ABSTRACT

The study investigated the impact of transport costs on household income the case of Nkonkobe Local Municipality. The objective of the study was to establish the impact of transport costs on household income. To achieve the objective, the study hypothesized that transport costs have a negative impact of household income. The research design of the study that was used include research instrument, research technique, sample size, population and data analysis procedure. However the research instrument that was followed was the questionnaire which contains a set of questions whilst the research technique used to collect primary data was the self-administered questionnaire. The results of the study revealed that households in Nkonkobe Local Municipality were spending more of their income on transport. Finally, the study recommended that subsidies for poor households must be provided by the government.
DECLARATION

I, undersigned Sizwe Dlwangushe, hereby declare that this research report is a result of my work. It has not been submitted anywhere for any degree purposes or examinations in any other university. It is being submitted in partial fulfilment for the degree of Masters in Economics at University of Fort Hare, Alice Campus.

Signature……………………….                                     Date……………………..
ACKNOWLEDGEMENTS

I am extremely grateful to the following people for their support, advice and guidance throughout this research project. Without them all, my efforts would have been in vain.

- God who gave me grace to accept the things that can not be changed and courage to change things which should be changed.
- Secondly, to my supervisors Miss Palesa Makhetha for her guidance, assistance and patience on me.
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- I also wish to express my sincere appreciation to the National Department of Transport for financial support.
- To my mother for her love, support and guidance, and for being there for me. If it were not for her, I would not have gone this far. To Sisi Noma.
- To my fellow friends.
- The respondents who participated in this study.
DEDICATION

I dedicate this project to the Lord God Almighty. You are my rock and fortress; in you, I find strength and purpose to live.

To my loving mother Phangiwe Eslina Dlwangushe “Aah!!! Gcogco wavela ngendlebe ezikhamangeni”, who has influence to my life, for her love, guidance and support. I thank her for giving me the best endowment a parent could give a child, which is education.
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<th>Description</th>
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<td>ACEEE</td>
<td>American Council for an Energy-Efficiency Economy</td>
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<tr>
<td>BMR</td>
<td>Bureau of Market Research</td>
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<tr>
<td>DOT</td>
<td>Department of Transport</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
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<td>GHS</td>
<td>General Household Survey</td>
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<tr>
<td>GIS</td>
<td>Geographic Information System</td>
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<tr>
<td>GNI</td>
<td>Gross National Income</td>
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<tr>
<td>HBS</td>
<td>Household Budget Survey</td>
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<td>I</td>
<td>Investment</td>
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<td>IES</td>
<td>Income and Expenditure Survey</td>
</tr>
<tr>
<td>KM</td>
<td>Kilometer</td>
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<tr>
<td>MDCNEV</td>
<td>Multiple discrete continuous nested extreme value</td>
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<tr>
<td>NHTS</td>
<td>National Households Travel Survey</td>
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<tr>
<td>ONS</td>
<td>Office of National Statistics</td>
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<tr>
<td>R&amp;D</td>
<td>Redistribution and Development</td>
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<tr>
<td>RAC</td>
<td>Royal Automobile Club</td>
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<td>RAF</td>
<td>Road Accident Fund</td>
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<td>RSA</td>
<td>Republic of South Africa</td>
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<td>S</td>
<td>Saving</td>
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<td>SSA</td>
<td>Statistics South Africa</td>
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<td>US</td>
<td>United States</td>
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VISTA       Victorian integrated survey of travel and activity
CHAPTER 1

INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 Introduction

The South African economy is one of the most advanced economies in the African continent and it is amongst the largest economies in the continent with a population estimated around 46.200 million people in 2009 (Stats SA, 2008). It is a middle income country, with a fully developed basic infrastructure. The country’s economy has a well developed natural resources, transport sector, automotive industry, agriculture and financial service sector in the African continent and the country also have modern infrastructure supporting an efficient distribution of goods to major urban centres throughout the region. The mining, agriculture, automotive and transport sector are the most important contributors in both in the Provincial and South African economy as whole.

Mining is South Africa’s largest sector followed by manufacturing, agriculture, transport, chemicals and the others. The mining industry is the biggest employer, with around 460 000 employees and another 400 000 employed by the suppliers of goods and services to the industry. The mining industry contributed a lot in exports such that precious metals contributed (65%) to the country’s mineral export earnings and (21%) of total exports of goods in 2006. The country supplies about (80%) of the world’s platinum. South Africans mining industry is based in Gauteng where the most economic activity takes place and is also based in the Free State, Northern Cape and in North West provinces. Mining sector contributed (7.5%) to Gauteng GDP in 2001 and in 2007, the sector contributed R5.2billion to the Free State gross domestic product (GDP) and it is a major contributor to the economy of that Province. In the North West province, the mining sector contributed around (25.6%) to the economy at current prices for the year 2004. In the Northern Cape province, the sector contributed approximately (21.5%) to the GDP and in Limpopo it contributed (24.4%) in 2007 (Department of minerals and energy 2008).
The automotive industry is one of South Africa’s most important sectors, with a number of countries using South Africa to source components and assemble vehicles for both African and international markets. The automotive sector is the engine for the manufacture and export of vehicles and components. The industry employs around 36 000 people in the country. The sector accounts for about (10%) of South Africa's manufacturing exports, making it a crucial cog in the economy. But, locally, the automotive sector is massive, contributing about (7.5%) to the country's GDP of 2007. The automotive industry is in the Eastern Cape, Gauteng and KwaZulu Natal provinces where vehicles manufactures such as BMW, Volkswagen, Toyota, Ford, Nissan and Daimler-Chrysler have production plants in these provinces. The automotive industry is one of the major contributors to the Eastern Cape economy. However, according to the latest figures the industry contributed (7.1%) towards the country’s GDP. Gauteng was the highest contributor in 2007 with 33.5% to South African GDP while KwaZulu Natal contributed (16.2%) to the economy (Stats SA, 2008).

