1.3	3 403 822	0.3
Free State	1 567 584	0.6	4 236 986	0.4
KwaZulu-Natal	**33 551 613**	**12.7**	**118 006 695**	**11.0**
North-West	1 317 101	0.5	5 553 622	0.5
Gauteng	154 280 926	58.3	646 107 196	60.2
Mpumalanga	1 394 518	0.5	5 527 626	0.5
Limpopo	579 773	0.2	970 299	0.1

Source: Global Insight, 2015

In contrast the province of KZN (11 per cent of South African imports) had the third largest imports after Gauteng and the Western Cape (22.2 per cent of South African imports). The least contributor of all the provinces was the Limpopo province with a mere 0.1 per cent of the South African imports.

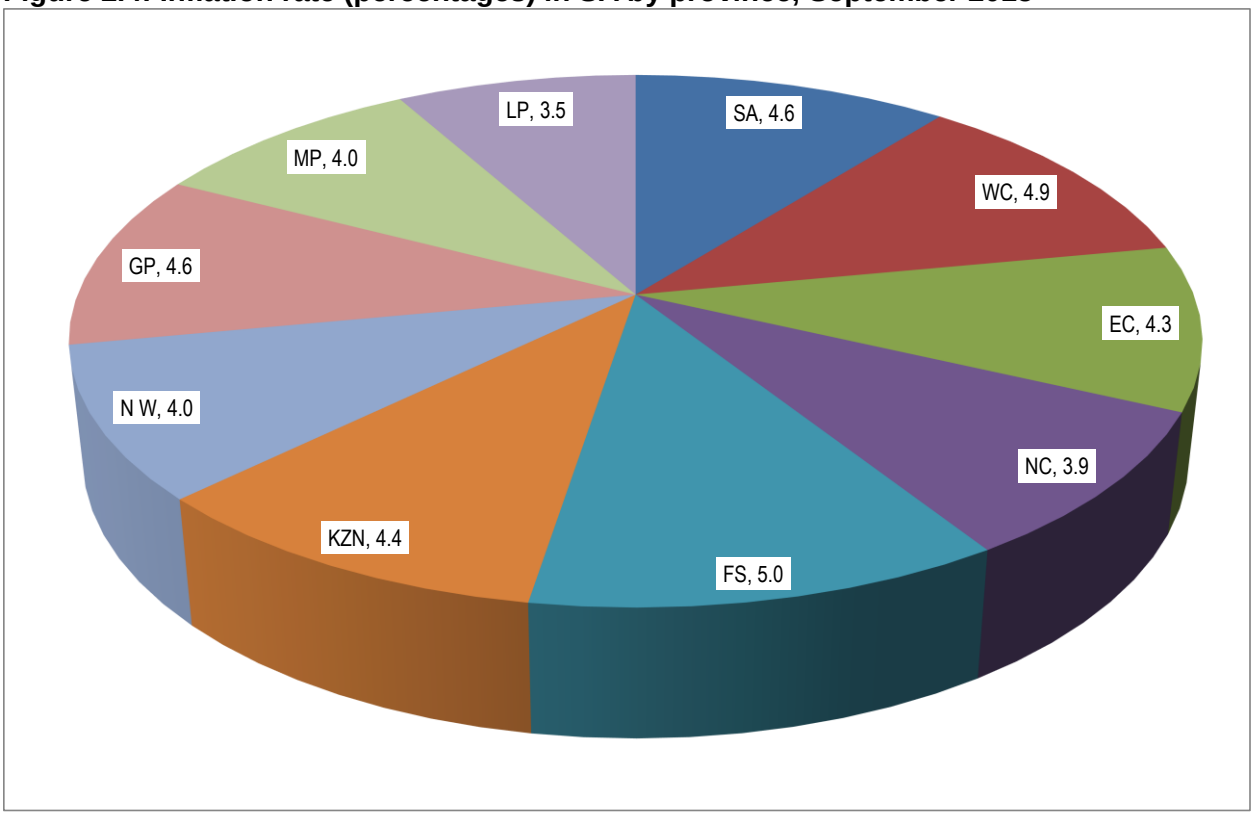
2.6 Inflation

Inflation is one of the critical indicators that affect the economic performance of a country. It adversely affects consumers' disposable income which in turn reduces the purchasing power. This as a result, has a detrimental effect on a country's economic performance in terms of GDP. Higher inflation, affects among others, the producer price index (PPI) and the consumer price index (CPI). Subsequently, the Monetary Policy Committee (MPC) of the SARB carefully

monitors the inflation trends both globally and nationally and then applies appropriate monetary policy instruments as and when required.

The SARB (2015a) expects inflation to average 4.7 per cent in 2015, before breaching the target range of 3 per cent and 6 per cent to 6.7 per cent in the first quarter of 2016. Inflation is however expected to drop slightly to 6.2 per cent in the final quarter of 2016. These inflation outlook projections are mainly due to the depreciation of the rand, which is offset to some extent by a lower international oil price.

Figure 2.4: Inflation rate (percentages) in SA by province, September 2015



Source: Stats SA, October 2015

According to Stats SA (2015b), the national headline CPI peaked at 4.6 per cent in September 2015. At 4.4 per cent, KZN was among the provinces with an annual inflation rate lower than national average. Other provinces with the lowest levels of annual inflation rate were Limpopo at 3.5 and the Northern Cape (NC) at 3.9 per cent. Both the North West (NW) and Mpumalanga (MP) recorded a moderate rate of 4 per cent over the same period. The highest inflation rate was recorded in Free State (FS) at 5 per cent, followed by the Western Cape (WC) and Gauteng (GP) at 4.9 per cent and 4.6 per cent respectively (figure 2.4).

Table 2.5 shows the South African main indices of CPI in all urban areas in 2015. The *alcohol and beverages* recorded the highest increase of 10.3 per cent, year-on-year, followed by *education* and *miscellaneous goods & services* at 9.3 per cent and 7 per cent respectively. *Food* prices rose by 4.4 per cent in September 2015, slightly up from the 4.3 per cent recorded in August. According Stats SA (2015b), the main drivers for aggregate prices of food were *sugar, sweets & deserts* at 7.9 percent and *fish* at 7.1 per cent. *Oils & fats* and *bread & cereals* also had a significant contribution at 7 per cent and 6.4 per cent respectively. Interestingly, the average prices for *communication* contracted by 0.7 per cent, year-on-year. This trend was also pertinent to transport cost which slowed down moderately to negative 0.8 per cent in September, year-on-year.

Table 2.5: South African main indices of consumer price index (CPI) in all urban areas, September 2015

	Weighting	Monthly	Yearly
Food	**14.2**	**0.1**	**4.4**
Non-acoholic beverages	1.2	-0.2	3.9
Alcoholic beverages	4.0	0.2	10.3
Tobacco	**1.5**	**0.0**	**4.5**
Clothing and footwear	4.1	0.4	5.0
Housing and utilities	24.5	0.9	6.4
Household contents and services	**4.8**	**1.3**	**4.9**
Health	1.5	0.1	5.9
Transport	16.4	-1.6	-0.8
Communication	**2.6**	**0.0**	**-0.7**
Recreation and culture	4.1	-0.1	2.3
Education	3.0	0.0	9.3
Restaurants and hotels	**3.5**	**0.4**	**5**
Miscellaneous goods and services	14.7	-0.1	7.0

Source: Stats SA, September 2015

2.7 Travel and tourism

2.7.1 Introduction

Travel and tourism has become the most important sector in most countries in the world. However, this is confirmed by the statistics published by the World Travel and Tourism Council (WTTC, 2015). In 2014, travel and tourism contributed quite sizable amount towards gross domestic product (GDP) of the world. This contribution constitutes of direct and indirect activities towards tourism. The indirect contribution includes investment spending such as construction of new hotels and purchases of aircrafts and other assets that are promoting tourism. Government

spending that assists in promoting travel and tourism is also considered as indirect contributor towards tourism. The indirect side of contribution is where the industry promotes domestic purchases where sectors that deal with tourism purchase food, fuel and catering service by airlines and many more other domestic purchases for the industry. The direct contribution includes marketing and promotions, security services, administration and other services that supplement tourism. This section gives the overview of the tourism contribution of the world, national and the province of KZN.

2.7.2 Tourism contribution to GDP and employment

According to WTTC (2015) the direct contribution by the industry towards the global GDP was estimated at 3.1 per cent in 2014 and this is forecast to rise to 3.7 per cent in 2015. The publication also forecast that in ten years from now the industry is expected to grow its contribution towards the global GDP to 3.9 per cent per annum.

The sectors that are seen as the main contributors in the growth of travel and tourism in the world are hotel occupancy and international air passenger demand which grew by around 5.4 per cent in 2013. Business and leisure spending also grew by 3.4 per cent in 2014. The leading global countries that benefited the most from travel and tourism in the world are South Asia, led by India and the Middle East when it comes to total contribution to GDP of the globe. Europe follows South Asia where it out-performed North America in 2014. Africa tourism picked up in 2014 compared to 2013 even-though the continent was stigmatised by the outbreak of Ebola, with the exception of Kenya where terrorism discouraged travel to the country.

The predictions or outlook of 2015 is also considered to be higher than that of 2014 as far as global growth is concerned. Forecast indicates that global GDP growth of 2015 will be higher than that of 2014 at 3.7 per cent. Though domestic travel and tourism spending growth is expected to rise from 3.1 per cent in 2014 to 3.7 per cent in 2015, together with global travel and tourism investment is expected to rise from 3.9 per cent in 2014 to 4.8 in 2015. The world visitor export growth is expected to slowdown in 2015, this is in line with the slowdown of world trade growth which is influenced by weaker travel fares that emanate from cheaper oil prices. This will affect most of the oil exporting countries that are faced with the problem of weaker currencies compared to a stronger dollar. On the other hand lower oil prices benefit the oil importing countries that have already reaped these fruit through lower inflation which is boosting

the real disposable income which in turn increase the purchasing power. The ten year outlook of investment is forecast to be lower than that of 4.1 per cent in 2014 which is downgraded at 3.8 per cent in 2015 (WTTC, 2015).

The industry is also significant when it comes to global employment. In 2014, it has generated 105 408 000 direct jobs (3.6 per cent) of total employment and it is forecast to grow by 2 per cent in 2015 at 107 519 000. The forecast goes further and looks at 2025 (ten year period) and estimates that direct jobs that would be generated will be 130 694 000 which is an increase of 2 per cent. When looking at the total employment where direct and indirect jobs created in the industry, the picture changes tremendously at 276 845 000 jobs generated in 2014 (9.4 per cent of total employment). The ten year forecast (2025) of jobs that will be supported by this industry is 356 911 000 jobs which is a growth of 2.3 per cent (WTTC, 2014).

The money spent by foreign visitors is the key component of the direct contribution of $1 383.8 billion in 2014. In 2025 the industry is forecast to have generated expenditure of $1,796.2 billion. Capital investment attracted by this industry in 2014 is $14.4 billion. The information above gives a clear indication that tourism industry is one of the dominating sectors in the economy of the world.

2.7.3 Growth rate in travel and tourism in SA

SA is rated among the 184 countries in the world that consider tourism as an important contributor towards GDP. The President and CEO of World Travel and Tourism Council, has also realised the importance of tourism in SA. Hence, he highlighted that travel and tourism contributes almost 10 per cent of GDP and creates over 1.4 million jobs to the South African economy. It is an undeniable fact that the changing of visa laws in 2014 has impacted tourism industry negatively in the country when comparing 2014 and 2015 tourism statistics.

2.7.4 KZN travel and tourism

2.7.4.1 Introduction

KZN is South Africa’s top holiday destination. This emanates from KZN being the province with diversity in activities. The province is endowed with warm Indian Ocean and golden beaches;

range of mountains which provide visitors with excellent sightseeing, mountain hiking and ice climbing in winter, abseiling and white water rafting. It has wonderful game reserves where the visitors enjoy untamed wilds, the Big 5 and many species of birds. Isimangaliso wetland in St Lucia was listed as SA's first World Heritage Site in December 1999 in recognition of its superlative natural beauty and unique global values[9]. The province of KZN is also home for world class sport. It hosts world class golf courses, two famous marathons (Duzi and Comrades). The Mandela marathon is joining the two to be the third. This marathon is slowly joined by international participants as a result this year's winner was a foreigner. The province hosts water swimming events and number of cycle races. The visitors also enjoy sightseeing of the province's rich history.

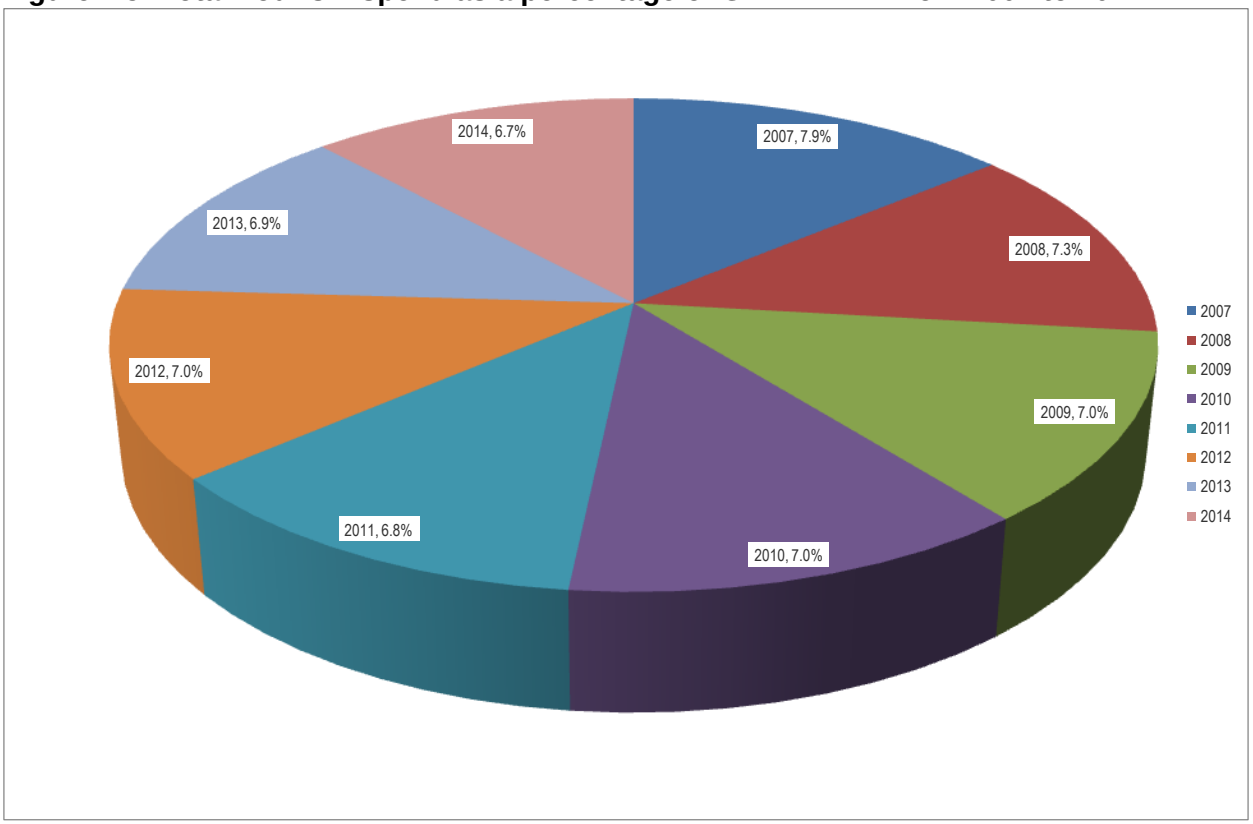
Recently in September 2015, the province has been announced to be the host to Common Wealth Olympic Games which is a wonderful event in the world and for the first time this event is taking place on an African soil. This will bring numerous opportunities in job creation and putting KZN in the world map when it comes to sport. This event will invite many more world events in the country. There will be a strong possibility that the province can be preferred to host world Olympic Games as the country successfully hosted the world cup in 2010. This means that KZN's infrastructure is not going to be idle since it will be utilised to host more sporting events.

2.7.4.2 Contribution to GDP

Expenditure in tourism as a proportion of GDP has been steadily declining from 2007 to 2014. In 2007 it was at 7.9 per cent which is the highest and continued to steadily decline to 6.7 per cent in 2014. This decline is in contrast to this industry strategic importance as it is contributing approximately 9 per cent to the total employment in the country. It is therefore essential to give serious attention to this industry as it can be one of the catalysts for creating more job opportunities and improve economic activity in the province.

[9] Isimangaliso.com

Figure 2.5: Total Tourism spend as a percentage of GDP in KZN from 2007 to 2014

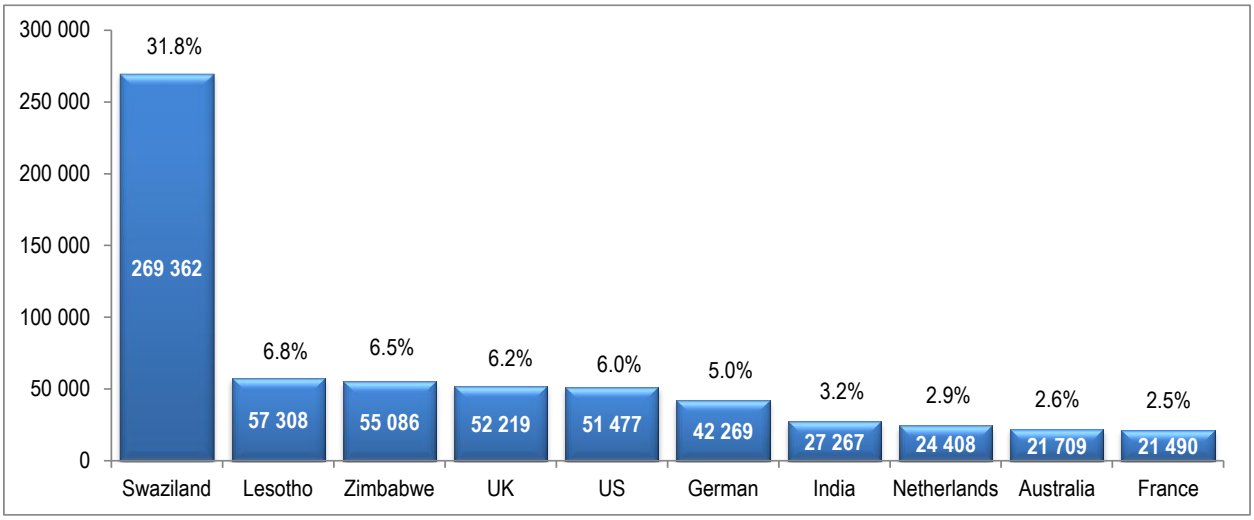


Source: Global Insight, 2014

2.7.4.3 Top ten countries visiting KZN

Figure 2.6 shows the top ten countries of origin for tourists that visited the province. Seven of these are overseas countries while three of them are from within the continent, more specifically the Southern African Development Community (SADC). The United Kingdom (UK) had the highest proportion of tourists from overseas visiting KZN at 5.8 per cent followed by the US at 5 per cent while Germany, India, Netherlands, Australia and France contribute marginally at the rate between 2.6 per cent and 3.5 per cent. Within SADC, Swaziland tops the lead at 28.4 per cent, followed by Lesotho and Zimbabwe at 14.3 per cent and 7.9 per cent respectively.