South Africa has a dual agricultural economy, with both well developed commercial farming and more subsistence based production in the deep rural areas. The contribution of this sector to the national GDP has declined from almost (5%) in the 1960s to slightly less than (3%) in 2008. The total employment in the sector in 2008 was about 1 300 000. The informal employment around the sector accounted for over (30%). Primary agriculture contributed about (2.6%) to South Africa’s GDP and almost (9%) of formal employment 2000. The Farming contributes (8%) to the country’s total exports (SSA 2008). The largest export groups are sugar, wine, ostrich products, pineapples, maize, grapes and others. The ostrich, wine and grapes are found in Western Cape while sugarcane farming is in KwaZulu Natal and pineapples in the Eastern Cape province and maize mostly found in the Free State province. South Africa is among the world’s top five exporters. In 2004, the Western Cape agricultural sector contributed more than (20%) of South Africa’s total production and in the same year, the Eastern Cape agriculture, forestry and fishing accounted for 2% only for gross provincial product (Department of Agriculture, 2004). In the Free State agricultural sector in 2009 contributed approximately (7%) to the provincial GDP, while (14%) of South Africa’s agricultural GDP was generated in that province currently, the KwaZulu Natal agriculture sector contributed approximately 4.5% of the provincial GDP. In 2007 agriculture contributed 3.1% to the Limpopo’s provincial GDP.
The transportation sector is another important contributor to South Africa’s economy and it also plays a vital role to the country’s proper functioning, providing mobility of people, goods and services. It enables people to access job markets and allows them to participate in recreational, cultural, educational and social activities. Transport also adds value to products by timeously moving them to their destination. This sector has a major impact on the activities of a country and its people. By creating mobility and accessibility, transport makes it possible for social, sport and economic activities to take place at specific times and places and for people to participate in them both domestically and internationally. The sector includes road transport, railway, water and air transport. South Africa's transportation infrastructure is among the best in Africa, supporting both domestic and regional needs. OR Tambo International Airport serves as a hub for flights to other Southern African and International countries. South Africa also has several major ports that make it the central point for most trade in the Southern African region. According to Stats SA (2006) the transport sector employed a total number of 235 444 workers in 2006. The transport sector is divided into two parts, that is private and public transport, and, it is present in all provinces. The contribution of transport sector is different among these provinces like other sectors, for example in Limpopo and the Northern Cape. In 2007, the transport sector contributed (6.7%) to the Limpopo provincial gross domestic product while in Northern Cape the transport sector contributed approximately (11.6%) to the provincial GDP.

Households transport costs in South Africa have over the recent past increased at rate more than any other household expenditure item (SSA, 2008). Transport energy from fuel, form a large component of the transport costs for both private car and public transport trips. For minibus taxis, for example, which carry the largest proportion of public transport trips, fuel costs can be as much as approximately (60%) of operating costs and it is consequently a large proportion of the fare paid by passengers (Letebele et al., 2009). The high transportation costs increase the overall cost of living and also increase the vulnerability of large numbers of households to poverty. Another factor that leads to increase in transportation costs is inflation. The transport expenditure in rural and urban households is different because rural communities have to travel long distances to reach public services and other services that they need in their lives. Thus this study will seek to investigate the impact of transport costs on household income in Nkonkobe Local Municipality of the Eastern Cape Province.
1.2 Statement of the Problem
The transport sector is the engine of the economy; such that the movement of people, goods and services is mostly done by the transportation system; any changes in the transport sector would affect the whole economy of the country. South Africa's transportation infrastructure is among the best in Africa, supporting both domestic and regional needs. OR Tambo International Airport serves as a hub for flights to other Southern African and International countries. South Africa also has several major ports that make it the central point for most trade in the Southern African region.

The studies that have been conducted before explored the transport costs on household expenditure in urban areas only and IES (2000) found that South African households spend close to (60%) on transport, housing and food in urban areas. In a province like the Eastern Cape which is dominated by rural areas and where the majority of households are below the poverty line, it means that when the transport costs change, the households’ total expenditure are affected. The SSA (2003) showed that among urban households, more than one in every five rand (20.8%) was used on transport. Households’ transport costs in South Africa have over the recent past increased at rate more than any other household expenditure item (SSA, 2008). This study will investigate the impact of transport costs on household income in the Eastern Cape Province focusing on the Nkonkobe Local Municipality.

1.3 Objective of the Study
The objective of the study is to investigate the impact of transport costs on household income in the Eastern Cape Province, in Nkonkobe Local Municipality.

1.4 Hypothesis of the Study
The hypothesis is that transport costs have a negative impact on household socio-economic welfare.
1.5 Justification of the Study
In the Eastern Cape, the impact of transport costs on household expenditure has not received adequate attention in the literature. Therefore, this motivates the desire to analyse the relationship between the two variables; transport costs and households income. However, in addition, this study will be an important tool of information for policy makers in the department of transport as it will assist them when they revise their policies in future. These policy makers need specific information on how the transportation costs affect household expenditure in studies that have been conducted in other countries. Therefore, by establishing the relationship between these variables, this study will help policy makers to develop effective policies. Furthermore, the study will provide a superior foundation of information for researchers, as the results will inform the argument on this subject. The study will also massively contribute to empirical literature on the impact of transportation costs on household income in the Nkonkobe Local Municipality in the Eastern Cape. As a result, this will also help to determine the overall wellbeing of transport to the Eastern Cape residents, both rural and urban households.