Figure 2.6: KZN top ten foreign tourists by country of origin in numbers and percentages, 2013



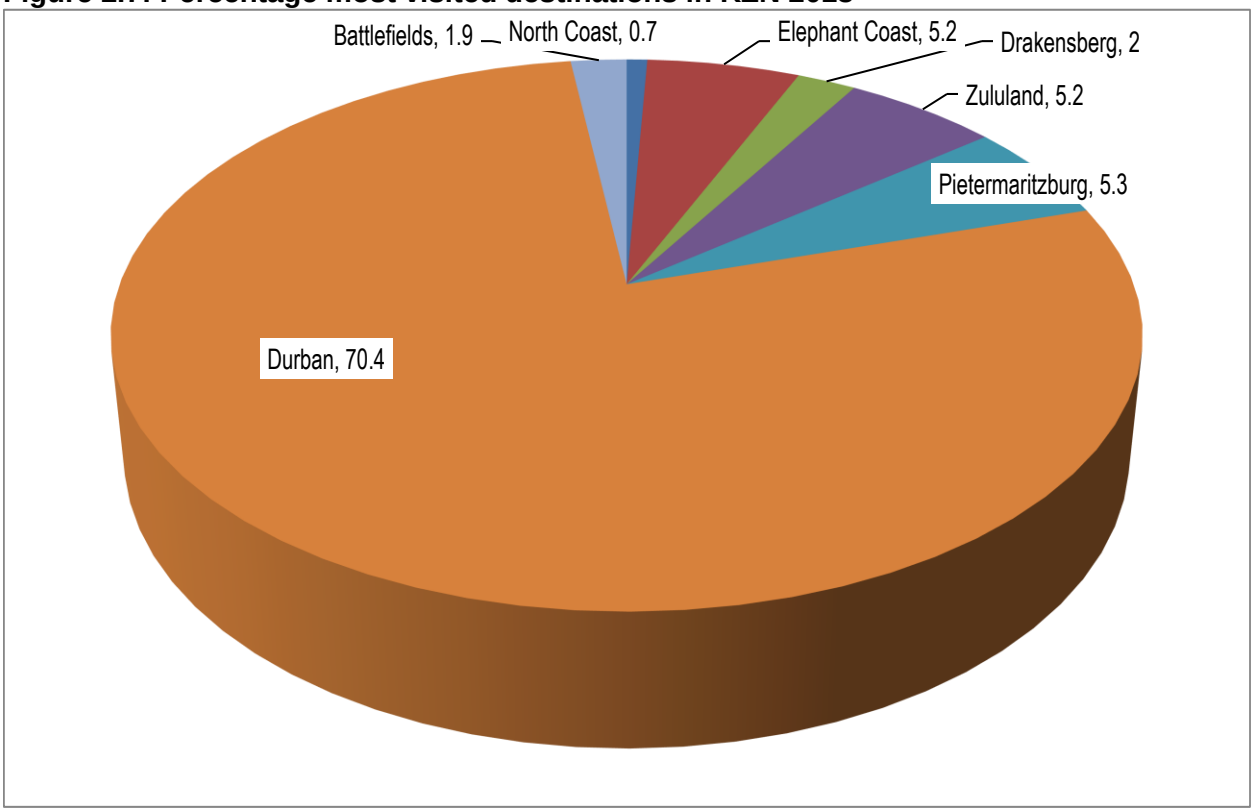
Source: South African Tourism (SAT), 2014

2.7.4.4 Most visited destinations in KZN

Figure 2.7 shows the destinations visited the most in the province of KZN in 2013. Durban region attracts more visitors at the rate of 70.4 per cent. There are number of factors that cause the tourists to choose this region. Infrastructure and the ocean are among a series of factors attracting tourists to Durban. Durban July Handicap attracts more tourists during the month of July for the horse racing that gives an opportunity to the designers to showcase their designs. The city is also the custodian owner of Moses Mabhida, the most beautiful stadium in SA. The stadium hosts a number of games during the year and usually these are local and international games.

There are also other sport codes that boost tourism in the city. The city is known for its rugby team, the Sharks; soccer team “Golden Arrows” and many more other sport teams that originate from Durban. The comrades and Duzi marathons are both prominent sports which attract global as well as national communities of all ages, races and gender. The second most visited destination in KZN is Elephant Coast, which hosted approximately 22.3 per cent of the total tourists visited the province in 2011. The tourist visiting Elephant Coast are those that are passionate about nature, and thus interested in seeing animals and different trees, while Drakensberg (15.8 per cent) attracts tourists who have interest in mountains.

Figure 2.7: Percentage most visited destinations in KZN 2013

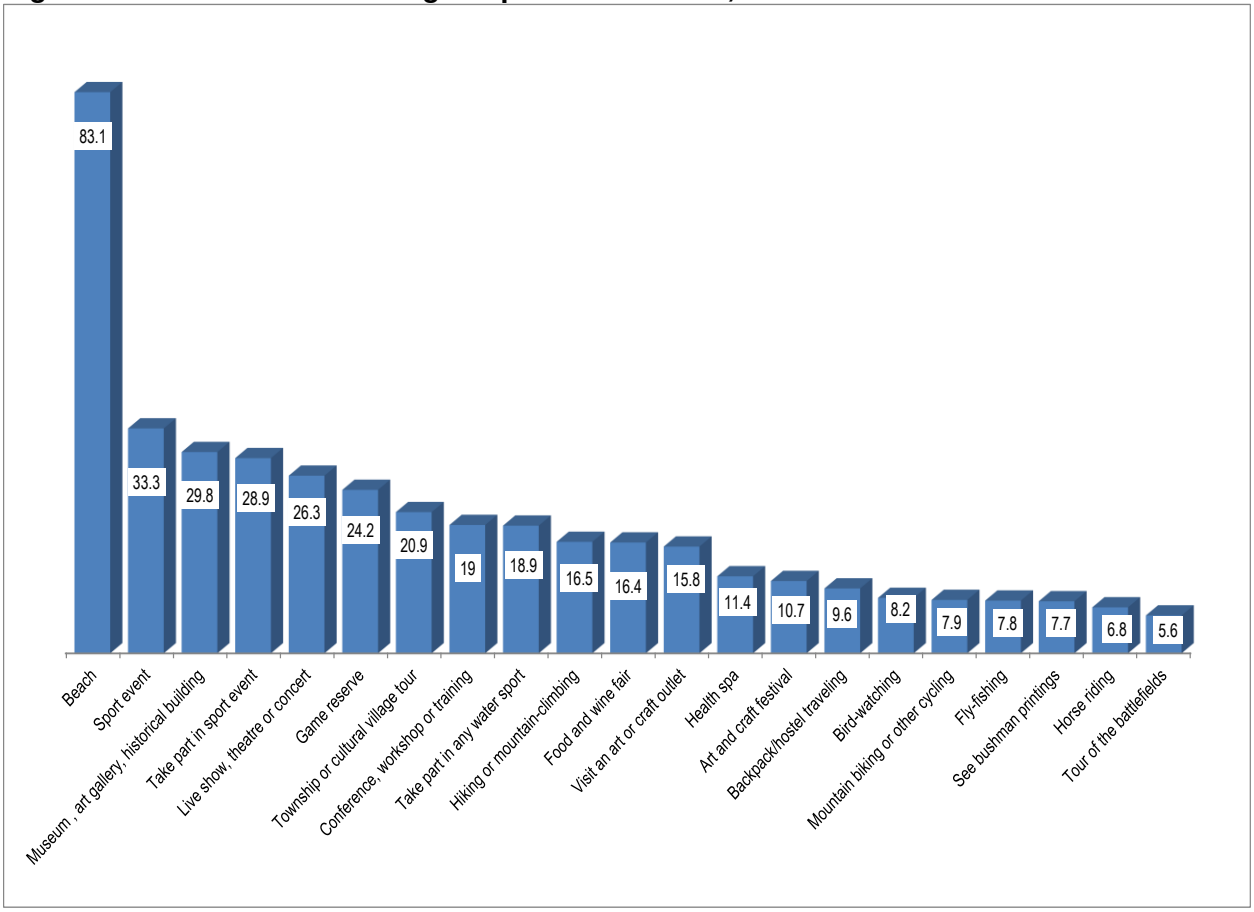


Source: SAT, 2014

The city of Durban as the most visited destination in the province of KZN enjoys the advantage of having beaches that are developed to the world standards. Among other activities that take place in the city of Durban which attracts many visitors are places like uShaka Marine and safe beaches.

As indicated in figure 2.8, beach specifically in Durban is the main reason tourists visit KZN at 83.1 per cent. This is the sign that KZN beaches are the source of income to many KZN residents and creates most of the indirect jobs in the tourism industry. As pointed out in the previous section Durban is also known for its world class stadium 'Moses Mabida' where most international sport events take place. This is one of the reasons why activity like watch live sport event makes number two at 33.3 per cent among the reasons for visiting the province.

Figure 2.8: Reasons for visiting the province of KZN, 2014



Source: SAT 2014

2.7.5 Conclusion

It is an undisputable fact that travel and tourism contribution towards KZN economy is quite significant. The province should consider this sector as one of the strategic sectors that need to be explored and given more attention. There are still avenues that need to be considered in order to expand tourism in the province. Rural tourism is one of the avenues that should be encouraged to address rural unemployment and development of small towns. This will assist in addressing the problem of overpopulated cities and the mushrooming of shacks around the cities.

Chapter 3: Kwazulu-Natal Sector Analysis

3.1 Introduction

The structure of an economy is divided into three unique sectors namely: primary, secondary and tertiary. An ideal economic performance should be driven mainly by the primary and the secondary sector for export and job creation purposes. However, as demonstrated in this chapter, the economies of both the country and KZN are to a large extent driven by the services sector. This observation is also pertinent across the provinces in SA. In KZN, the tertiary sector contributes more than two thirds of the total provincial GDP-R in real terms.

This chapter therefore provides a detailed analysis of the three sectors and their respective industries. This chapter starts by focussing on both the agricultural and mining sectors. This is followed by the manufacturing, construction and electricity industries in the secondary sector. The final section of this chapter provides an in depth analysis of the tertiary sector thereby focusing on trade, transport, finance and community services.

3.2 Overview and outlook of the provincial sector analysis

As indicated in section 2.4 of this publication, the total value of real GDP-R generated by KZN amounted to R478.1 billion in 2014. Akin to the national and other provinces across the country, the economy of KZN is mainly driven by the tertiary sector with 68.1 per cent in 2014.

Table 3.1: Sector contribution to the provincial real GDP (percentages), 1996 to 2017

	Estimates								Projections		
	1996	2007	2008	2010	2011	2012	2013	2014	2015	2016	2017
Primary Sector	**8.4**	**6.4**	**7.0**	**6.5**	**6.1**	**5.8**	**5.7**	**5.8**	**5.6**	**5.5**	**5.5**
Agriculture	6.5	4.6	5.0	4.5	4.2	3.9	3.8	4.0	3.9	3.9	3.8
Mining	1.9	1.8	2.0	2.0	1.9	1.9	1.9	1.8	1.7	1.6	1.7
Secondary Sector	**32.6**	**25.5**	**26.3**	**26.3**	**26.0**	**25.6**	**26.2**	**26.0**	**25.8**	**25.8**	**25.7**
Manufacturing	25.9	20.5	20.2	19.0	17.6	17.4	17.7	17.8	17.3	17.4	17.4
Electricity	3.2	1.8	1.7	2.7	3.5	3.9	4.0	3.9	4.1	4.1	4.1
Construction	3.5	3.2	4.4	4.6	4.9	4.3	4.5	4.3	4.4	4.3	4.2
Tertiary Sector	**59.0**	**68.1**	**66.8**	**67.1**	**68.0**	**68.7**	**68.1**	**68.1**	**68.6**	**68.7**	**68.7**
Trade	13.4	16.8	17.1	15.5	16.4	16.2	15.4	15.1	14.9	14.8	14.4
Transport	13.2	14.1	13.0	12.2	12.6	13.4	13.7	13.7	13.9	14.0	14.1
Finance	12.6	18.6	17.8	17.9	17.5	17.8	17.3	17.6	18.1	18.3	18.6
Community services	19.8	18.6	18.9	21.5	21.5	21.3	21.7	21.7	21.7	21.6	21.6

Source: Global Insight, 2015

The value added by the tertiary sector has grown by close to 10 percentage points between 1996 and 2014 and the projections indicate that, this sector will continue to dominate. On the contrary, contributions by both the primary and secondary sectors have plummeted over the same period, with value added deteriorating from 8.4 per cent to 5.8 per cent and 32.6 per cent to 26 per cent, over the same period respectively (table 3.1).

3.3 Primary sector

3.3.1 Overview of the Agricultural Sector

The agricultural sector in KwaZulu Natal (KZN) operates as a dualistic nature comprising of well-developed commercial agricultural sector and a poorly developed subsistence agricultural sector. The majority of individual who partake in the subsistence farming are African women in rural areas who do not have enough resources and skills necessary to grow and become commercial farmers. They need intervention in terms of capacity development, skills transfer, training, seeds and implements and consequently convert to commercial farming.

In resuscitating and unleashing agricultural potential in the province of KZN, the province embarked on the communal estates programme which is an improvement on the programmes of crop massification and the mechanisation. The communal estates model is based on a three-phased approach which starts with agricultural profiling which focus on natural resource analysis, economic analysis and market analysis; the introduction of the commodity-driven model and then introduction of the most workable business enterprise model (KZN Department of Agriculture and Rural Development, 2015).

The agriculture, forestry and fisheries sectors are important to South Africa's socio-economic environment. In KZN agriculture is based on a wide variety of crops; horticulture, forestry as well as animal husbandry. Field crops such as sugarcane and maize are scattered from the southern border of KZN to its northern border. Maize is the most widely grown crop in the country. Horticulture sub-tropical fruits mainly bananas are produced in Port Shepstone and Port Edward. The Hluhluwe region of KZN produces pineapples.

The primary commercial forest area in South Africa (SA) is found in KZN with two largest forest owners, Sappi and Mondi. The forestry subsector is one of the strategic economic sectors in SA

with a significant contribution towards economic growth and job creation. The ILembe district municipality identified the essential oils and herbs industry as a means of connecting poor rural hinterlands with the wealthy coastal strips of KZN. Dairy farming based in Dundee has the largest Jersey stud in the country. The Highveld and Midlands areas of KZN are the main beef production areas. Sheep farming is concentrated in the drier areas of the province along the Drakensberg, Vryheid and Southern Natal. The pig farming is mainly within the Estcourt, Mooi River and Dalton areas. In SA there are two genetic breeds of chicken that lay eggs for the commercial markets, Lohmann and Hyline. Both breeds are imported. Rainbow is the largest chicken producer and marketer in SA.

Given all the farming subsectors, water shortage remains a challenge currently facing the agricultural subsector which poses a threat to food security which is inflationary. This is as a result of climate change causing drought and leaving dams not in full capacity. Although being proactive provides immediate intervention should such eventuality occurs however, it is essential to react quick to such disasters by providing short, medium to long term solutions to the problem. This can be done by providing water tankers, immediately respond to leaking water pipes, make sure that rivers are not contaminated, encourage individuals and companies to save water, build boreholes and in the long term consider water desalination as one of the options. However the cost implications of such mitigating measures should be taken into consideration given the current economic situation.

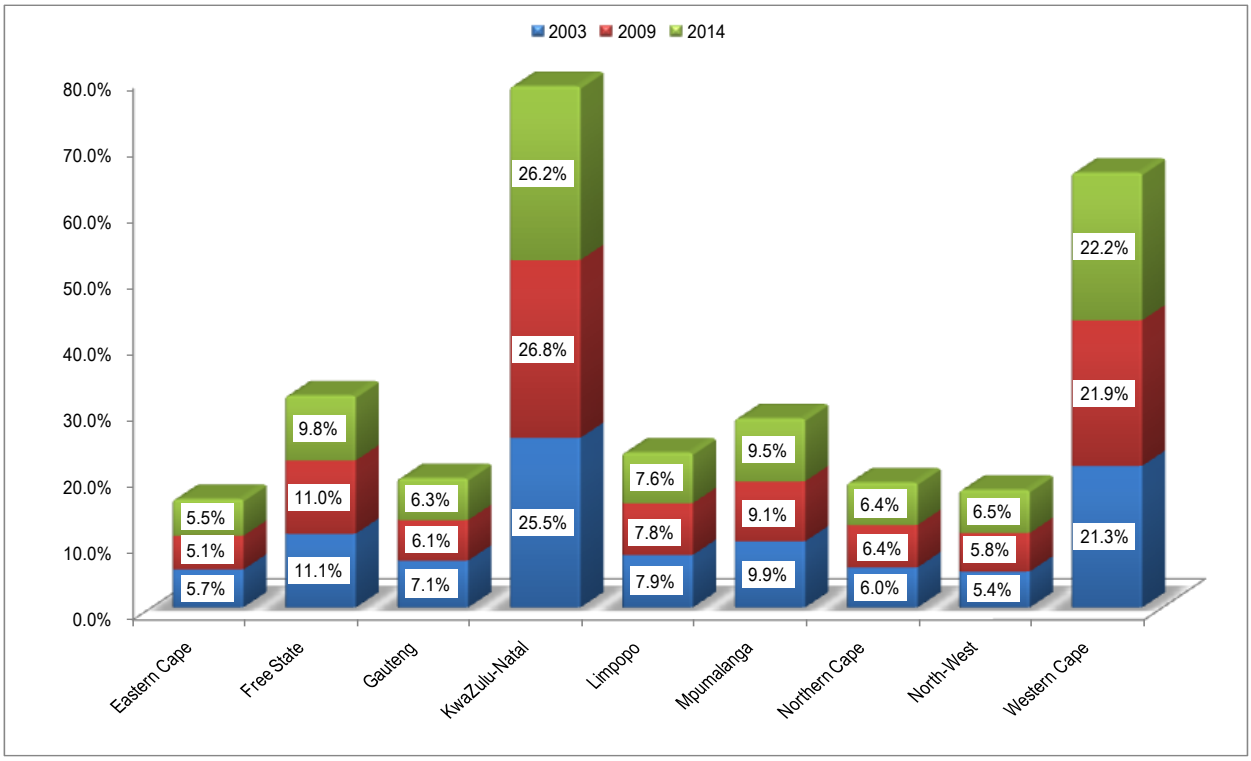
3.3.1.1 Agriculture sub-industries

Agricultural activities range from intensive crop production and mixed farming to cattle-ranching in the bushveld and sheep farming. The agricultural sector's overall responsibilities include production and resource management, agricultural support services, trade and economic development, food security, forestry and marine aquaculture. Given that this sector is labour intensive, it has a potential to impact on the empowerment and poverty reduction to communities (South Africa's Yearbook, 2014). However, this sector is facing the challenge of changing climatic conditions which affects rainfall which is one of the main contributors to its growth. This is evident in the results by Stats SA (2015) indicating that the economy contracted by 1.3 per cent in the second quarter of 2015 with agricultural sector experiencing the largest drop by 17.4 per cent quarter on quarter as indicated in the previous chapter. Stats SA further

states that this contraction emanates from a decrease in the production of crops such as maize, sunflower and sugar cane as well as horticultural products such as citrus subtropical.