According to IES (2000), South Africans spend close to (60%) of total household expenditure on food, housing and transport and IES 2005/6 found that the proportion of household income spent on transport increase with household income. The expenditure on transport by rural household is lower than in urban households and this makes it appropriate to study the impact of transport costs on household income in the Nkonkobe Local Municipality.

1.6 Limitation of the Study
The study focuses on the impact of transportation costs on household income in the Eastern Cape Province, focusing on the Nkonkobe Local Municipality. One of the limitations that the study faces is that of the unavailability of the data. The other factor that can not be ignored is the willingness of the respondents to partake in the research. It depends on the households to reveal truthful perceptions toward the impact of transportation costs on their monthly expenditure.
1.6.1 Time frame
This study was between March 2010 and November 2011. This time frame enabled the researcher adequate time to do the research thoroughly.

1.7 Organisation of the Study

➢ CHAPTER ONE: AN INTRODUCTION OF THE STUDY
This chapter has covered the introduction to the study, it outlined the problem statement which is the foundation of the study. The significance of undertaking the study was highlighted. The background to the study as well as specific literature related to the study at hand was discussed. Furthermore, the statement of the problem, research objective, research hypotheses and research methodology were addressed in this chapter.

➢ CHAPTER TWO: OVERVIEW OF THE STUDY IN SOUTH AFRICA
The focus of this chapter is on the overview of transport cost on household income in South Africa and Eastern Cape province. This chapter will also highlight an economic overview of Eastern Cape and Nkonkobe Local Municipality. Furthermore, the contribution of the transport sector to the economy and challenges faced by the households on transport sector will be discussed.

➢ CHAPTER THREE: LITERATURE REVIEW OF THE STUDY
This chapter seeks to discuss both theoretical and empirical literature related to the impact of transport costs on households’ income.

➢ CHAPTER FOUR: RESEARCH METHODOLOGY
This chapter focuses on the study area, the study unit, the population, the organisation and design of the questionnaire, the methods of data collection and data analysis. The validity and reliability of the research instrument will be discussed as well.

➢ CHAPTER FIVE: ANALYSIS AND INTERPRETATION OF THE RESEARCH RESULTS
The analysis and interpretation of data will be presented in this chapter. The findings of the study will be analysed and compared with previous empirical studies.

➢ CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

This chapter will incorporate the conclusions on the findings of the study. Recommendations on how to improve the public transport system will also be discussed in this chapter. The limitations of the study will be outlined as well discussed. Finally, areas for further research in relation to households will be highlighted.
CHAPTER 2

OVERVIEW OF AN IMPACT OF TRANSPORT COST ON HOUSEHOLD INCOME
“A CASE OF NKONKOBE LOCAL MUNICIPALITY”

2.1 Introduction
The expenditure of South African households’ is determined by their various earnings and the environment or area in which they leave. These households spend their income on basic and non-basic items such as education, food, clothing, health and transport, which are important items in order for them to survive. However, the household spending increased by (5.7%) in the first quarter of 2010, compared to a (1.6%) rise in the fourth quarter of 2009 (South African Reserve Bank quarterly bulletin 2011). Masemola (2008) found that household expenditure on food has the highest expenditure of (23%) followed by housing and electricity by (14.7%) on housing and electricity, (10.7%) on income tax and the rest was spent on an assortment of items such as transport, medical and dental services, communication, furniture and household equipment. Household expenditure appears to have been positively influenced by several factors, including acceleration in the growth rate of real disposable income, the reduced cost of credit as a result of lower interest rates, relatively low inflation, rising confidence levels, and an improvement in households net wealth as the prices of real estate and other assets continued to rise. Transport sector is an important tool for the economic growth for all the nine provinces in South Africa and the entire country. Transport facilitates economic growth and trade by connecting producers, suppliers and markets. The transport sector includes road transport, railway, sea and air transport. According to Statis SA (2006), the transport sector employed a total number of 235 444 workers in 2006. Road transportation employed the largest number of workers (63 514 or 27%), followed by railway transport (41 581 or 17.6%); other supporting transport activities employed 31 791 (13.5 %).

However, household transport costs in South Africa have increased at a rate more than any other household expenditure item (Stats SA, 2008). The transport costs are formed by the components such as transport energy from fuel, toll gates and fares; and, this forms a large component of the transport costs for both private car and public transport trips. For minibus taxis, for example, which carry the largest proportion of public transport trips, fuel costs can
be as much as (60%) of the operating costs, as well as a large proportion of the fares paid by passengers (Letebele et al., 2009). In South Africa household transportation is among the more rapidly growing energy uses, such that fuels in transportation are often taxed at much higher rates than in other sectors. Policies directed toward energy use and environmental control generally treat the transportation and automobile energy efficiency differently than other uses, and substitution toward or away from automobile use in response to price and policy changes at the first level is likely to be toward purchased transportation. (Paltsev et al., 2004).

The South African households are consuming both own-supplied (i.e. private cars) and purchased transport. The purchased transport comes from the industry transportation such as air travel, water travel, rail services and trucks. Own-supplied transport services are provided using inputs from the other industries products or services (e.g maintenance, insurance, tyres, oil change and refined oil).

### 2.2 Rural and Urban Transport in South Africa

Households are categorised by two areas: rural and urban areas. Urban households are much more reliant and make more use of general services; hence, they spend a greater proportion of their income on this expenditure type. Since many urban households either make use of extensive public transport networks in urban areas, or they own vehicles, it is also not surprising to see that urban households spend a greater proportion of their income on transport. However, (the difference) is not large, probably due to the fact that rural households often need to travel further, although not as frequently, as their urban counterparts (Kalie et al., 1995). Urban households spend an average of (4.%) on housing, compared to the (6.2%) of rural households. This in an interesting observation, as one may expect urban housing to be more expensive than rural housing. A large proportion of urban dwellers live in cheaper forms of housing such as sectional title properties or even informal settlements. This, coupled with the fact that urban incomes are typically higher, explains the result.
Figure 2.1: PROPORTION OF TOTAL HOUSEHOLD EXPENDITURE ON TRANSPORT BY SETTLEMENT IN SOUTH AFRICA.

Source: IES of household 2005/06: Statistical Release

Approximately (20.8%) of urban households spend a large portion of the income on transport. However, (15.3%) of rural households spend their income on transport whilst (19.9%) was the total. The results in the Figure 2.1 above show that urban households are better than rural households because urban households are very close to the employment opportunities as compared to rural households.

2.3 Different Transport Modes used by Households in South Africa

The transport modes which are commonly used by households in all provinces will be discussed in Table 2.1 below; these modes include train, bus, minibus taxi, bakkie taxi and private car.
Table 2.1: TRANSPORT MODES THAT ARE COMMONLY USED BY ALL HOUSEHOLDS MEMBERS BY PROVINCE IN SOUTH AFRICA.

<table>
<thead>
<tr>
<th>Province</th>
<th>Train</th>
<th>Bus</th>
<th>Minibus taxi</th>
<th>Bakkie taxi</th>
<th>Car</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Cape</td>
<td>7.6</td>
<td>4.6</td>
<td>19.6</td>
<td>1.2</td>
<td>29.9</td>
</tr>
<tr>
<td>Eastern Cape</td>
<td>0.7</td>
<td>3.3</td>
<td>15.9</td>
<td>4.9</td>
<td>8.6</td>
</tr>
<tr>
<td>Northern Cape</td>
<td>0.3</td>
<td>2.2</td>
<td>12.7</td>
<td>0.9</td>
<td>16.1</td>
</tr>
<tr>
<td>Free State</td>
<td>0.2</td>
<td>3.3</td>
<td>22.5</td>
<td>0.6</td>
<td>12.6</td>
</tr>
<tr>
<td>KwaZulu Natal</td>
<td>1.1</td>
<td>8.7</td>
<td>20.5</td>
<td>2.8</td>
<td>11.2</td>
</tr>
<tr>
<td>North West</td>
<td>1.1</td>
<td>6.7</td>
<td>22.7</td>
<td>0.7</td>
<td>11.9</td>
</tr>
<tr>
<td>Gauteng</td>
<td>5.7</td>
<td>3.7</td>
<td>31.8</td>
<td>1.1</td>
<td>25.0</td>
</tr>
<tr>
<td>Mpumalanga</td>
<td>0.2</td>
<td>8.1</td>
<td>19.7</td>
<td>1.1</td>
<td>11.8</td>
</tr>
<tr>
<td>Limpopo</td>
<td>0.1</td>
<td>5.6</td>
<td>17.7</td>
<td>0.7</td>
<td>7.7</td>
</tr>
<tr>
<td>RSA</td>
<td>2.3</td>
<td>5.5</td>
<td>21.7</td>
<td>1.9</td>
<td>15.3</td>
</tr>
</tbody>
</table>

Source: Department of Transport 2003

Gauteng has the highest percentage (31.8%) of households using minibus-taxi; it was the mode of transport that was always available to the households of this province and this also shows that the minibus-taxi mode of transport is in demand because it took the biggest percentage than all other modes of transport. However, the lowest percentage (12.7%) of households’ members was found in the Northern Cape who commonly used a minibus-taxi by the year 2003. Approximately (29.9%) of all household members in the Western Cape commonly used a motor car in the seven days of the week. The lowest incidence of motor car use was in the provinces with more rural settlements, particularly Limpopo and Eastern Cape, where less than (10%) of the population mainly used their own car. Trains and buses were the other two modes which were significantly used in the year of survey. Train and bus usage was high in the urban areas, but the use of buses was also momentous in the rural areas with (6%) of the people using a bus during the week. The provinces with the highest use of bus
services by household members were KwaZulu-Natal (9%), Mpumalanga (8%), North West Province (7%) and Limpopo (5.6%); and, the lowest usage of buses is in the Northern Cape with only (2.2%) of household members. Whilst the bakkie is commonly used by household members in the Eastern Cape with (4.9%), being the highest percentage use in the province followed by KwaZulu-Natal (2.8%). The Eastern Cape Province is dominated by rural areas and road infrastructure is still a major problem since the bakkies were the mode of transport that were commonly used. This indicated that the people in this province were not safe because the bakkies are old.

2.4 Monthly Cost of Public Transport by Province and Settlement area
These monthly costs of public transport are outlined in Table 2.2 below.
Table 2.2: MONTHLY COST OF PUBLIC TRANSPORT TRAVEL TO WORK BY PROVINCE AND SETTLEMENT AREA SOUTH AFRICA.