Figure 3.1 illustrates the contribution by provinces to the total agricultural sector in 2003, 2009 and 2014. Over the periods 2003, 2009 and 2014, KZN's contribution to South Africa's agricultural industry was the highest at 25.5 per cent, 26.8 per cent and 26.2 per cent respectively. The province of KZN was followed by the Western Cape at 22.2 per cent and the Free State at 9.8 per cent in 2014. The least contributors were the Eastern Cape (5.5 per cent), Gauteng (6.3 per cent) and the Northern Cape at 6.4 per cent in the same period. KZN was the major contributor as it has a comparative advantage in the production of agricultural products because of its large amount of agricultural land and also is a major producer of high value crops.

Figure 3.1: Provincial contribution to the national agriculture industry in 2003, 2009 and 2014

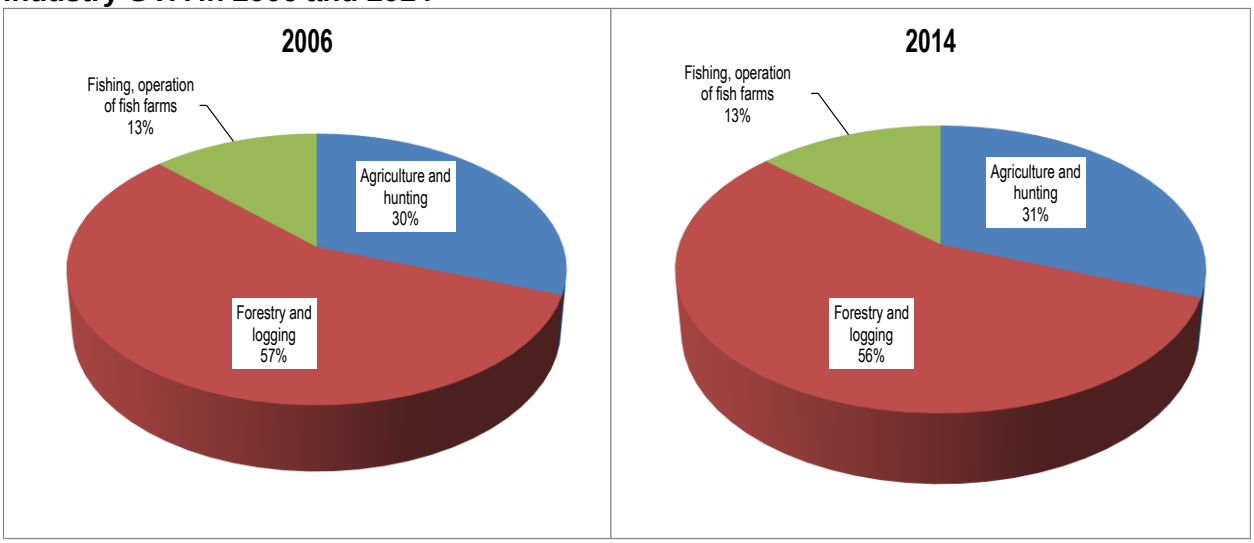


Source: Global Insight, 2015

3.3.1.2 Agriculture sub-sector performance in KZN

Figure 3.2 represents the contribution by KZN's three agriculture sub-sectors to KZN's agriculture industry in 2006 and 2014. Among the three, forestry and logging was the largest contributor to the KZN's agriculture industry at 56 per cent in 2014 followed by agriculture and hunting at 31 per cent. While fishing, operation of fish farms contributed the lowest share of 13 per cent. The performance of agriculture sub-sector has not improved as compared to the year 2006.

Figure 3.2: GVA contribution by KZN's agricultural sub-sector to KZN's agriculture industry GVA in 2006 and 2014



Source: Global Insight, 2015

Table 3.2 shows the KZN's actual and forecasted growth rates of the primary industry and its sub-sectors which are mining and agriculture. It has been indicated in the previous section that although there are other factors that agricultural produce depends on but the main one is rainfall. The province is currently facing severe drought which poses a challenge to this sector. It is therefore not surprising that this sector is estimated to grow at 8.6 per cent in 2015 and forecast indicate that it is expected to drop even further to 6.8 per cent in 2016 and grow marginally to 7.2 per cent in 2017. This is in contrast to the robust growth rates recorded in 2008, 2011 and 2014.

In addition this sector's contribution has been decreasing over the years from 1996 until to date. As indicated in table 3.1 in 1996 agricultural sector contribution to GDP-R was at mere 6.5 per

cent and has been diminishing over the years as it is was at 4 per cent in 2014. It is not surprising that it is expected to further decline both in 2015 and 2016 to 3.9 per cent and 3.8 per cent in 2017. This is worrying as the province of KZN is leading with regard to agricultural activities at 24.4 per cent followed by both the Eastern Cape and Limpopo at 20.7 per cent and 16.3 per cent respectively (Stats SA, 2015).

Table 3.2: Primary sector growth rates analysis, 2008 to 2017

	Actual							Estimates	Forecast	
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
PRIMARY SECTOR	**-26.7**	**-17.0**	**41.9**	**37.6**	**5.1**	**43.5**	**15.3**	**22.2**	**14.6**	**13.1**
AGRICULTURE SECTOR	**27.6**	**4.3**	**14.9**	**33.5**	**5.9**	**7.2**	**21.0**	**8.6**	**6.8**	**7.2**
Agriculture and hunting	27.5	-9.0	2.1	10.0	1.0	2.5	5.1	2.4	2.3	2.4
Forestry and logging	8.5	13.3	-3.5	6.7	1.3	-0.3	5.9	2.8	2.0	2.3
Fishing, operation of fish farms	-8.4	0.0	16.3	16.9	3.6	5.1	10.0	3.4	2.5	2.5
MINING SECTOR	**-54.3**	**-21.3**	**26.9**	**4.1**	**-0.8**	**36.3**	**-5.7**	**13.6**	**7.8**	**5.9**
Mining of coal and lignite	1.6	2.5	0.5	-6.9	6.0	-2.3	2.1	4.0	4.3	4.2
Mining of gold and uranium ore	-28.5	-6.2	-3.7	1.9	-4.6	17.0	-1.9	1.3	-4.7	-4.7
Mining of metal ores	-9.8	1.5	17.7	8.9	-2.3	10.3	-6.3	2.9	3.1	2.4
Other mining and quarrying	-17.6	-19.0	12.4	0.2	0.1	11.3	0.4	5.4	5.1	4.1

Source: Global Insight, 2015

3.3.2 Mining industry

3.3.2.1 Overview of the mining industry

The mining industry includes the extracting and beneficiating of minerals occurring naturally, including solids, liquids and crude petroleum and gases. It also includes underground and surface mines, quarries and the operation of oil and gas wells and all supplemental activities for dressing and beneficiating for ores and other crude materials[10]. The NDP identifies mining & quarrying as an important sub-sector of the South African economy. It states that this sub-sector should be supported by a stable regulatory environment, reliable rail transport, a dependable electricity supply, and by research into new mining methods and additional uses for minerals (National Development Plan, 2012). According to South Africa Yearbook (2012/13) South Africa holds the world's largest reported reserves of gold, platinum group metals, chrome ore and manganese ore, and the second-largest reserves of zirconium, vanadium and titanium.

[10] http://www.mediaclubsouthafrica.com

KwaZulu-Natal's resources consist mainly of sand and most mining operations are in those commodities (KZN Top Business, 2014). Ilmenite, rutile and zircon are mined on a large scale for their titanium and zirconium contents from aeolian beach dunes in the northern areas of KZN. Large ore reserves are held by Richards Bay Minerals, a leading producer of the heavy minerals, which mines the 17 km stretch of land along a 2 km strip of coastline north of Richards Bay (the City of uMhlathuze). Richards Bay Minerals meets about a quarter of the world's demands for these products, generating billions of rands in foreign currency. The region is rich in other minerals such as aluminium, anthracite and calcitic marbles (KZN Top Business, 2014).

In the northern interior, district of Newcastle-Vryheid and in the Nongoma area, the coal consists mainly of anthracite. Much of the anthracite is railed to the coal terminal at Richards Bay, from where it is exported. Richards Bay Coal Terminal is the world's largest coal exporting terminal (Department of Economic Development and Tourism, 2012).

The water challenge is not an isolated problem facing the agriculture sector solely, the mining subsector is also affected. It is therefore of utmost importance for this sector like any others to efficiently and responsibly use water. Water conservation and water demand management should be one of the priorities for this sector at the same time not compromising production as this is one of the important sectors in the South African economy. For example, mining and quarrying subsector contributed -0.5 of a percentage points on the recent contraction in real GDP by 1.3 per cent in the second quarter of 2015 (Stats SA, 2015). However, the province of KZN is not a major contributor to the mining industry. With reference to table 3.1 it can be seen that mining subsector in KZN contributes less than 2 per cent to the provincial real GDP. As expected the contribution of this sector is expected to remain below 2 per cent for the years 2015, 2016 and 2017.

3.3.2.1 Mining sub-sector performance in KZN

Table 3.3 shows the GVA contribution of the mining sub-sector in KZN for the years 2006 and 2014. Among the four sub-sectors mining of coal and lignite was the largest mining sub-sector in 2006 and 2014 with a share of 7.5 per cent for both years followed by other mining and quarrying with a share of 6.3 per cent and 6 per cent respectively. It is noted that the shares of

gold and uranium ore contributed a mere 0.2 per cent for both years while the metal ore mining decreased from 2.8 to 1.7 per cent.

Table 3.3: GVA contribution by KZN's mining sub-sector (constant 2005 prices) to KZN's mining industry GVA, 2006 and 2013

Mining Sub-sectors	2006	2014
Mining of coal and lignite	7.5%	7.5%
Mining of gold and uranium ore	0.2%	0.2%
Mining of metal ores	2.8%	1.7%
Other mining and quarrying (incl 22)	6.3%	6.0%

Source: Global Insight, 2015

The mining of coal and lignite has been realising marginal growth over the years 2008 to 2014 with the exception of 2011 and 2013. However, it is expected to show positive growth for the years 2015, 2016 and 2017. In most of the years under review the mining of gold and uranium ore realised negative growth with the exception of 2011 and 2013 where it realised significant growth. Although there is positive growth for the mining of metal ores however it has been unstable (table 3.2).

According to the KZN Barometer (2014), the sluggish performance in the mining sub-sectors is therefore not a surprise due to power outages at the Richards Bay Coal Terminal and prolonged national labour disputes that took place in 2012 and 2013, which disrupted production of both gold and platinum. However, these strike problems in the mining sector were far removed in the province of KwaZulu-Natal. The recent electricity power shortage is also anticipated to have an effect in the growth rate of this sector in 2015.

3.4 Secondary sector

The secondary sector comprises of manufacturing, construction and electricity. As observed in table 3.1, the contribution by this sector to the economy of the province had been deteriorating over the period 1996 to 2014. This sub-section therefore discusses the performance by the secondary sector focussing on manufacturing, construction and electricity.

3.4.1 Overview of Manufacturing

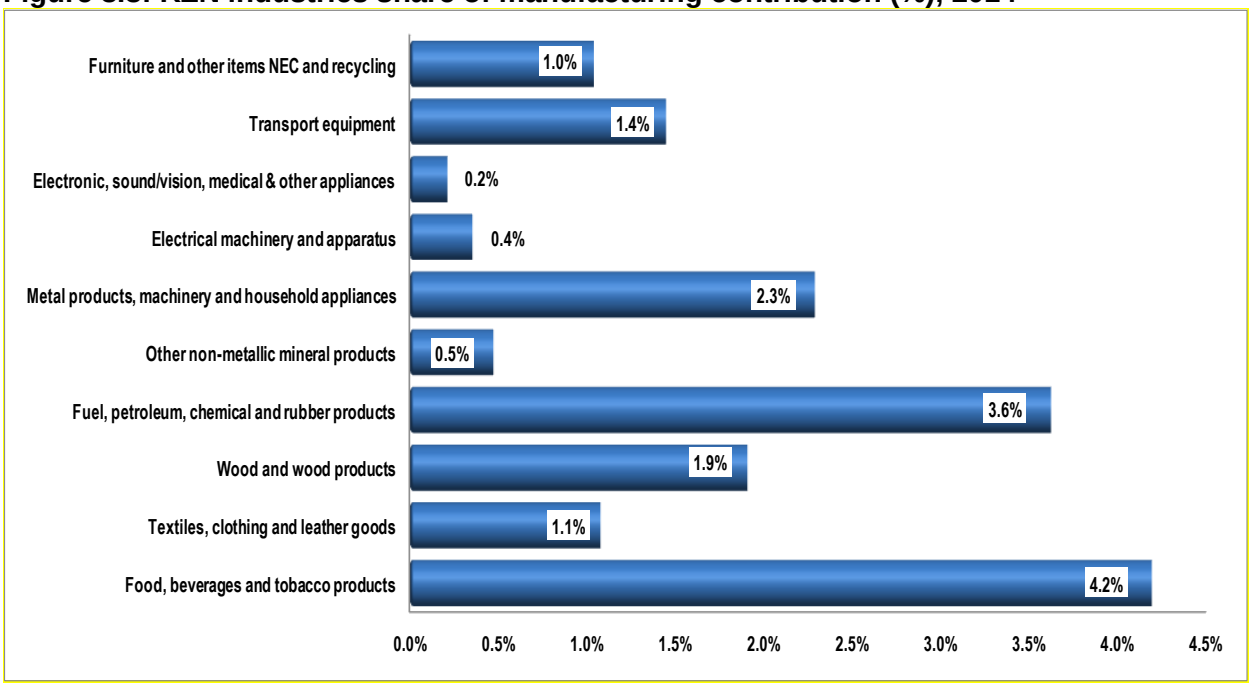
SA is endowed with a well-developed and established manufacturing sector which has shown solidity and potential to compete lucratively in the international arena. This sector is also a

stimulant for growth in activities of other sectors such as services. It plays a pivotal role in employment creation and national economic empowerment. Numerous prospects lie in this sector, which present opportunities to immensely accelerate the country's growth and development as enshrined in the 2030 National Development Plan (NDP).

Section 3.2 of this report revealed that, the secondary sector contributed 26 per cent towards provincial GDP-R in real terms in 2014. Manufacturing was the second largest contributing industry in the economy of the province at 17.8 per cent in 2014 and is projected to drop marginally to 17.3 per cent in 2015 (table 3.1). However, the stark decline in the sector's contribution to the economy of the province over the period 1996 to 2014, coupled with a move towards new technologies and value-adding within the global manufacturing sector highlights the urgent need for the province to stimulate growth within this labour-absorptive sector.

Figure 3.3 shows that the most significant industries in the manufacturing sector in 2014 were *food, beverages & tobacco* products at 4.2 per cent. This was closely followed by *fuel, petroleum, chemical & rubber products* at 3.6 per cent. *Metal products, machinery & household appliances* trailed moderately at 2.3 per cent.

Figure 3.3: KZN industries share of manufacturing contribution (%), 2014



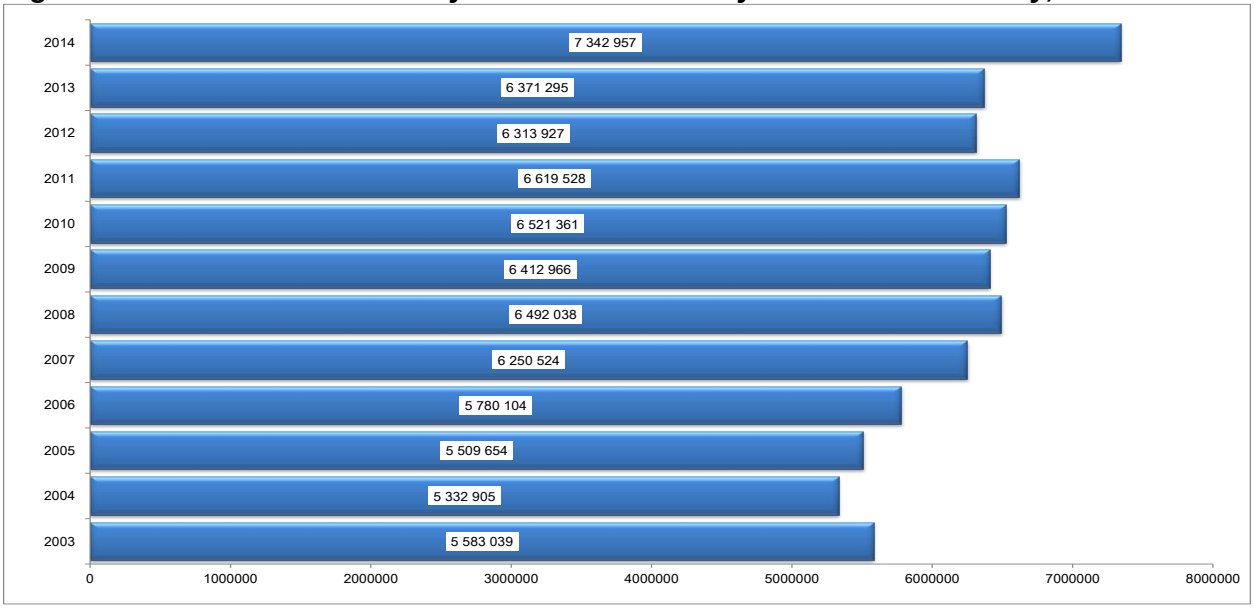
Source: Global Insight, 2015

3.4.2 Automotive

The *automotive sub industry*[11] is one of the key sectors in the economy of the country in terms of generating foreign investment. The industry provides a platform for forming business relationships with many of the major multinationals such as BMW, Toyota, Ford and Volkswagen. These multinationals make use of SA as an investment destination, which is strategically positioned to allow them access to other markets in the Sub-Saharan Africa region. In addition, compared to the advanced economies, SA has a competitive advantage in terms of sound macroeconomic policies, which have effects on the current pervasive lower interest rates, which reduces the cost of operating in the country.