<table>
<thead>
<tr>
<th>Province</th>
<th>Nothing</th>
<th>R1-R100</th>
<th>R101-R200</th>
<th>R201-R300</th>
<th>&gt;R300</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Cape</td>
<td>0.9</td>
<td>24.0</td>
<td>44.6</td>
<td>18.4</td>
<td>12.1</td>
<td>574 000</td>
</tr>
<tr>
<td>Eastern Cape</td>
<td>1.5</td>
<td>15.7</td>
<td>47.2</td>
<td>19.9</td>
<td>15.6</td>
<td>281 000</td>
</tr>
<tr>
<td>Northern Cape</td>
<td>10.9</td>
<td>13.7</td>
<td>61.2</td>
<td>8.5</td>
<td>5.7</td>
<td>28 000</td>
</tr>
<tr>
<td>Free State</td>
<td>1.6</td>
<td>14.5</td>
<td>56.8</td>
<td>20.1</td>
<td>7.1</td>
<td>182 000</td>
</tr>
<tr>
<td>KwaZulu Natal</td>
<td>0.9</td>
<td>15.5</td>
<td>47.5</td>
<td>22.7</td>
<td>13.4</td>
<td>768 000</td>
</tr>
<tr>
<td>North West</td>
<td>3.0</td>
<td>11.4</td>
<td>37.8</td>
<td>22.6</td>
<td>25.2</td>
<td>352 000</td>
</tr>
<tr>
<td>Gauteng</td>
<td>3.6</td>
<td>12.8</td>
<td>35.2</td>
<td>23.9</td>
<td>24.4</td>
<td>1 360 000</td>
</tr>
<tr>
<td>Mpumalanga</td>
<td>4.2</td>
<td>7.8</td>
<td>52.6</td>
<td>14.5</td>
<td>20.8</td>
<td>225 000</td>
</tr>
<tr>
<td>Limpopo</td>
<td>2.3</td>
<td>19.0</td>
<td>49.7</td>
<td>16.3</td>
<td>12.8</td>
<td>184 000</td>
</tr>
<tr>
<td>RSA</td>
<td>2.4</td>
<td>15.2</td>
<td>42.8</td>
<td>21.3</td>
<td>18.3</td>
<td>3 954 000</td>
</tr>
<tr>
<td>Metro Area</td>
<td>0.7</td>
<td>15.7</td>
<td>38.3</td>
<td>23.6</td>
<td>21.6</td>
<td>2 289 000</td>
</tr>
<tr>
<td>Urban</td>
<td>5.8</td>
<td>13.7</td>
<td>50.5</td>
<td>18.0</td>
<td>12.0</td>
<td>1 081 000</td>
</tr>
<tr>
<td>Rural</td>
<td>2.9</td>
<td>16.0</td>
<td>46.5</td>
<td>18.2</td>
<td>16.4</td>
<td>584 000</td>
</tr>
</tbody>
</table>

Source: NHTS 2003

In South Africa, a highest percentage (42.8%) of the households had monthly costs of public transport ranging from R101 to R200. Following was (21%) of workers who spent between R201 and R300 per month on public transport. However, (18.3%) of South African workers spent an amount of money that was more than R300 per month on transport per month; thus transport is one of highest expenses. However, (15.2%) of workers spent between R1 and R100 when they were travelling to work while (2.4%) of workers spent nothing on public transport. The monthly expenditure on public transport was different between areas such as
the metropolitan area, urban and rural areas. In the urban areas, more than half (50.5%) of the workers spent R101 to R200 monthly on public transport for their trips to work. On the other hand, (21.6%) of workers in the metropolitan areas spent more than R300 per month on public transport whilst in the rural areas, (16.4%) of workers spent more than R300 a month on public transport. Table 2.3 illustrates that public transport is in demand by the workers everywhere in South Africa.

2.5 Public, Private and Non-Motorised Transportation System by Province and Settlement type South Africa.

The usage of public, private and non-motorised transport is different among the nine South African provinces which are discussed in Table 2.3 below.

Table 2.3: PUBLIC, PRIVATE AND NON-MOTORISED MARKET SHARES FOR WORK TRIPS BY PROVINCE AND SETTLEMENT TYPE SOUTH AFRICA.

<table>
<thead>
<tr>
<th>Province</th>
<th>Public Transport</th>
<th>Private Transport</th>
<th>Non-motorised transport</th>
</tr>
</thead>
<tbody>
<tr>
<td>Western Cape</td>
<td>36.0</td>
<td>42.5</td>
<td>45.9</td>
</tr>
<tr>
<td>Eastern Cape</td>
<td>35.3</td>
<td>31.7</td>
<td>57.7</td>
</tr>
<tr>
<td>Northern Cape</td>
<td>14.6</td>
<td>39.2</td>
<td>27.1</td>
</tr>
<tr>
<td>Free State</td>
<td>28.9</td>
<td>28.0</td>
<td>50.7</td>
</tr>
<tr>
<td>KwaZulu Natal</td>
<td>47.4</td>
<td>34.3</td>
<td>58.0</td>
</tr>
<tr>
<td>North West</td>
<td>42.0</td>
<td>31.3</td>
<td>57.3</td>
</tr>
<tr>
<td>Gauteng</td>
<td>46.5</td>
<td>41.6</td>
<td>52.8</td>
</tr>
<tr>
<td>Mpumalanga</td>
<td>34.1</td>
<td>32.8</td>
<td>51.0</td>
</tr>
<tr>
<td>Limpopo</td>
<td>26.2</td>
<td>24.2</td>
<td>52.0</td>
</tr>
<tr>
<td>RSA</td>
<td><strong>39.7</strong></td>
<td><strong>36.2</strong></td>
<td><strong>52.3</strong></td>
</tr>
<tr>
<td>Metropolitan</td>
<td>49.1</td>
<td>41.7</td>
<td>54.1</td>
</tr>
<tr>
<td>Urban</td>
<td>34.9</td>
<td>39.5</td>
<td>46.9</td>
</tr>
<tr>
<td>Rural</td>
<td>26.6</td>
<td>19.9</td>
<td>57.2</td>
</tr>
</tbody>
</table>

Source: Stats SA 2003
More than half (52.3%) of workers in South Africa used non-motorised mode of transport when they were going to work and it is also noted that even in metropolitan areas, it constituted (54.1%) of households who also use non-motorised mode of transport. Following were (39.7%) of South African workers who used public transport for travelling to work; however, equivalently (49.1%) of households in metropolitan areas also used public transport. The smallest percentage (36.2%) of workers in South Africa was using private transport for travelling to work while in metropolitan areas, (41.7%) of workers used private transport. The rural areas had the highest percentage (57.2%) of work trips. It is clear that rural households are poor and their types of professions indicate that they are low income earners.