According to the National Association of Motor Manufactures of South Africa (NAAMSA)[12], the automotive industry employed approximately 31 191 individuals, as at the end of the second quarter of 2015. A sales report released by the NAAMSA revealed that, a total of 54 244 vehicles were sold in September 2015. This represented a drop of 5 091 units or 8.6 per cent from the 59 335 vehicles sold in October last year.[13]

Figure 3.4: Gross value added by automotive industry to the KZN economy, 2003 to 2014



Source: Global Insight, 2015

[11]The *automotive sub industry* is made up of passenger cars & light trucks; medium & heavy duty trucks; trailers; car parts and accessories

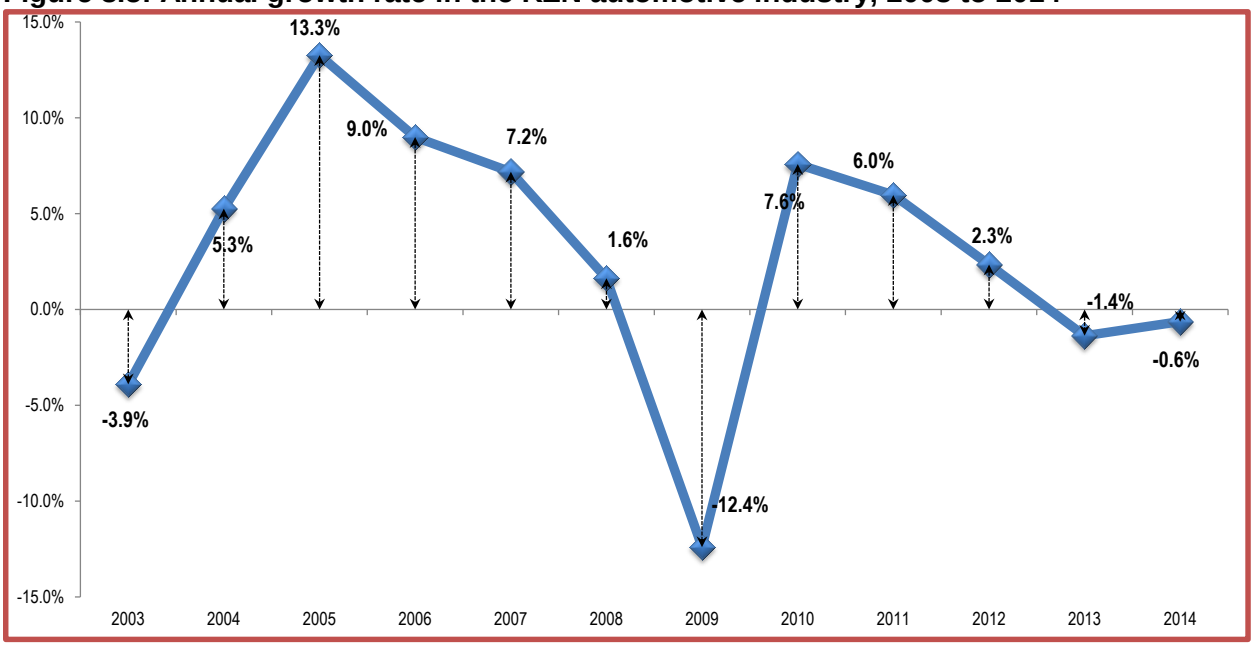
[12] See the industry's quarterly review of business quarterly report, by NAAMSA, available online from http://www.naamsa.co.za, accessed on 4 November 2015.

[13]See http://www.naamsa.co.za/flash/total.html , accessed on the 4 November 2015.

Figure 3.4 reflects on the value added by the *automotive industry* towards the provincial real GDP-R for the period 2003 to 2014. As can be observed from the bullish overall pattern displayed by the figure, the overall value added by the industry increased significantly from an estimated R5.58 billion in 2003 to R7.34 billion in 2014. Despite the lower contributions, particularly in 2004 and 2005, the sub-industry recorded significant contribution to the economy of the province in real terms over the period under consideration.

The growth rates showed in figure 3.5 reveal that performance in this sub-industry is highly susceptible to global economic cycles. During the 2009 global recession, output in the *automotive* sub-industry contracted significantly by negative 12.4 per cent. Apart from this contraction, stemming from international factors such as weak demand by trade partners, the industry has enjoyed robust growth, especially in 2005 when it recorded the highest rate of 13.3 per cent.

Figure 3.5: Annual growth rate in the KZN automotive industry, 2003 to 2014



Source: Global Insight, 2015

3.4.3 Metals

The *metals* sub-industry encompasses the shaping of metals and the performance of metal finalizing operations. Firms in this industry deal with plating and coating using ferrous and nonferrous metal products. In SA, the industry is active in the production of metal slabs, railway

track bars, wire and plates using mostly aluminium. A number of industries and sectors including mining, construction and automotive make use of metals as inputs and add value to their products.

With this backdrop in mind, it is therefore by no co-incidence that *metals* is one of the well-developed sub-industries in SA, representing close to a third of the country's manufacturing. Endowed with natural resources and a supportive infrastructure, the industry comprises of basic iron ore & steel, basic non-ferrous metals and metal products. The iron and steel basic industries involve the manufacture of primary iron and steel products from smelting to semi-finished stages.[14]

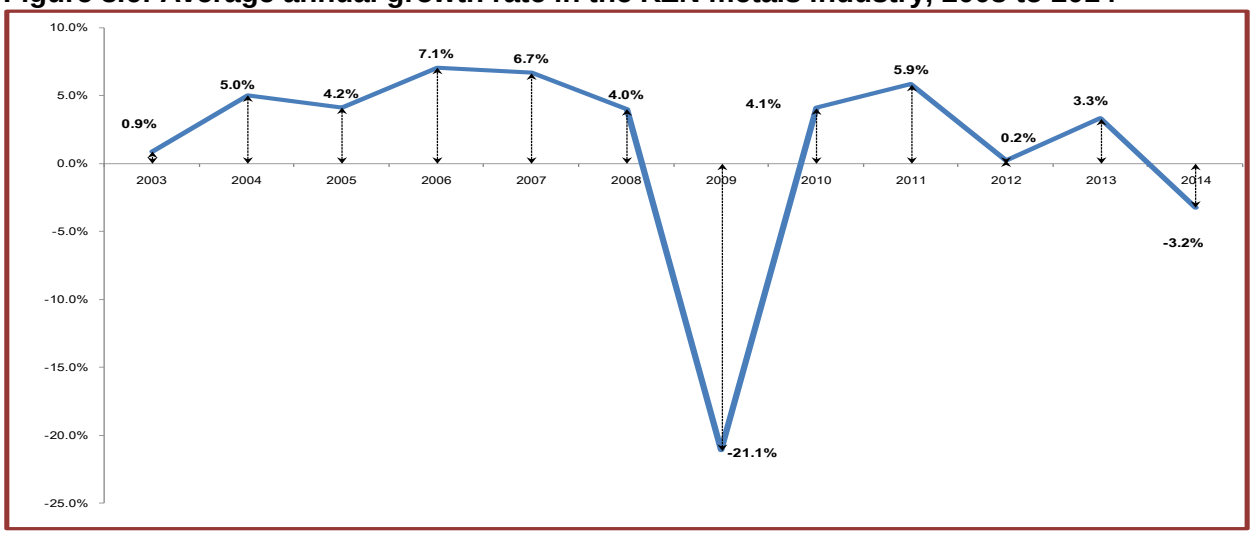
The primary steel products and semi-finished products include billets, blooms, slabs, forgings, reinforcing bars, railway track material, wire rod, seamless tubes and plates. Among others, Iscor is South Africa's largest steel producer. There are however many sub-industry players which include Scaw Metals, Cape Gate, Columbus Stainless Steel, Highveld Steel and Vanadium and Cisco.[15]

The key *metals industry* firms in KZN include Tata Steel located in Richards Bay, which focuses mainly on the production of ferrochrome for export purposes; Safal Steel in Cato Manor which supplies metal coated steel coils; and Newcastle Works, a plant by Arcelor Mittal which employs approximately 1850 employees and produces about 1.6 million tons of finished metal products. Others include McDonald Holdings, BHP Billiton, Hulamin and Assmang (KZN Provincial Treasury, 2014).

As demonstrated in figure 3.6, prior to the 2009 global recession, the metals industry enjoyed steady robust growth rate, increasing by 7.1 per cent in 2006 and 6.7 per cent in 2007. A sharp and severe contraction was observed in 2009 and this was to a large extent due to the magnitude of the global recession.

[14] See the manufacturing in South Africa, available online: http://www.southafrica.info, accessed on 5 November 2015.
[15] See footnote number 15 above.

Figure 3.6: Average annual growth rate in the KZN metals industry, 2003 to 2014

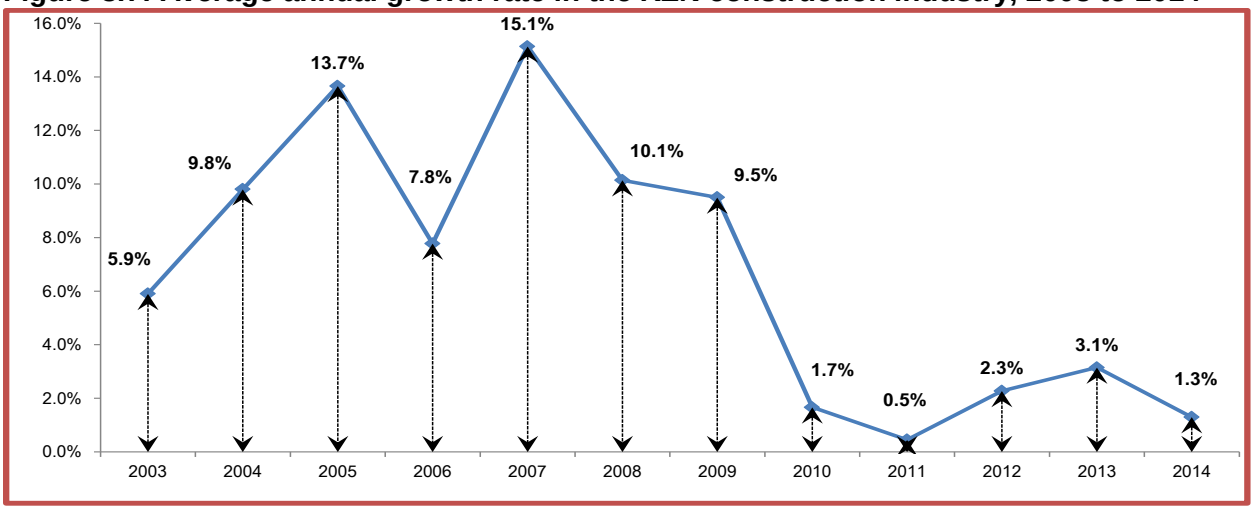


Source: Global Insight, 2015

3.4.4 Construction

Construction remains one of the key industries in terms of economic contribution and employment creation in SA. It has, however been in a slump since 2008, thereby not being able to recover to the growth levels achieved in the build-up to the 2010 Federation of International Football Association (FIFA) World Cup. Similar to the national level, the robust growth trend picked up at 15.1 per cent in 2007; however it had been dwindling since then (figure 3.7).

Figure 3.7: Average annual growth rate in the KZN construction industry, 2003 to 2014

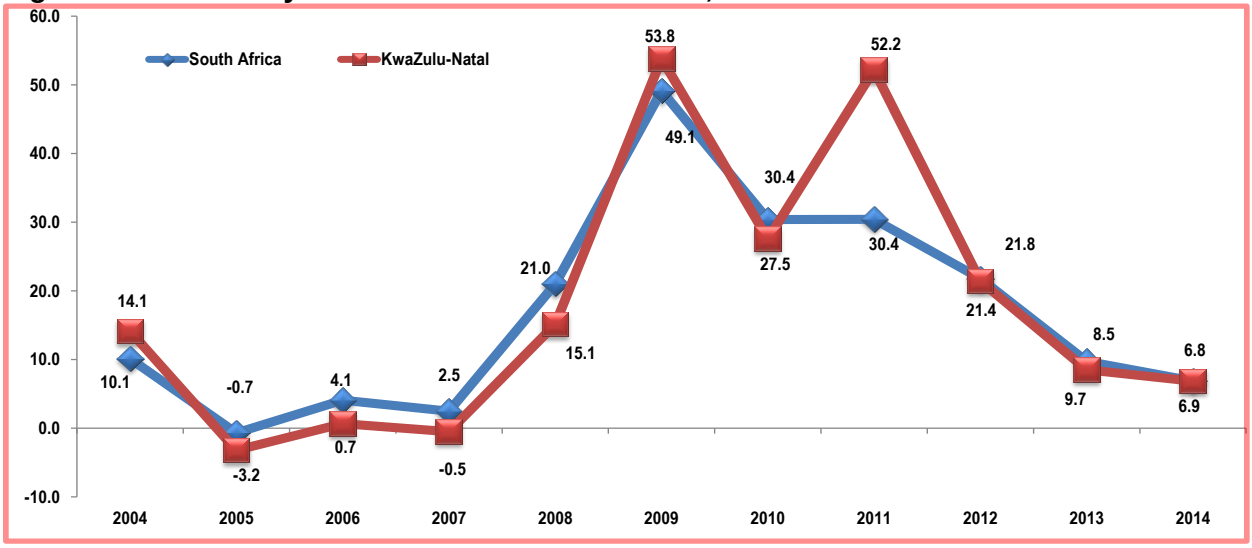


Source: Global Insight, 2015

3.4.5 Electricity

Figure 3.8 reflects on the growth rates on electricity sector in SA and KZN. Despite the outliers in 2009 and 2011, the industry's performance had been declining at both national and in KZN over the three year period from 2012 to 2014. This sluggish performance by the electricity industry has affected the overall economic output, not only for the province but for the country as a whole.

Figure 3.8: Electricity sector trends in SA and KZN, 2004 to 2014



Source: Global Insight, 2015

3.5 Tertiary sector

One of the triple challenges facing South Africans especially the youth is unemployment, even though their level of education attainment has improved over the years. The tertiary sector had been one of the largest contributors among other sectors when it comes to employment as well as economic growth. It has subsectors such as trade, transport, finance and community services. According to Stats SA (2015); a larger quarterly employment gains have been observed in the country whereas the number of employed people increased for six subsequent quarters since the second quarter of 2014.

Table 3.4: Employment in the trade sector by provinces (000s)

	Oct-Dec 2013	Jan-Mar 2014	Apr-Jun 2014	Jul-Sep 2014	Oct-Dec 2014	Qtr-to-qtr % change	Year-on-year % change
Western Cape	496	474	450	487	466	-4.3	-6.0
Eastern Cape	263	287	260	299	289	-3.2	9.8
Northen Cape	51	45	49	43	47	11.0	-6.7
Free State	139	148	151	154	170	10.5	22.9
KwaZulu-Natal	567	570	550	511	530	3.6	-6.5
North West	163	172	174	164	177	7.7	8.7
Gauteng	1011	988	997	991	1002	1.1	-0.9
Mpumalanga	265	243	237	234	254	8.5	-4.3
Limpopo	271	258	313	313	312	-0.6	15.2
Total Trade	**3224**	**3186**	**3179**	**3197**	**3247**	**1.6**	**0.7**

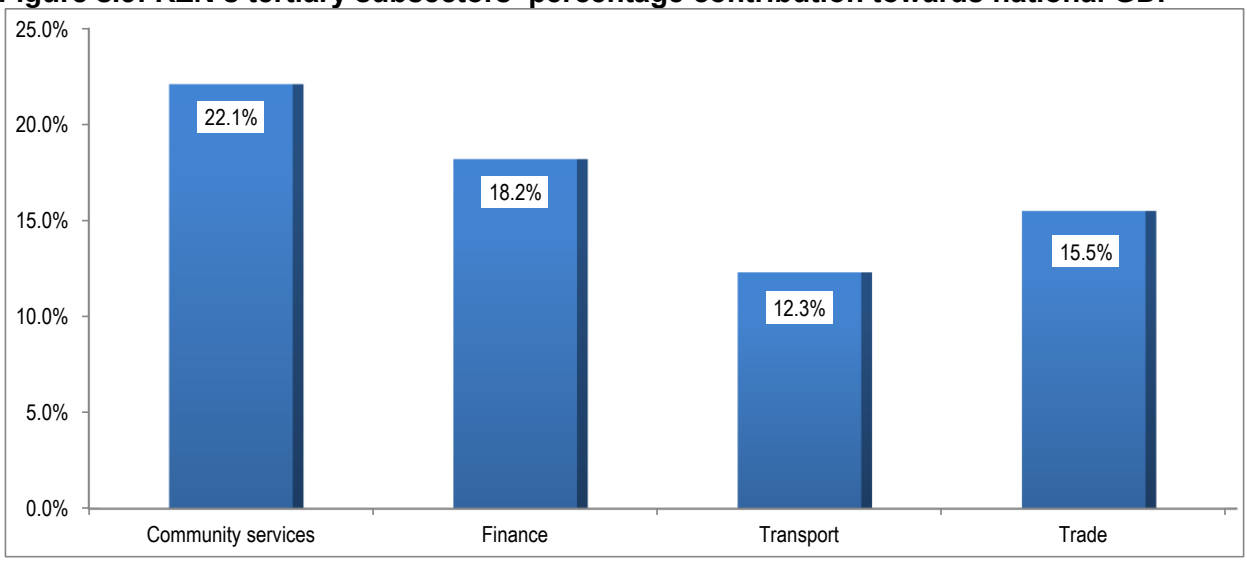
Source: Stats SA, 2015

Table 3.4 indicates that KZN is the second largest contributor to employment after Gauteng. Hence, the province created 2728 job opportunities from the fourth quarter of 2013 to the fourth quarter of 2014. The total trade jobs for all provinces have increased to 3247 in the fourth quarter of 2013 compared to 3224 realised in the fourth quarter of 2014. The job opportunities created in the province of KZN by trade sector has declined by 6.5 per cent year on year.

3.5.1 KZN Sector contribution towards GDP

It has been indicated in table 3.1 that the tertiary sector was the largest contributor towards KZN's GDP at 68.1 per cent as compared to the secondary and the primary sectors which contributed 26 per cent and 5.8 per cent respectively.

Figure 3.9: KZN's tertiary subsectors' percentage contribution towards national GDP



Source: Global Insight, 2015

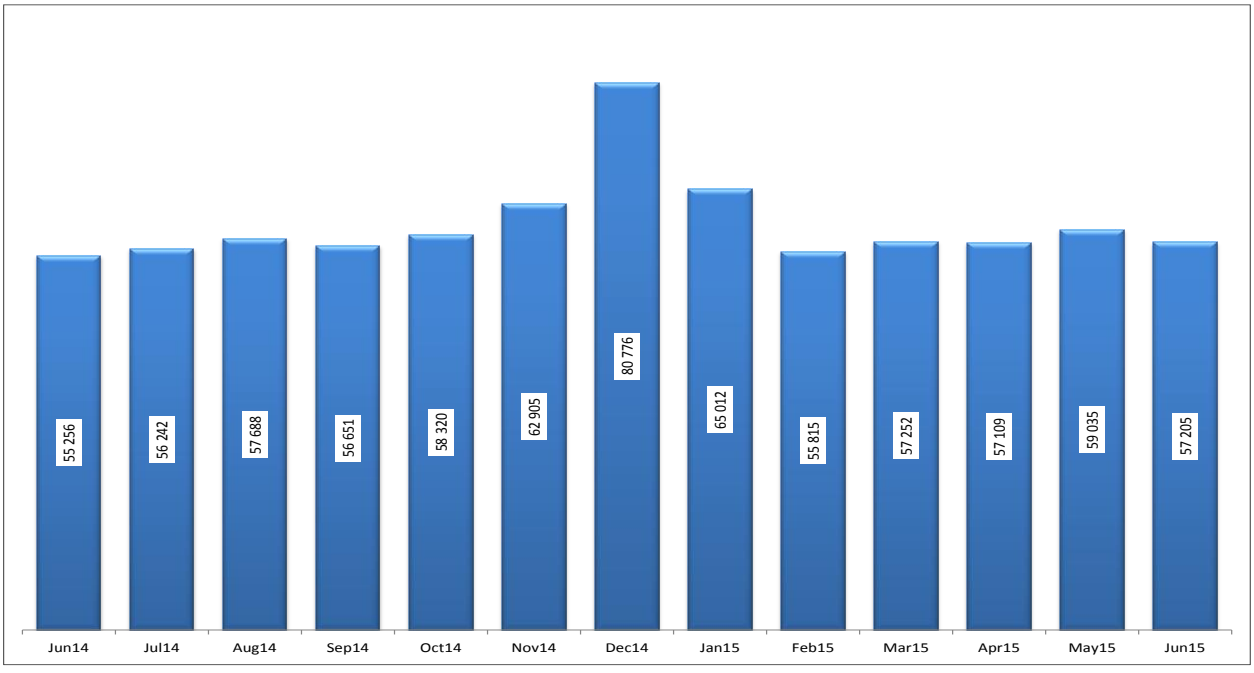
Figure 3.9 indicates that community services contribute 22.1 per cent towards the KZN's GDP, followed by finance and trade which contributed 18.2 per cent and 15.5 per cent respectively. Transport is the least contributor to GDP with 12.3 per cent.

3.5.2 Trade Sector

3.5.2.1 Retail trade subsector in SA

A massive growth has been shown over the years by retail industry especially in South Africa. Major South African companies have expanded to the other parts of Africa to retrieve opportunities that exist; Shoprite is a good example as it has stores in 17 countries (Kotler, 2012). According to PWC (2012) companies are converting informal trade into formal retail, diversifying into new service lines and boosting operating efficiencies. A number of shopping centres have been built throughout the country not only at the cities but rural areas as well. Figure 3.10 shows the retail trade sales from June 2014 to June 2015.

Figure 3.10: Retail trade sales at constant prices (R million), 2014



Source: Stats SA, 2015

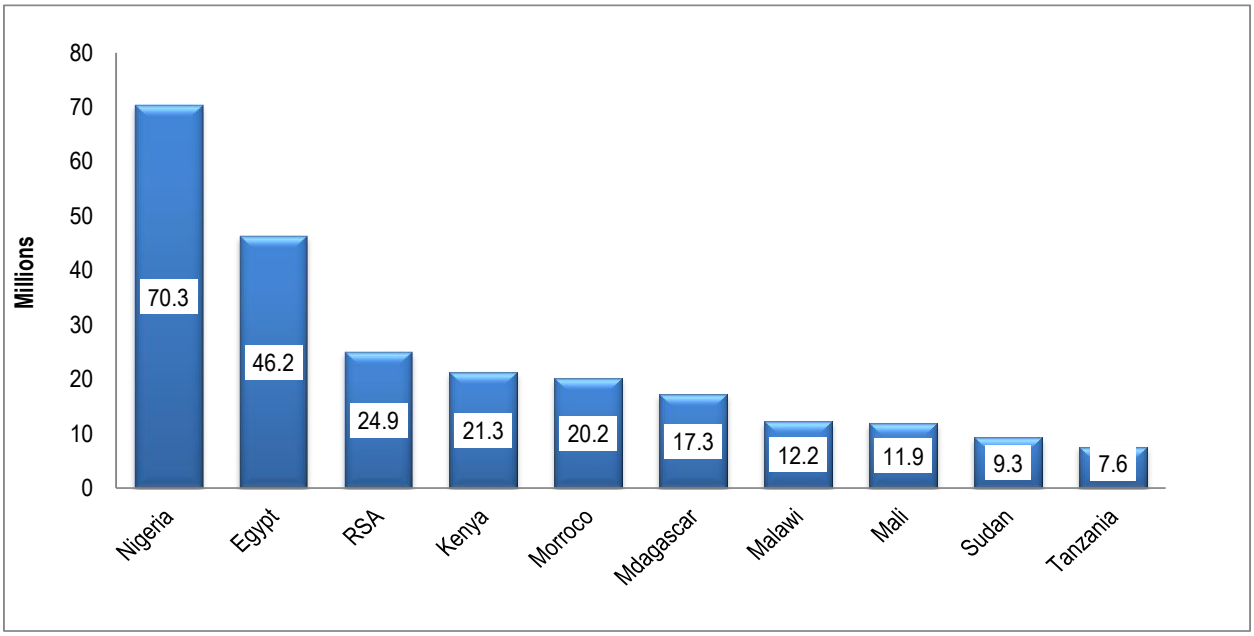
The sales are linear on the other months, and as expected they tend to pick up in the month of December and stabilise in January. The possible reason for the upward trend may be that of

bonuses being received, the festive season which makes people take tours to other provinces which mostly result in huge expenditures.

3.5.2.2 Online Shopping

The consumers are now moving from traditional ways of doing shopping to more technology based mechanisms such as internet, social media, mobile and smart phones. According to PricewaterhouseCoopers (PWC) (2012) access to internet has been a constraint in South Africa which hampered growth in the e-retailing businesses. E-commerce is the new dominant connection which is mostly used to interact with one another or customers. Local retail stores such as Mr Price and Woolworths have grabbed the opportunity and entered the market. According to Vorster (2013) Woolworths was applauded as one of the top online retail brands sellers in 2013 and is frequently recognized as leading the retail sector in advances in digital and social media.

Figure 3.11: Africa's top 10 internet user countries 2014 (Q2)



Source: internet world stats, 2015

Figure 3.11 demonstrates a number of internet users across the globe where Nigeria is the top internet user followed by Egypt, SA is the third largest country with 24.9 million people who are using internet. Tanzania has least users when it comes to internet, only 7.6 million people are using the internet. This should help with informing sellers about what media type their target

audience use, how to reach them and how their needs can be better satisfied which will in turn bring the sales up.

3.5.2.3 Motor Sales Trade

Subdued levels of economic activity, electricity outages, impact of higher personal taxation, petrol price inflation, new vehicle price increases and higher interest rates have all contributed to a deteriorating outlook for domestic new vehicle sales which resulted to business confidence and consumer sentiment pressure. However, despite the country's demanding trading environment, NAAMSA (2015) attested that automotive industry vehicle production has remained on a firm footing and that the higher new vehicle export sales would continue to support the industry's vehicle production levels and SA's balance of payments.

According to Stats SA (2015), motor trade sales increased by 2.8 per cent year-on-year in June 2015. The highest annual growth rates were recorded for sales of accessories 9.3 per cent, new vehicle sales 6.3 per cent and workshop income 4.7 per cent. Moreover, seasonally adjusted motor trade sales increased by 2.3 per cent in June 2015 compared with May 2015. This followed month-on-month changes of 1.9 per cent in May 2015 and -6.2 per cent in April 2015. However, seasonally adjusted motor trade sales decreased by 0.9 per cent in the second quarter of 2015 compared with the previous quarter.

Table 3.5: Motor trade sales by type of activity (R Million)

Type of Activity	Jan-15	Feb-15	Mar-15	Apr-15	May-15	Jun-15
New vehicle sales	12910	12952	14820	11693	12654	13548
Used vehicle sales	7813	8219	8842	7451	7929	8062
Workshop income	2703	3000	3204	2798	2911	3067
Income from the sales of accessories	7899	8295	9104	7904	8233	8468
Income from fuel sales	10883	10057	11304	11485	11791	12332
Income from convenience store sales	1746	1667	1731	1698	1644	1693

Source: Stats SA, 2015

Table 3.5 indicates that new vehicle sales have been fluctuating in the last six months; it has grown from 12654 in May 2015 to 13548 in June 2015. The new vehicle sales contributed the highest amount, followed by income from fuel sales which has increased from 10883 that was recorded in January 2015 to 12332 recorded in June 2015. The income from convenience store sales contributed the least to motor sales trade with the amount ranging between 1644 and 1746.

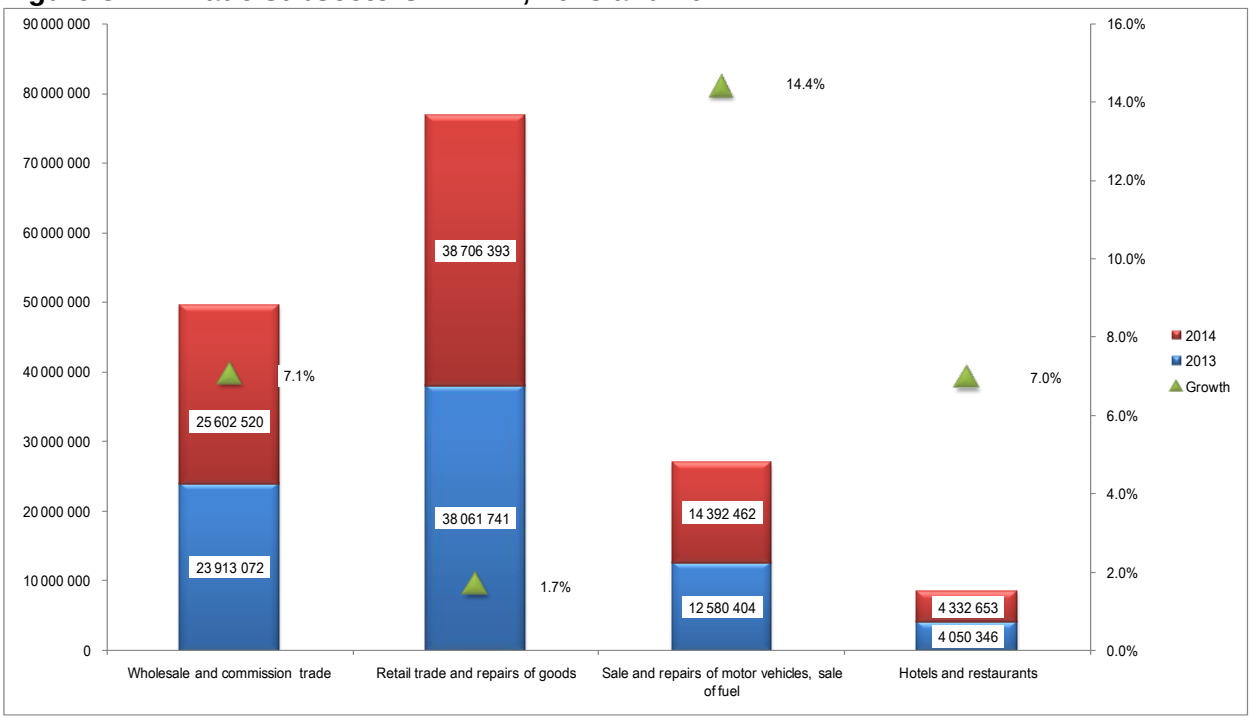
3.5.2.4 Trade sector in KZN

It has been indicated in chapter two of this publication that KZN is SA top holiday destination. Attractions such as mountains, sporting events, game reserves, heritage sites and shopping malls make visitors from around the world to float in every year. International visitors come mostly for business, leisure and shopping whereas, the locals visit to see relatives or friends and some sporting events. According to Stats SA (2015) trips to the province of KZN have declined. Stats SA further states that overnight trips decreased by 6.9 per cent from 50.8 million in 2013 to 47.3 million in 2014. It is further noted the province had the highest number of visitors in December and January months, when compared to other months within the reference period. Although more trade takes place during these two months but on average the hotels and the restaurants showed a decline between 2013 and 2014

Despite this negative effect associated with reduction in trip visits, the retail industry has been booming; with more shopping centres being built all over SA. This is anticipated to increase even further with the expansion of small towns in the previously disadvantaged communities. Although there is a challenge with regard to individuals from those towns not having enough resources to spend due to poverty and unemployment, however it will save on the transport cost to the cities, create jobs, encourage small business and improve economic activity within those areas. According to Stats SA (2015) most of the people who are visiting the province of KZN use road transport. Although there is high risk due to accidents on the road but from moral point of view it is not acceptable but from the economic point of view there is improvement in business for the sales and repairs of vehicles. According to Stats SA (2015) motor trade increased by 2.8 per cent year on year in June 2015. Stats SA further attests that wholesale trade increased by 8.8 per cent year on year in July 2015 when measured in real terms, moreover seasonally adjusted wholesale trade sales has increased by 2.5 per cent in July 2015 compared with June 2015.

Figure 3.12 indicates significant changes in the trade subsectors in 2013 and 2014. These changes indicate that these trade subsectors contribution increased between 2013 and 2014 nationally and provincially. Sale and repairs of motor vehicles increased the largest by 14.4 per cent in the period under review. Wholesale and commission trade as well as hotels and restaurants both increased by approximately 7 per cent in the same period. The lowest growth was realised in the retail trade and repairs of goods by 1.7 per cent.

Figure 3.12: Trade subsectors in KZN, 2013 and 2014



Source: Global Insight, 2015

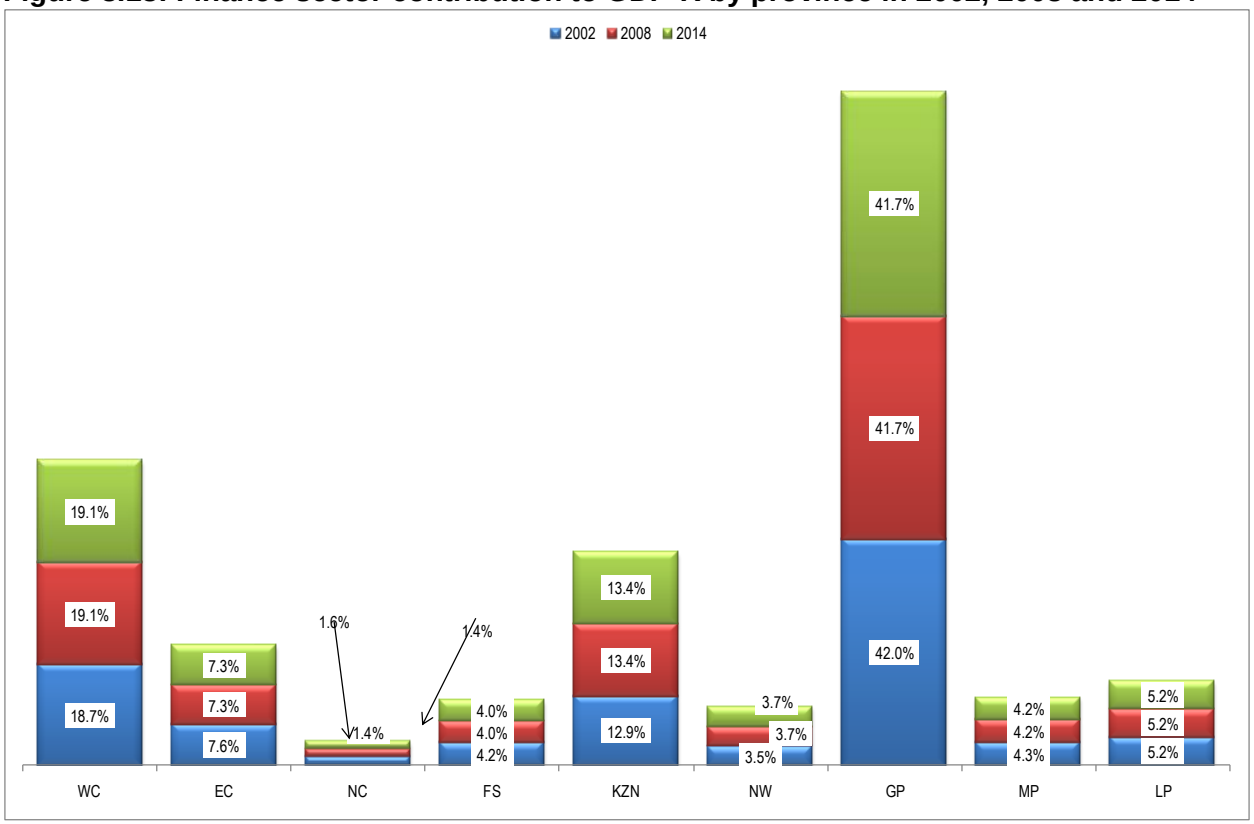
3.5.3 The finance sector

The financial services sector forms an integral part of the economic system. The sector's main service offerings which are banking, savings and investment, and debt and equity financing enable individuals to safeguard their assets against various types of risk, and businesses to start up, grow, and improve their productivity. The sector therefore has the ability to catalyse economic activity, thereby bolstering GDP. According to Liang (2006), the development of the financial sector can play an important role in economic growth through increased productivity and lower transaction costs.

In the advent of the financial crisis in 2007, the financial sector (with specific emphasis on the need for its reform) has become the subject of much global debate. According to Hewett (2012), the financial crisis of 2007/08 resulted in a reduction in the levels of access to credit extended to individuals, to businesses and to government. Consequently, economies experienced a depression in consumer spending which in turn stifled economic growth, suppressed employment levels, and threatened government's agenda of fostering sustainable development.

Although a distinct relationship has been drawn between finance sector development and economic growth, questions arise on the effect of credit extension to households on reducing poverty and inequality in a developing economy such as SA. Considering that SA is marred by low skill levels and resultant high unemployment of 25.5 per cent[16], questions need to be raised regarding the ability of SA debtors to make repayments, and the effect the latter have on the disposal incomes.