2.6 An overview of the Eastern Cape Province
The Eastern Cape is a province dominated by rural areas and it is also the poorest province in South Africa, in terms of the average monthly expenditure, followed by the Free State and the Northern Cape Province (Stats SA., 2001), however the province has a high quality agricultural system and a notable tourist industry. The Eastern Cape province has different industries that contribute to the economy such as IDZ which plays an important role in South Africa’s macroeconomic policy, the manufacturing sector which includes automotive, plastics, textiles and metal industries. The automotive industry provides approximately (60%) of South Africa’s car passenger exports. Volkswagen, Daimler Chrysler and Delta Corporation are the largest international vehicles assemblers based in the Eastern Cape (ECSECC., 2000). Also the province is the second largest province in South Africa in terms of population. According to Census 2001, the Eastern Cape province had a population of 8.6 million people living in 1,506,540 households. However, it is divided into six district municipalities and one metropolitan area which are OR Tambo, Amathole, Alfred Nzo, Chris Hani, UKhahlamba and Cacadu while Nelson Mandela District is the metropolitan. The Amathole district is divided into many local municipalities which include Nkonkobe Local Municipality.

The Eastern Cape province faces a number of challenges such as underdevelopment, high unemployment, high poverty levels and a skewed economic structure. The province has
more than (60%) rural; yet it is driven by the tertiary sector, with a total contribution of more than (70%) to the economy (www.dedea.gov.za).

2.7 An overview of Nkonkobe Municipality

Nkonkobe Municipality is situated in the Eastern Cape province in the Amathole District, bordering the Nxuba and Amahlathi Municipalities to the east and west respectively. The Nkonkobe Local Municipality predominantly has a rural population with only 20% living in Alice and Fort Beaufort towns. The Nkonkobe Local Municipality has an estimated population of 160 311; some of them reside on farms and scattered settlements. The majority of people in this area reside in rural villages. However, (19%) of the population resides in the urban areas of Alice and Fort Beaufort. Therefore, the ratio of the municipality between rural: urban made approximately 4:1 (Census., 2001). The socio-economic profile of Nkonkobe Municipality will be discussed in the next section.

An initial review of economic activity will enable the understanding of the structure of the Nkonkobe economy, the processes which links different parts of the economy, and why the economy has developed in the way it has (ECSECC., 2000).

2.8 The socio-economic profile of Nkonkobe Municipality

The socio-economic profile of the Nkonkobe Municipality reflects the historical legacy of the apartheid system. The Nkonkobe Municipality area is characterised by high levels of unemployment. However, the education system of the municipality clearly indicates the framework of the apartheid era in which black people were confined to the lowest levels of the education system. The sparse distribution of the population across the landscape also necessitates the installation of physical infrastructure to ensure effective delivery of social and other services (ECSECC., 2000). According to the 2001 Census, the Nkonkobe Municipality area is predominantly rural. The 2001 Census also revealed that (76%) of the population was located in rural area. Additionally, the municipality area is predominantly African in terms of racial composition accounting for (96%) with coloured and whites sharing only (4%) of the population between the two race.
2.9 Review of indicators of economic activity in Nkonkobe Municipality

In reviewing the economic activity in this area, it was highlighted that there were different impacts of apartheid across the district, as well as the importance of the University of Fort Hare and other public institutions to the economy. Overall, there are low levels of employment and many households are being sustained by allowances, in each household, the income comes from a single wage earner and various small-scale activities. However, of those who are employed, the largest proportion is in public services, led by education and health. So, this reflects the higher levels of income and development indicators in Alice area. The dependence on income from the public sector industry results from the limited productive base of the local economy. This was based on commercial agriculture, forestry and to a lesser extent tourism, in which much of it is focused around Hogsback and Fort Beaufort areas. While revenues were generated in these areas, the allocation of land for large-scale commercial farming or forestry under the apartheid government has not supported broad-based employment generation and incomes of the majority were very low despite the commercial activity (ECSECC., 2000).

In the Nkonkobe Local Municipality, the poverty levels seemed to be highest in Seymour and Middle drift areas. However, these areas are composed of dispersed villages which neither have a strong productive base given relatively poor land, nor the high levels of public sector employment which come from institutions such as the University of Fort Hare. There are, however, a range of economic activities taking place, including small-scale vegetable and poultry farming and clothing manufacturing, many of which have not relied on donation funding. The improvement of infrastructure increased the viability of these activities.