Figure 3.13: Finance sector contribution to GDP-R by province in 2002, 2008 and 2014



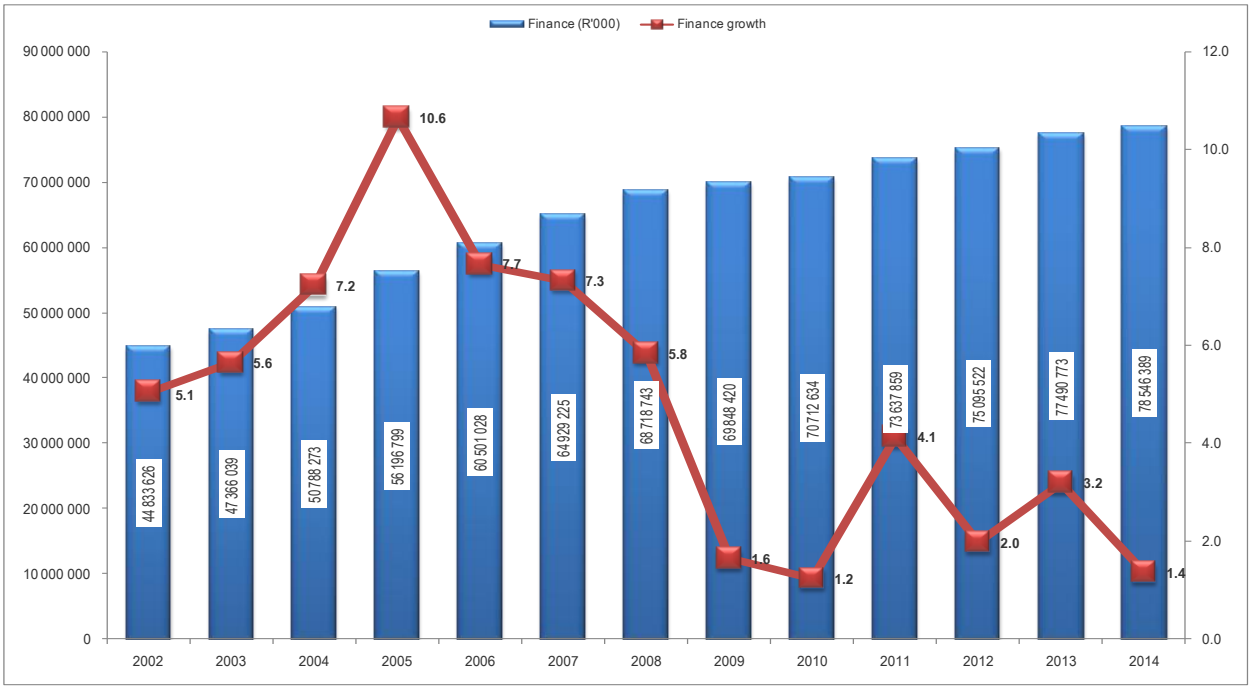
Source: Global Insight, 2015

The finance sector has remained stable in terms of its percentage contribution to GDP per province since 2002 (figure 3.13). Marginal variances were witnessed across all 9 provinces with increases occurring only in the WC, KZN and the NW. It can be noted that the provinces that have the highest GDP contribution in the country, namely GP, WC and KZN also have the highest finance sector contributions. The converse also applies to provinces that contribute the least to the national GDP.

[16] According to Stats SA's Quarterly Labour Force Survey Q3 of 2015.

The finance sector in KZN contributed R78.5bn in 2014; a whopping 75.2% increase from the R44.8bn generated in 2002. The sector grew consistently year-on-year between 2002 and 2014, even producing positive growth rates of 1.6 per cent and 1.2 per cent in the post recessionary years of 2009 and 2010 respectively. Despite this display of resilience, the sector has not been able to regain its pre-crisis growth rates in the region of 7 per cent. Between 2013 and 2014, the sector grew by only 1.4 per cent compared to 3.2 per cent between 2012 and 2013 (figure 3.14).

Figure 3.14: KZN Finance sector GVA at constant 2010 prices and growth rates, 2002 to 2014

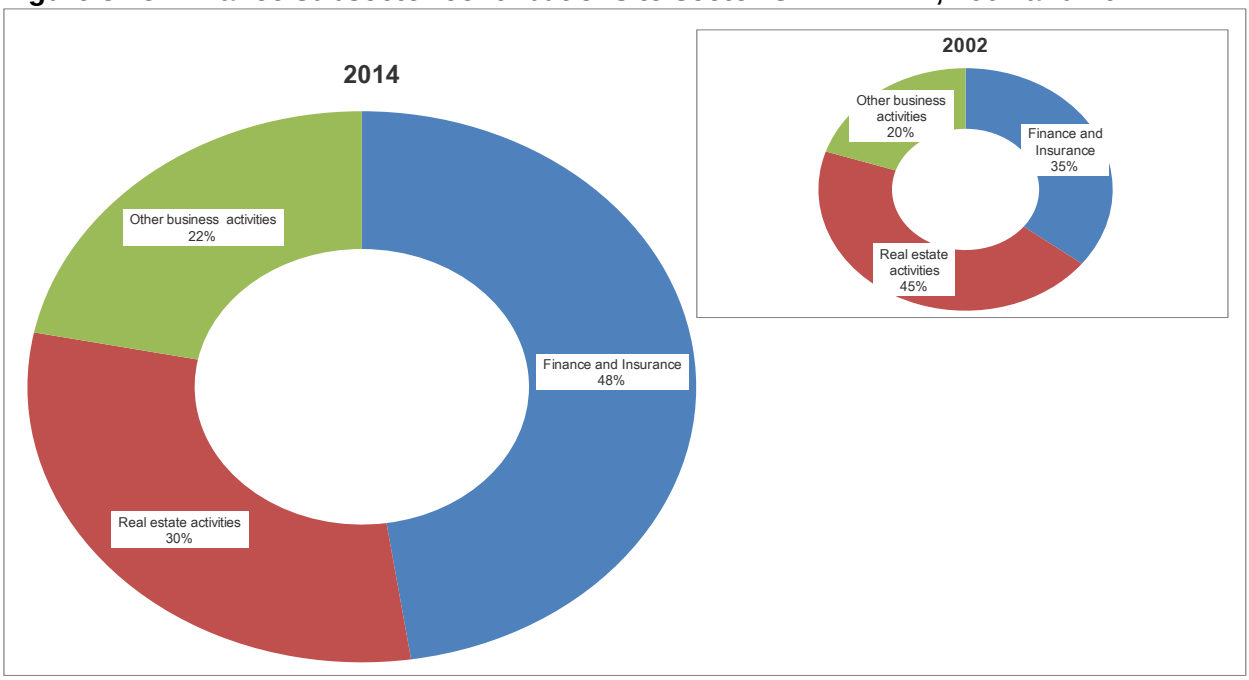


Source: Global Insight, 2015

The Finance sector can be disaggregated into three subsectors, namely *Finance and Insurance*, *Real estate activities*, and *Other business activities*. *Finance and Insurance* comprises establishments primarily engaged in financial transactions (transactions involving the creation, liquidation, or change in ownership of financial assets) and/or in facilitating financial transactions. The *real estate activities* subsector consists of establishments engaged in property owning and letting, real estate development, estate agency activities, rent collection, appraisals and valuations and subletting of fixed property.

Between 2002 and 2014, the finance sector experienced some rearrangement in terms of the percentage contributions of its subsectors. In 2014, *finance and insurance* (47.6 per cent) surpassed *real estate activities* (30.5 per cent) as the leading subsector whereas *real estate activities* (44.6 per cent) was the driving subsector in 2002, obliterating *finance and insurance*. This change can most likely be attributed to more insurance cover being sought by consumers to mitigate the increased risk posed on them by climate change; which has increased incidences of damage to property caused by hail storms, drought and fire (figure 3.15). The financial services industry can play a meaningful role in tackling climate change by providing products and services that contribute towards the mitigation of this risk through efforts such as project finance for renewable energy solution projects.

Figure 3.15: Finance subsector contributions to sector GVA in KZN, 2002 and 2014



Source: Global Insight, 2015

3.5.3.1 Finance as an employer

Employment within the Finance sector was concentrated mainly in *Other business activities*, averaging 70.8 per cent between 2002 and 2014. *Finance and insurance* and *Real estate activities* employed on average 18.8 per cent and 3.3 per cent of formal labour market participants.

Table 3.6: Finance contribution to formal sector employment in KZN, 2002 to 2014

	Finance and Insurance		Real estate activities		Other business activities	
	Number	%	Number	%	Number	%
2002	53 904	23.7	9 149	4.0	149 831	66.0
2003	50 776	21.9	9 948	4.3	156 154	67.5
2004	51 899	21.3	10 654	4.4	166 075	68.2
2005	53 893	20.3	11 400	4.3	183 714	69.3
2006	57 593	19.8	11 348	3.9	202 435	69.8
2007	60 408	19.2	11 663	3.7	220 772	70.2
2008	60 420	18.5	10 242	3.1	232 653	71.0
2009	59 648	18.2	10 159	3.1	232 093	71.0
2010	57 648	18.1	8 827	2.8	227 178	71.2
2011	53 176	16.8	8 188	2.6	229 710	72.7
2012	50 313	15.7	7 759	2.4	236 858	74.1
2013	50 484	15.5	7 136	2.2	243 586	74.7
2014	50 961	15.3	6 591	2.0	249 089	75.0

Source: Global Insight, 2015

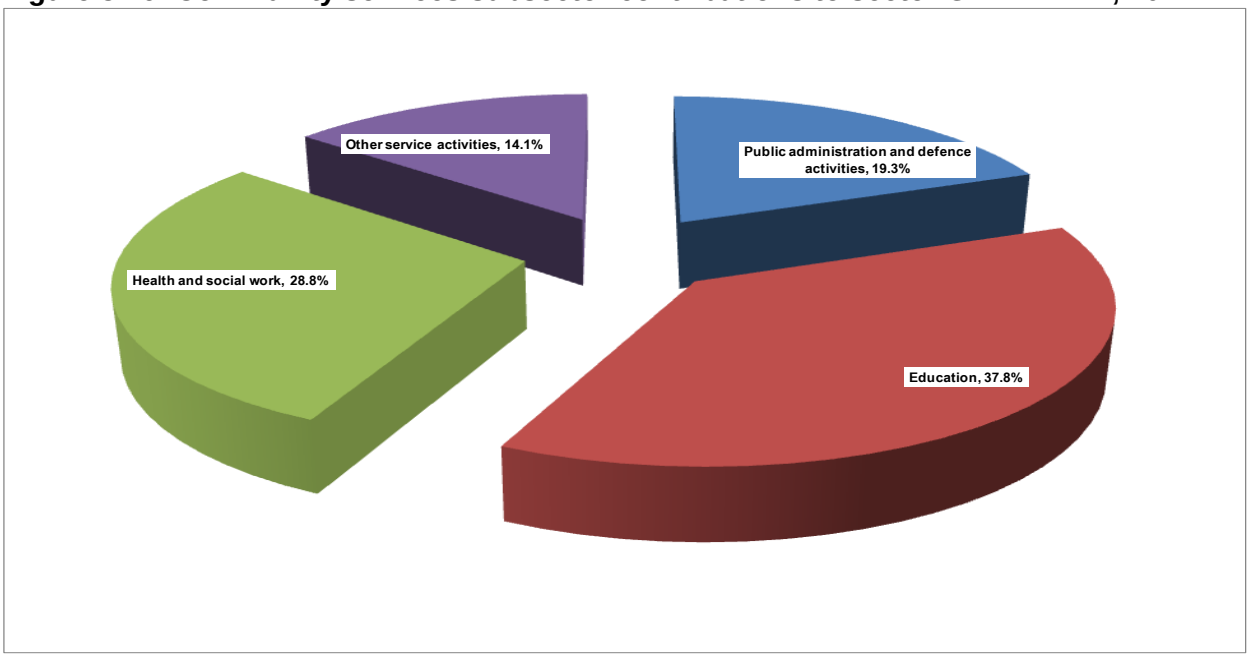
3.5.4 Community services

In SA, the year 2015 is a year that has been met with a mixed bag of feelings; indignation by those government portfolios that have been unable to meet their set targets as per the Millennium Development Goals (MDGs), and polarised excitement by those who managed to meet and/or exceed them. Development, which Todaro and Smith (2011) describe as being a process which improves quality of life, elevates self-esteem and extends freedom to people, is a necessary condition for the economic and political stability of a region. This is mainly because - in contrast to economic growth which is a positive concept - economic development is a normative study which encapsulates people's sense of right and wrong pertaining to issues which deeply affect quality of life such as poverty, income inequality and social security. Development in the SA economy is driven by the Community services sector, which oversees the provision of services which are directed at human needs such as health and social work, education, administration and defence amongst others.

According to the National Planning Commission (NPC) (2011), promoting health and wellness is critical to preventing and managing lifestyle diseases, particularly the major non-communicable diseases among the poor, such as heart disease, high blood cholesterol and diabetes. These diseases are likely to be a major threat over the next 20 to 30 years. One major goal of the national and provincial health departments is to reduce the disease burden to manageable levels, and human capacity is a key input in attaining this objective. Managers, doctors, nurses and community health workers therefore need to be appropriately trained and managed, produced in adequate numbers, and deployed where they are most needed.

Human capital plays a pivotal role in achieving sustainable economic growth. As different growth theories suggest, the role of human capital is a significant input to the growth process. The concept of human capital in economic literature is defined broadly by including education, health, training, migration, and other investments that enhance an individual's productivity. The level of influence between education and the economy can be measured by an examination of whether the incomes of the average people are increasing as a result of education attainment. According to Berger and Fisher (2013) this can happen as a result of an increase in productivity, with a consequent increase in payments to employees and a resultant increase in economic activity. It is every government's motive to ensure an equitable distribution of income for productivity and growth through the formulation and implementation of policies that promote full employment.

Figure 3.16: Community services subsector contributions to sector GVA in KZN, 2014



Source: Global Insight, 2015

Education and (37.8 per cent) and *Health and social work* (28.8 per cent) continued to be the mainstay of the KZN services sector in 2014, undoubtedly due to the high staff complement which is needed to effectively carry out the duties and functions that are involved in directly impacting human lives to effect positive change.

Chapter 4: Labour Dynamics in KZN

4.1 Introduction

As correctly pointed out by Maswanganyi (2014), employment in South Africa has been very unstable and the instability could persist as more and more businesses are adversely affected by supply side constraints such as labour disputes and electricity supply constraint resulting in firms resorting to retrenchments in order to stay afloat. Maswanganyi further argues that in January 2014, retrenchment levels were at a 10 year high with approximately 36 290 jobs being shed mostly in construction and manufacturing.

With this backdrop in mind, this chapter therefore focuses on the labour market analysis in KZN. It starts by providing a brief review of the employment trend in SA, which is followed by the employment by sector in KZN. The chapter proceeds by presenting an analysis of the employment by sector as well as both the labour participation and labour absorption rates. The chapter concludes by presenting a review of unemployment rate and labour productivity in KZN.

4.2 Employment

As correctly indicated by the Trade Economics (2015), the total labor force comprises of people aged 15 and above who meet the International Labour Organization (ILO) definition of the economically active population. This includes all people who supply labor irrespective of whether they are or not employed[17]. Table 4.1 shows the labour force characteristics of SA from the second quarter of 2014 to the third quarter of 2015. According to Stats SA (2014), the national number of employed persons increased by 171 000 in the third quarter of 2015. This was after it rose by 198 000 in the second quarter of 2015.

The report further indicates that the highest share of the employed population with tertiary qualifications was among the white and Indian population groups. In the third quarter of 2015, 48.6 per cent of employed white persons and 33.8 per cent employed Indians had a tertiary

[17] See Trade Economics, available online: http://www.tradingeconomics.com/south-africa/labor-force-total-wb-data.html, accessed on 4 October 2015.

qualification. While more than half of the black African and coloured populations had an educational level of less than matric (Stats SA, 2015a).

Table 4.1: Characteristics of labour force in SA, 2014:Q2 to 2015:Q3

	Apr-Jun 2014	Jul-Sep 2014	Oct-Dec 2014	Apr-Jun 2015	Jul-Sep 2015	Qtr-to-qtr change	Year-on-year change	Qtr-to-qtr change	Year-on-year change
	Thousand							Per cent	
South Africa									
Population 15-64 yrs	**35 332**	**35 489**	**35 643**	**35 955**	**36 114**	**156**	**625**	**0.4**	**1.8**
Labour Force	**20 248**	**20 268**	**20 228**	**20 887**	**21 245**	**359**	**979**	**1.7**	**4.8**
Employed	15 094	15 117	15 320	15 657	15 828	171	712	1.1	4.7
Unemployed	5 154	5 151	4 909	5 230	5 418	188	267	3.6	5.2
Not economically active	15 084	15 221	15 415	15 068	14 867	-200	-354	-1.3	-2.3
Rates (%)									
Unemployment rate	27.5	27.8	26.6	27.3	25.5	0.5	0.1	0.7	-0.7
Employed / population ratio (Absorption)	36.9	36.5	36.9	37.6	43.8	0.3	1.2	-1.9	1.9
Labour force participation rate	50.9	50.6	50.2	51.8	58.8	0.7	1.7	-1.7	1.8

Source: Stats SA, 2015a

Evidence from tables 4.1 and 4.2 indicates that KZN contributes an estimated average 16.2 per cent[18] to the national employment. EThekwini metropolitan has consistently been the highest employing municipality, accounting for more than half of those employed in the province. Between the third quarter of 2014 and the third quarter of 2015 the provincial labour force increased by 154 000 or 6.4 per cent. It is clear that this resulted in a minus 3.6 percentage, year-on-year points unemployment rate (table 4.2).

Table 4.2: Characteristics of labour force in KZN, 2014:Q2 to 2015:Q3

	Apr-Jun 2014	Jul-Sep 2014	Oct-Dec 2014	Apr-Jun 2015	Jul-Sep 2015	Qtr-to-qtr change	Year-on-year change	Qtr-to-qtr change	Year-on-year change
	Thousand							Per cent	
KZN									
Population 15-64 yrs	**6 596**	**6 619**	**6 643**	**6 690**	**6 715**	**24**	**95**	**0.4**	**1.4**
Labour Force	**3 249**	**3 187**	**3 183**	**3 209**	**3 237**	**28**	**50**	**0.9**	**1.6**
Employed	2 480	2 419	2 520	2 556	2 573	17	154	0.7	6.4
Unemployed	769	768	663	653	664	11	-104	1.7	-13.5
Not economically active	3 347	3 432	3 460	3 481	3 478	-4	45	-0.1	1.3
Rates (%)									
Unemployment rate	23.7	24.1	20.8	20.4	20.5	0.1	-3.6	16.2	-13.9
Employed / population ratio (Absorption)	37.6	36.5	37.9	38.2	38.3	1.0	1.8	-1.6	1.6
Labour force participation rate	49.3	48.1	47.9	48	48.2	0.2	0.1	2.7	-2.6

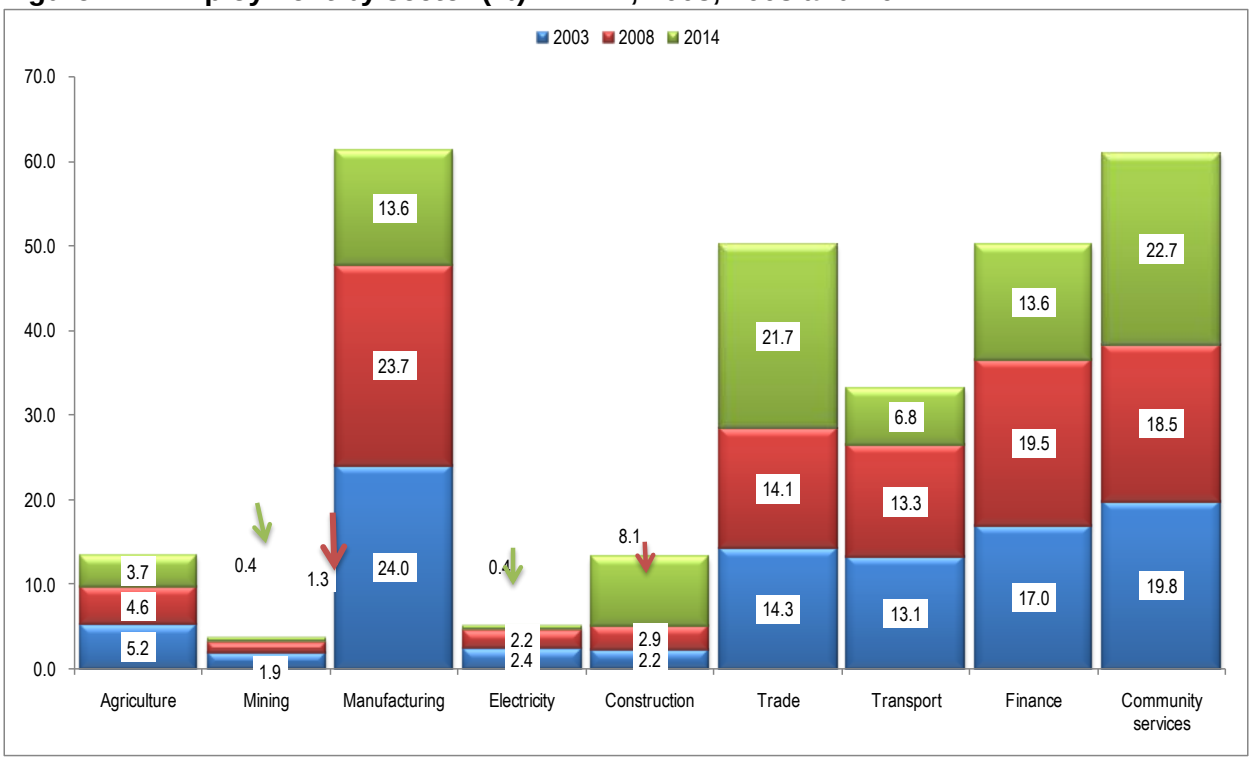
Source: Stats SA, 2015a

[18] (2 573/15 828)*100 = 16.2 per cent

4.3 Employment by sector

Manufacturing had been the highest employing industry in KZN between 2003 and 2014. Notably, its contribution towards job creation is however deteriorating. In 2003, the industry recorded a massive contribution of 24 per cent towards employment in the province. This has however, deteriorated to 13.6 per cent in 2014. Compared to the rest of the sectors, Trade is the sector showing the largest improvement in terms of contribution towards employment, thereby increasing by 7.4 percentage points, from 14.3 per cent in 2003 to 21.7 per cent in 2014. Disturbingly, despite the comparative advantage the province has in agriculture, contribution to employment by this industry is also on a downward trajectory (figure 4.1).

Figure 4.1: Employment by sector (%) in KZN; 2003, 2008 and 2014



Source: Global Insight, 2015

4.4 Labour absorption rate

The labour absorption rate measures the proportion of the working-age population that is employed. Table 4.1 shows that the labour absorption rate in SA was 43.8 per cent[19] at the end

[19] Labour absorption rate = employed ÷ population; = (15 828 ÷ 36 114) X 100 = 43.8 per cent.

of the third quarter 2015, which was higher than the 37.6 per cent recorded at the end of the second quarter 2015 (table 4.1), but still below the NDP target of 61 per cent by 2030. The labour force participation rate was 58.8 per cent at the end of the third quarter 2015, which is higher than the rate recorded at the end of the second quarter 2015. This is however, still below the NDP target of 65 per cent by 2030 (NDP, 2013).

In the third quarter of 2015, the labour absorption rate in KZN was 38.3 per cent, which was slightly higher than that of the 38.2 per cent recorded at the second quarter of 2015 (table 4.2). It is however clear for SA and KZN, that there exists an inverse relationship between labour absorption and unemployment, which holds that the higher the absorption rate the lower the unemployment rate and the vice versa.

4.5 Labour Force Participation Rate

The labour force participation rate (LFPR)[20] provides an indication of the relative size of the supply of labour available to engage in the production of goods and services for a specified period (ILO KILM, 2013). Table 4.1 evinces that, with the estimated working age population of 36 million in the second quarter of 2015, the national labour force recorded 20.9 million. This resulted to the LFPR of 51.8 per cent. Both the working age population as well as the labour force increased to 36.1 million and 21.2 million respectively in the third quarter of 2015. The LFPR subsequently increased to 58.8 per cent at the end of the third quarter of 2015.

As evident in table 4.2, KZN followed the same positive trajectory, with the total labour force reaching 3.237 million in the third quarter of 2015, up from the 3.209 million estimated in the second quarter of the same year. This as a result led to a slight improvement in the LFPR which rose slightly to 48.2 per cent compared to the 48 per cent recording during the second quarter.

4.6 Unemployment

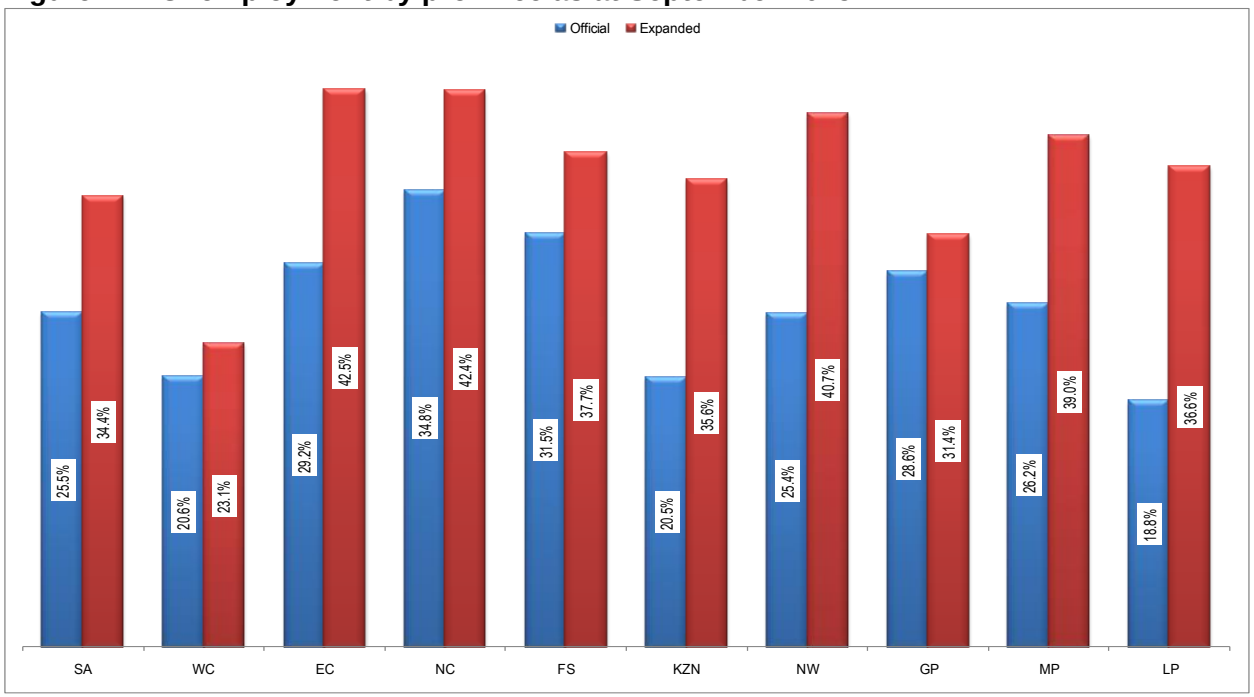
South Africa as a country continues to battle the high rate of unemployment – specifically structural unemployment - that has been holding its labour force at ransom for decades. This

[20] The labour force participation rate (LFPR) is a measure of the proportion of a region's working-age population that engages actively in the labour market, either by working or looking for work. It is calculated as follows: Economic Active Population (EAP) ÷ Population

structural unemployment finds its genesis in the low quality of education offered to the populace and the relatively low skills levels possessed by those in the labour force. Although real investment in education has been on an increase over the years, the quality of education offered has been compromised in the interest of boosting enrolment figures. Due to education being a competency which is administered at a national level, the weaknesses inherent in the national system filter down to provincial and local government levels; thereby making provinces susceptible to the same problems.

The official unemployment rate in KZN currently stands at about 20.5 per cent, which is a margin above the 20.4 per cent rate recorded in the second quarter of 2015. The expanded rate of unemployment (which accounts for discouraged work seekers), however, is at 35.6 per cent, and appears to be on a downward trajectory from the 38.2 per cent and 36.3 per cent recorded in the first and second quarter of the year respectively. The province fared relatively well when compared to its counterparts, having the second lowest official unemployment rate after Limpopo (18.8 per cent) and the third lowest expanded unemployment rate after the Western Cape (23.1 per cent) and Gauteng (31.4 per cent).

Figure 4.2: Unemployment by province as at September 2015



Source: Stats SA, 2015

4.6.1 Unemployment Insurance

The number of new unemployment insurance applications in the province from April 2007 until December 2014 has increased. On average there are about 11 000 new applications per month. Unemployment insurance benefits are available if an employee loses his or her job because of dismissal, contract termination by the employer or their insolvency. It is therefore a measure or proxy for the number of people becoming unemployed per month. However it is not a perfect measure or proxy since it also includes temporary unemployment, for example, if a contributor's fixed-term contract has come to an end, or retirement. Bhorat et al. (2013) indicates that more than 40 percent of all claims in the period under review originated from claimants whose contracts had expired, and they therefore found themselves out of work. In turn, claims from dismissals (24.2 percent) and retrenchments (23.1 percent) each accounted for just under one-fifth of total claims between 2005 and 2011.

Table 4.3: Number of new unemployment insurance per region, 2007 to 2014

	2007	2008	2009	2010	2011	2012	2013	2014
Ethekwini	1 653	2 028	2 897	2 246	1 986	1 926	2 746	2 954
Pietermaritzburg	1 103	1 155	1 297	1 085	1 337	1 201	1 385	1 648
Newcastle	508	448	397	256	309	250	397	463
Ladysmith	298	374	424	358	351	387	442	382
Port Shepstone	579	712	684	639	551	587	778	605
Rirchards Bay	929	1 057	1 328	922	809	775	1 077	1 031

Source: SA Department of labour, (Own calculations)

Table 4.3 shows the number of new unemployment insurance applications per region over the period 2007 to 2014. In 2007 there was a significant increase in the number of new applications. The Durban or Pinetown region experienced the largest number of new applications followed by the Pietermaritzburg and Richards Bay regions. In general all regions experienced an increase in the number of new applications over the period under review. In addition the number of new applications increased by about 6 per cent in the more urban regions compared to 4 per cent in the more rural regions over the same period. Therefore for every one new application in the more rural regions there are four new applications in the more urban regions.

4.7 Labour Remuneration and Productivity

The relationship between wages and productivity (or more specifically, the relationship between wage growth and productivity growth) has become one of particular policy relevance in recent

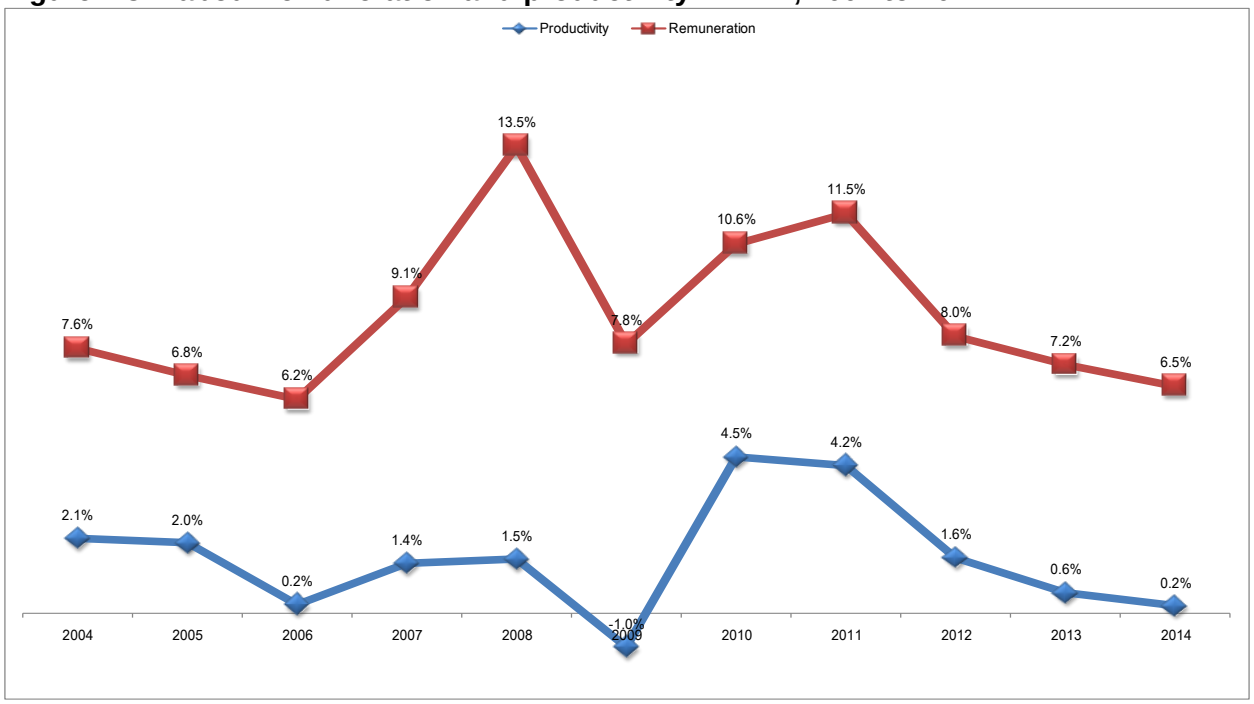
years, in light of the recent economic crisis and emerging imbalances. Many studies have been dedicated to the importance of labour productivity[21] growth, reason being that "the rate of productivity growth can have an enormous effect on real output and living standards" (Steindel and Stiroh, 2001). KZN and the whole of South Africa in general, is grappling with labour market conditions which are characterised by a high wage bill and dwindling productivity levels.

According to a study by Professor Ferreira at UNISA, the service delivery level of the South African public sector is generally unacceptably low. An examination of productivity in the country as a whole reveals that since 1967, output per worker per unit of capital in South Africa has fallen from R7 297 to R4 924 a year – a decline of 32.5%. From its peak in 1993, this measure of labour productivity has fallen by 41.2%, bringing it down to the lowest level in 46 years. The report further asserts that South Africa today is less efficient than many of its emerging market competitors, its labour force is uncompetitive and labour productivity is much lower than that of the rest of the developing world.

In an effort to explain why the situation is as it is, Ferreira explains that measurable success of any institution relies primarily on a competent, well-trained and accountable workforce and one needs to remember that employees at the lowest level of the hierarchical structure form a crucial foundation in any organisation. In South Africa, the government is recognised as one of the largest employers. The ability of the state to act on pressing challenges such as poverty and service delivery is largely defined by the capability and commitment of both the public service and its employees. The deduction is that it is clear that poor service delivery by local government is crippling South African businesses and impeding growth. It could be expected that the same reality rings true for KZN, as reflected in figure 5, where labour remuneration in the province has remained consistently higher than productivity.

[21] The OECD defines labour productivity as being the ratio between a volume measure of output (gross domestic product or gross value added) and a measure of input use (the total number of hours worked or total employment)

Figure 4.3: Labour remuneration and productivity in KZN, 2004 to 2014



Source: Global Insight, 2015

4.8 Job scarcity

The job scarcity rate is an important indicator of labour market conditions. A significant increase in the labour force coupled with low levels of labour absorption rate in the formal sector could lead to an increase in the job scarcity. Job scarcity also indicates the regions' ability to create employment for its population. A positive relationship can be expected between job scarcity and unemployment since an increase in jobs unavailability could lead to high unemployment as well as job scarcity.

According to Stats SA (2015) there is still a long way ahead for policy makers to implement economic-growth-inducing policies, as well as boosting confidence among the private sector, which has the potential to grow businesses and create jobs. The scarcity of job opportunities for youth was also reflected in lower labour absorption rates among this group than among adults (35 to 64 years) and the larger decline in the absorption rate among youth than among adults as a result of the recession.

4.9 Conclusion

It has been indicated that the manufacturing and the agricultural sectors' contribution to employment had been declining over the years with trade showing the largest improvement. In addition, the contribution to employment by the community service has been showing a positive trajectory. With the high unemployment rate both in SA and the province, it is worrying that the primary and the secondary sectors are not improving as expected with regard to job creation given the comparative advantage of the province of KZN. The increase in employment by the community service is not something that needs to be celebrated as the role of government is to create an environment for other sectors to create jobs. Hence the marginal productivity of labour in government is low. It is therefore important to revive these sectors and ensure the beneficiation of resources as well as agro-processing. This will assist in improving GDP of the province whilst creating more job opportunities.

Chapter 5: Estimating the Spatial Regression Function for KwaZulu-Natal

5.1 Introduction

The first traditional law of geography, according to Tobler (1976), states that everything is correlated to everything else, but near things are more related than distant things. Elhorst (2014) points out the three different types of interaction effects in a spatial econometric model can be distinguished: endogenous interaction effects among the dependent variable (Y), exogenous interaction effects among the independent variables (X), and interaction effects among the error terms (ε). The spatial linear regression model takes the form:

$$\gamma = X\beta + \varepsilon \qquad (5.1)$$

where **Y** denotes an (N x 1) vector consisting of one observation on the dependent variable for every unit in the sample, **X** denotes an (N x K) matrix of exogenous explanatory variables**, β** is an associated (K x 1) vector with unknown parameters to be estimated, and $\boldsymbol{\varepsilon} = (\varepsilon_1, \dots, \varepsilon_n)^{\mathrm{T}}$ is a vector of disturbance terms, where $\boldsymbol{\varepsilon_i}$ is assumed to be independently and identically distributed for all í with zero mean and variance σ^2 . Since the linear regression model is commonly estimated by Ordinary Least Squares (OLS).

LeSage and Pace (2009) states that there are predominantly two reasons why sample data observed at one point in space will be dependent on values observed at other locations. Firstly, data collection of observations associated with spatial units such as zip-codes, countries, states, census tracts and so on might reflect measurement error. This would occur if the administrative boundaries for collecting information do not accurately reflect the nature of the underlying process generating the sample data. Secondly, the more important reason, according to LeSage & Pace (2009) is spatial dimension of socio-demographic, economic or regional activity which may truly be an important aspect of a modelling problem. Regional science is based on the premise that location and distance are important forces at work in human geography and market activity. All of these notions have been formalized in regional science theory that relies on notions of spatial interaction and diffusion effects, hierarchies of place and spatial spill-overs.