2.10 Contribution of different sectors to GDP of Nkonkobe Local Municipality

The contribution of different sectors to the Nkonkobe Local Municipality GDP are portrayed in Figure 2.2 below.
Figure 2.2: Contribution of different sectors to the GDP of Nkonkobe Local Municipality

Source: Treasury 2009/10

The Nkonkobe Municipality was largely depended on community services as it was the most contributed sector within the municipality’s economy. More than half (59%) of the community services contributed to the Nkonkobe Municipality’s economic growth. It was surprising that agriculture only contributed (3%) to the economy. On the other hand, manufacturing and trade had an equal contribution to the economy which constitutes (9%). However, the transport sector contributed only (2%) to the economic growth. In this area, the transport use and employment rates in the transport sector are presented in Figure 2.2. It is risky for the Nkonkobe Municipality’s economy to depend on government services as these services are not characterised by growth in profit. The agriculture and manufacturing sectors need to be encouraged because they can potentially develop the economy and also create more jobs.
2.11 Economically active population (EAP) in Nkonkobe Municipality
The Nkonkobe Municipality has 25 660 economically active people as per the official definition (Global Insight, 2009). This represents (22.6%) of the total population. Figure 2.3 portrays the economically active population.

**Figure 2.3: Economically active population**

Source: Global Insight 2009

Figure 2.3 above illustrates the rates of people of who are economically active in the Nkonkobe Municipality. Apparently, the rates increase every year but in 2009, they decreased from (23%) of 2008 to (22.6%) 2009.

2.12 Employment by sector in Nkonkobe Local Municipality
The sectors employment rates are outlined in Figure 2.4 below
Figure 2.4: Employment by sector in Nkonkobe Municipality: in 2008

Source: Treasury 2009/10

Figure 2.4 indicates that the community services contributed (53.11%) to the employment rates, more than any other sector, this can be attributed to community initiatives such as poultry projects, meals and vegetable projects. This sector was followed by trade which contributed (13.4%) to employment. Agriculture was the third largest contributor to employment and it constituted (9.96%) in the Nkonkobe Municipality. However, the transport sector only contributed (3.04%) to employment; this may be a result of lack of other modes of transport, for example the rail system.

2.13 Unemployment rate in Nkonkobe Municipality

The Nkonkobe Municipality still experiences high levels of unemployment. According to the official definition of unemployment, there were 14 766 unemployed people in the municipality (Global Insight, 2009).
Figure 2.5: Unemployment trends in Nkonkobe Municipality from 2005-2009

Source: Global Insight (2009)

The unemployment rate in the Nkonkobe Municipality is high and it is still a challenge for the local government and the Eastern Cape Province because since 2005, the unemployment rate has been more than 50%, and in 2005 it was at (61%); the margin remains less than (3%) at each subsequent year. Approximately (57.5%) of people who were still without jobs by 2009. This may be because the area is dominated by the rural areas.
2.14 GDP growth rate of the Eastern Cape province
The GDP growth rate of the province fluctuates; these changes are presented in Figure 2.6.

Figure 2.6: Eastern Cape GDP growth rate (2008-2011)

[Graph showing Eastern Cape GDP growth rate from 2008 to 2011 with values: 2.7, -2.4, 1.6, 3.5]

Source: Department of Economic Development, Environment Affairs 2011

The growth rate of the Eastern Cape province was severely affected by the global financial crisis of 2007/08, where the GDP rate changed to (-2.4%) by the year 2009. However, it increased to (1.6%) in 2010, and in 2011, the GDP growth rate was (3.5%) which was positive for the economic growth of the entire province.

2.15 GDP growth rate of the Nkonkobe Local Municipality
The GDP growth rate is illustrated in Figure 2.7.
According to Global Insight (2009), from 1997 to 2009 the GDP growth rate was fluctuating. In 1997, the GDP growth rate was (4%), the following year it drastically dropped by almost (2.5%); thus, the rate was at (1.5%) in 1998. During the recession of 2007 to 2008, the Nkonkobe Municipality’s economy reached its lowest of (-2.3%) in 2009.
2.16 Summary

This chapter examined the transport sector and its relationship to households. The contribution of transport sector to the gross domestic product of Nkonkobe Local Municipality and the role that it plays to South African households were also discussed. It is apparent that the transport sector plays a vital role in reducing the unemployment rate in South Africa since it has high labour absorption capacity. The unemployment rate trends of Nkonkobe Local Municipality were also discussed in this chapter. The appalling road infrastructure in certain areas is a challenge and it leads to the operation of unsafe transport modes such as old bakkies and buses.

The following this chapter is chapter 3 that review theoretical and empirical literature.
CHAPTER 3

LITERATURE REVIEW

3.1 Introduction
The aim of this chapter is to review literature on the impact of transport costs in household income in the Nkonkobe Local Municipality. The transportation system is the engine of economic growth. The role it plays within the economy is of greater importance. The first part of the chapter focuses on the theoretical framework of households’ expenditure on transport. The theories reviewed in this chapter are Keynesian theory of income and employment, neoclassical Solow’s growth theory and the endogenous growth theory; these theories underpin the study. Furthermore, the chapter also reviews empirical literature which discusses the different studies that were conducted before.

3.2 Theoretical literature review

3.2.1 Keynesian theory of income and employment
The Keynesian theory of income and employment was developed by John Maynard Keynes in the 1930s (Edmund., 2011). It was a short period where the stocks of capital techniques of production, efficiency of labor, size of population have been assumed to remain constant and the amount of employment depends upon the level of national income and output. Given the amount of capital, technology and labor efficiency increase in income and output can be obtained by employment of more labor. The issue of unemployment is caused by lack of effective demand/ deficiency of outlay on consumption and investment function. The level of income and employment at any given time depends on the effective aggregate demand. The Keynesian theory argues that government intervention is required at the time of depression where the level of income, employment and output was at the lower level, which lead to a lack of aggregate demand.