Spatial regression models therefore include relationships between variables and their neighbouring values, for example it allows us to examine the impact that one observation has on other proximate observations. In this article the focus will be on regional unemployment and the possible impact of neighbouring variables. Whereas on the other hand, spatial autocorrelation is the formal property that measures the degree to which near and distant objects are related, that is, it measures the degree to which a set of spatial features and their associated data values tend to be clustered together in space.

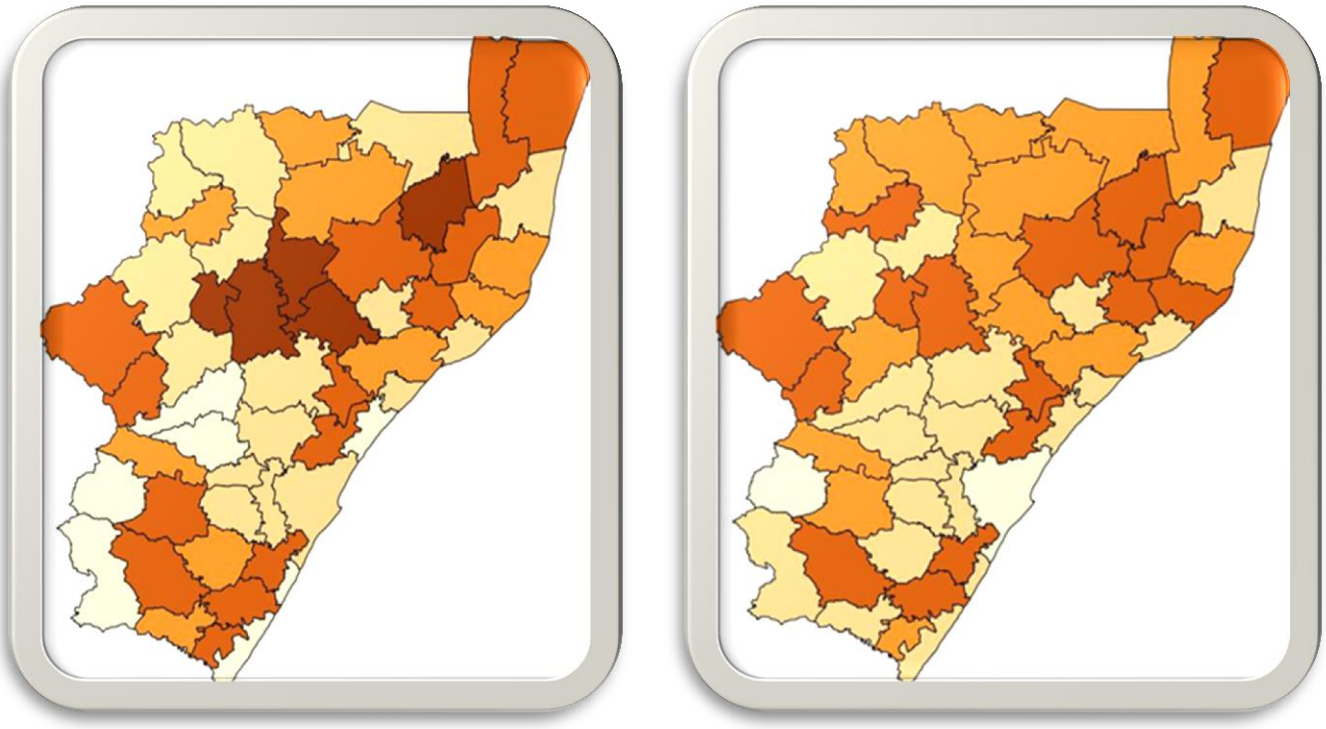
If there is any systematic pattern in the spatial distribution of a variable, it is said to be spatially auto-correlated, that is, if nearby or neighbouring areas are more alike, they represent a positive spatial autocorrelation. Whereas a negative autocorrelation describes patterns in which neighbouring areas are not alike. On the other hand random patterns exhibit no spatial autocorrelation.

5.2 Visualizing the Regional Unemployment Data

Geographical clusters and or regions can be analysed and described by a number of different spatial association statistics as well as visually. The following figures resent a coloured map that allows the visualization of the spatial pattern of each of the provincial economic variables. The geographical information system (GIS) programme was used for the analysis. Dark areas indicate high levels or concentration of the particular variable in that municipality whilst light areas indicate low levels or concentration of the particular variable in that municipality. The diagrams display the number of unemployed people as a percentage of the total labour force per municipality during 1996 and 2013 in the province. It seems evident that the percentage of people unemployed in the province has been spatially fairly dispersed. However, there also seems to be some spatial association, indicating that dark shaded regions (high unemployment) seem to cluster together and light shaded regions cluster together as well. Therefore Ulundi, Nongoma, Hlabisa, Ntambanana and Mbonambi are clustered together and exhibit high unemployment rate.

Figure 5.1: The Unemployment properties in KZN, 1996 and 2013

(a) Unemployment 1996 **(b) Unemployment 2013**



Source: Own calculations using data from Stats SA (2014), Global Insight (2014) and KZN Provincial Model

5.3 Determination of the spatial weights matrices

Before constructing a spatial weights matrix, the spatial contiguity matrix must be made by using weight function (Smith, 2009). A *spatial weight matrix* summarizes potential spatial relations between *n* spatial units. Here each *spatial weight*, w_{ij}, typically reflects the "spatial influence" of unit *j* on unit *i*. For *n* elements in a geographical system, a spatial contiguity matrix, *C*, can be expressed in the form:

$$C = \begin{pmatrix} c_{11} & c_{12} & \cdots & c_{1n} \\ c_{21} & c_{22} & \cdots & c_{2n} \\ \vdots & \vdots & \cdots & \vdots \\ c_{n1} & c_{n2} & \cdots & c_{nn} \end{pmatrix}$$

Where *cij* is a measurement used to compare and judge the degree of nearness or the contiguous relationships between region *i* and region *j*. The brief spatial weights matrix is defined in appendix B.

Applying *Moran's I statistic*

Moran's I is a measure of spatial autocorrelation. It was developed by Patrick Alfred Pierce Moran (Ward and Gleditsch, 2007). *Moran's I* takes the form of a classic correlation coefficient in that the mean of a variable is subtracted from each sample value in the numerator. This results in coefficients ranging from (–1) to (+1), where values between (0) and (+1) indicate a positive association between variables, values between (0) and (-1) indicate a negative association, and (0) indicates there is no correlation between variables.

The expected value of *Moran's I*[22] under the null hypothesis of no spatial autocorrelation is:

$$\left\{E(I) = \frac{-1}{N-1}\right\} \qquad (5.2)$$

Results from *Moran's I indicate* that using the spatial contiguity weight matrix, the correlation coefficient is 0.04 in 1996, whereas in 2013 the correlation coefficient is 0.02 using the k-nearest neighbour weight matrix. It is also interesting to note that the vast majority of the *Moran I* statistics is close to zero, that is, spatial randomness. *Moran's I* results gives spatial relation or spatial association with regard to the number of unemployed people in those regions where high levels of unemployment tend to cluster together.

None of the Moran's I correlation coefficients are statistically significant (p=0.22, p=0.3 and p=0.28, respectively) at alpha 5 per cent, the results suggesting that the number of people unemployed exhibit random patterns. However, the results show that there is no spatial autocorrelation. However the underlying assumption of stationarity may be violated by the intrinsic variance instability of rates. This follows when the number of unemployed people per region varies considerable across observations. The variance instability may lead to spurious

[22] (Wikipedia, http://en.wikipedia.org/wiki/Moran's_I) and the full detail of the model is illustrated in appendix B.

inference of Moran's I. *To correct for this, GeoDa, implements the Empirical Bayes (EB) standardization suggested by Assuncao and Reis (1999).* The results of the modified Moran's I correlation coefficients for the number of unemployed people per region during 1996 and 2013, using the gross domestic product (GDP Rand value, 2010 constant prices) per region for the corresponding period as the base value. The results of modified Moran's I correlation coefficients are statistically significant (p=0.02, p=0.02 and p=0.03, respectively) at alpha 5 per cent.

The results seem to suggest that the province experienced almost no/or very little spatial dependence from 1996 to 2013, that is, the economic outcomes or indicators from a particular region has been very much autonomous or independently generated from a provincial spatial point of view.

5.4 Model Estimation Results

The empirical study done by Anselin (2005) states that it is tempting to focus on traditional measures, (such as the R2); however, this is not appropriate in a spatial regression model. The value in the spatial lag output is not a real value for R2, but it is so-called pseudo-R2 which is not directly comparable with the measure given for OLS results. The proper measures of fit are the Log-Likelihood, Akaike info criterion (AIC) and SC.

Comparing the Log likelihood statistics between the *classical model* (-187 in 1996 and -171 in 2013) and *the spatial lag model* (-186 in 1996 and -170 in 2013), the results indicates that including a spatial error specification did neither improve nor worsen the fit of the model. On the other hand the Akaike info criterion (383 in 1996 and 350 in 2013) using the *classical model* compared to (381 in 1996 and 349 in 2013) using the *spatial error model* indicates a very slight improvement of fit for the spatial lag specification.

The spatial autoregressive coefficient is estimated at 0.26 in 1996 and 0.21 in 2013 and is highly insignificant. The Breusch-Pagan test for heteroskedasticity in the error terms (p values are > 0.05) suggests that heteroskedasticity is not a serious problem. The second test is an alternative to the asymptotic significance test on the spatial autoregressive coefficient; it is not a test on remaining spatial autocorrelation. The Likelihood Ratio Test is one of the three classic specification tests comparing the null model (the classic regression specification) to the

alternative spatial lag model. The values of (p values are > 0.05) confirms the weak significance of the spatial autoregressive coefficient.

5.5 Summary and Conclusions

The aim of this chapter was to test the hypothesis of spatial regression using four different weight matrices. Spatial statistics are used to analyze data which have a spatial location. Furthermore, spatial statistics give explicit consideration to spatial properties like location, spatial patterns, spatial arrangement and distance. This spatial dimension tends to make spatial statistics more complex than ordinary non-spatial statistics.

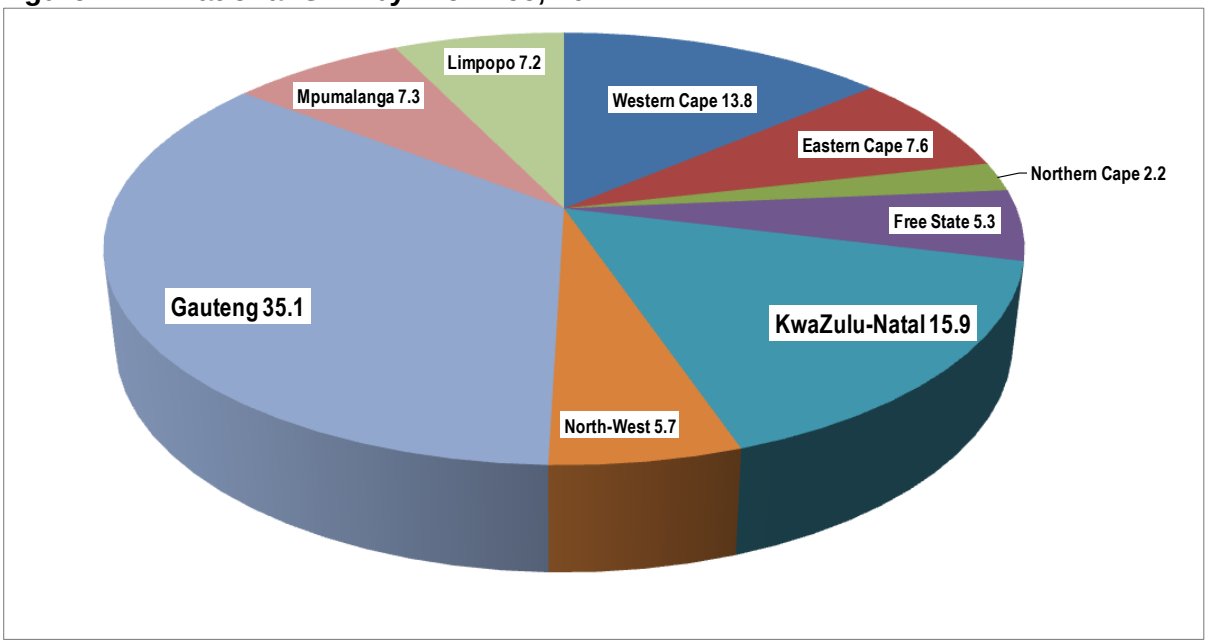
Social science regression models commonly applied to cross-section and panel data assume observations on decision-making units are independent of one another. This assumption is important to contemplate since violation results in regression estimates that are biased and inconsistent.

Spatial econometrics is a field whose analytical techniques are designed to incorporate dependence among observations (regions or points in space) that are in close geographical proximity. Extending the standard linear regression model, spatial methods identify cohorts of nearest neighbours and allow for dependence between these regions/observations.

The results suggest that the province has experienced very little spatial dependence from 1996 to 2013. The results strongly suggest spatial heterogeneity.

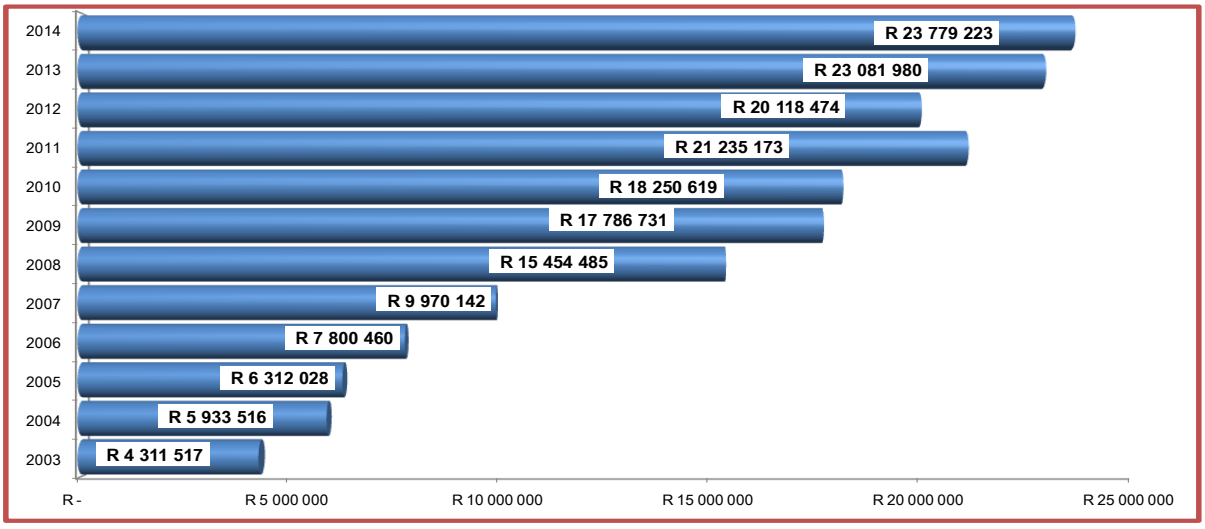
Appendix A: List of additional figures and tables

Figure A2.1: National GDP by Province, 2014



Source: Global Insight, 2015

Figure A3.1: Gross value added by automotive industry to the KZN economy, 2003 to 2014



Source: Global Insight, 2015

Appendix B: Spatial Matrix Weight

The spatial weights matrix can be defined as:

$$W = \frac{C}{C_o} = \begin{pmatrix} W_{11} & W_{12} & \dots & W_{1n} \\ W_{21} & W_{22} & \dots & W_{2n} \\ \vdots & \vdots & \dots & \vdots \\ W_{n1} & W_{n2} & \dots & W_{nn} \end{pmatrix} \quad \text{(A5.1)}$$

where

$$C_0 = \sum_{i=0}^{n} \sum_{j=0}^{n} Cij \quad , \quad \sum_{i=0}^{n} \sum_{j=0}^{n} W_{ij} = 1 \quad \text{(A5.2)}$$

(a) Spatial contiguity weights: the simplest of these weights simply indicate whether spatial units share a boundary or not. If the set of boundary points of unit *i* is denoted by $bnd_{(i)}$, then the so-called queen contiguity weights are defined by:

$$W_{ij} = \begin{cases} 1, & bnd_i \cap bnd_j \neq \emptyset \\ 0, & otbnd_{(i)} \cap bnd_{(i)} = \emptyset \end{cases} \quad \text{(A5.3)}$$

(*b) k-Nearest Neighbour weights:* Let centroid distances from each spatial unit *i* to all units $j \neq i$ be ranked as follows: $d_{ij(1)} \leq d_{ij(2)} \leq \dots \leq d_{ij(n-1)}$. Then for each $k = 1,..,n - 1$, the set $\{N_{k(i)} = \{J_{(1)}, J_{(2)}, \dots, J_{(k)}\}$, contains the *k* closest units to *i* (where for simplicity we ignore ties). For each given *k* , the *k-nearest neighbour* weight matrix, *W* , then has spatial weights of the form:

$$W_{ij} = \begin{cases} 1, & j \in Nk_{(i)} \\ 0, & otherwise \end{cases} \quad \text{(A5.4)}$$

(c) Radial distance weights: If distance itself is an important criterion of spatial influence, and if *d* denotes a *threshold distance* (or *bandwidth*) beyond which there is no direct spatial influence

between spatial units, then the corresponding *radial distance* weight matrix, *W,* has spatial weights of the form:

$$W_{ij} = \begin{Bmatrix} 1, & 0 \le dij \le d \\ 0, & dij > d \end{Bmatrix} \quad \text{(A5.3)}$$

(d) Actual distance values: If distance itself is an important criterion of spatial influence, and if *d* denotes the actual *distance* ($\frac{1}{d} = inverse\ of\ distance$), then the corresponding *actual distance* weight matrix, *W* , has spatial weights of the form:

$$W_{ij} = \left\{1, \ \frac{1}{dij} > 0\right\} \quad \text{(A5.4)}$$

Moran's I[23]*:*

$$I(d) = \frac{\frac{1}{W}\sum_{h=1}^{n}\sum_{i=1}^{n} w_{hi}(y_h - \bar{y})(y_i - \bar{y})}{\frac{1}{n}\sum_{i=1}^{n}(y_i - \bar{y})^2}$$

for $h \neq i$ (A5.5)

where:

$I(d)$ = Moran's I correlation coefficient as a function of distance

w_{hi} = a matrix of weighted values, where elements are a function of distance

1 = y_h and y_i are within a given distance class, for $y_h \neq y_i$

0 = all other cases

y_h, y_i = values of variables at locations h and I

[23] Econometric results for *Moran's I* statistics are available on request

W = sum of the values of the matrix w_{hi}

n = sample size

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