However, the consumption function forms a vital part of Keynesian analysis. According to the theory, effective demand depends on consumption and investment in the economy and expenditure is one of the important determinants of level of employment. Keynes emphasises
that consumption depends on two factors size of income and propensity to consume. The amount of income which is spent on consumption out of given total income is known as propensity to consume. Propensity to consume expresses a relationship between income and consumption. When income increases, consumption also increases, although not as much as income increases, a part of income is likely to be saved. So consumption will be less than income. An individual or family will spend 70% - 80% of the income and the rest may be saved. The propensity to consume depends on various factors such as price level, interest rate, stock of wealth and several subjective factors remain constant. Thus, the Keynesian consumption function depends on level of income. According to this theory, household expenditure depends on the level of income that they get. However, the theory holds that when household’s or individual income increases, it also results to an increase on transport expenditure. The theory also states that the household transport expenditure depends on the income they have and also the household employment status. An exposition of the challenges faced by the Nkonkobe Local Municipality residents regarding the transport sector will discussed.

3.2.2 Neoclassical growth theory

The basic neoclassical growth model was originally developed by Robert Solow and Trevor Swan in 1956. It is well-known particularly for its use of the production function. The model assumes that, first, the labor force growth is constant; secondly, all saving is invested, that is, saving (S), investment (I) and the propensity to save (sY), are all equal and thirdly output, Y, is determined by the interaction of capital and labor, that is \( Y = F(K, L) \). The production function \( Y = F(K, L) \) exhibits constant returns to scale and diminishing returns to the variable factor, in the event of other factors being held constant (Mankiw, 2003).

The key to economic growth in both stages of development and structural change theories centers on the relationship between income and investment in capital. The first group of models that attempted to formalise the income investment relationship is known as the Harrod-Domar Models (Hamberg 1971). In this model, capital accumulation clearly becomes the explicit force of economic growth. As income and profit grow, some portion of them is set aside in the form of savings. These savings are not removed from the economy; rather they save as a pool of funds to used finance investments. These investments fuel the
accumulation of new capital. While the models do not speak directly to financial institutions they perform the critical function of bringing about the equality of savings and investment. The theory argues that the saving rate is greater than the population growth rate, then capital per worker will increase. The neoclassical growth model postulates that the increase in transportation costs affect the household’s saving rate negatively. Households that fall within lower income deciles will be more in affected their consumption expenditure towards transport than households in the upper income deciles. As the transportation costs rise, household budgets are increasingly drawn because transport is one of the important items for household budget. Unfortunately, the nature of public investment and development patterns has created households where they have little choice but to rely on private cars and trucks to reach work, stores, doctors’ offices and other daily households’ tasks.

3.2.3 Endogenous growth theory
The endogenous growth theory postulates that economic growth is generated by factors within the production process, for example, increasing returns or induced technological change that is studied as part of a growth model (Blanchard, 1989). The mixed performance of neoclassical theories in the sources of long-term economic growth has led to dissatisfaction with traditional growth theory. According to traditional theory, there is no intrinsic characteristic of economies that causes them to grow over extended periods of time. The literature is instead concerned with the dynamic process with the through which capital labour ratios approach long term equilibrium levels. In the absence of external shocks, all economies will converge to zero growth; hence, rising per capita GNI is considered a temporary phenomenon resulting from a change in technology or a short-term equilibrating process in which an economy approaches its long-run equilibrium and the theory stipulated that any increase in GNI that cannot be attributed to short-term adjustments in stocks of either labour or capital is ascribed to concept of Solow residual which refers to the proportion of long-term economic growth not explained by growth in labour or capital and therefore assigned primarily to exogenous technological change. This residual is responsible for 50% of historical growth in the industrialised nations.

According to neoclassical theory, the low capital-labour ratios of developing countries promise exceptionally high rates of return on investment. The free-market reforms impressed on highly indebted countries by World Bank and International Monetary Fund (IMF) should
therefore have prompted higher investment, rising productivity and improved standards of living. Yet even after liberalisation of trade and domestic markets, many developing countries experienced little or no growth and failed to attract new foreign investment or to stop the progress of the flight of domestic capital. The frequent behaviour of developing world capital flows from poor to rich nations helped provide the motion for the development of the concept of endogenous growth theory (Solow, 1956). Endogenous growth theorists seek to explain the factors that determine the size of λ, which is the rate of growth of GDP that is left unexplained and exogenously determined in the Solow neoclassical growth equation namely the Solow residual. A useful way to contrast the endogenous growth theory with neoclassical theory is to recognise that many endogenous growth theories can be expressed by the simple equation as in the Harrod-Domar model:

\[ Y = AK \]

In this formulation, \( A \) represents any factor that affects technology and \( K \) again includes both physical and human capital, in this relationship there are no diminishing returns to capital and the possibility exists that investments in physical and human capital can generate external economies and productivity improvements that exceed private gains by an amount sufficient to offset diminishing returns. The net result is sustained long term growth which is prohibited by traditional neoclassical growth theory, thus even though endogenous growth emphasises the importance of savings and human capital for achieving, it also leads to several implications for growth that are in direct conflict with traditional theory. Firstly, there is no force leading to the equilibration of growth rates across closed economies, national growth rates remains constant and differ across countries depending on national saving rates and technology levels. Furthermore, there is no tendency for per capita income levels in capital poor countries to catch up with those in rich countries with similar savings and population growth rates. A serious consequence of these facts is that a temporary or prolonged recession in one country can lead to a permanent increase in the income gap between itself and wealthier countries (Stern, 1991:153). The theory holds that the government’s investment in human capital can enable the majority of households to overcome the challenges that they face with regards to transport sector and in other aspects that will ensure better life for households. The subsequent section discusses the empirical literature review of the study.
3.3 Empirical literature review

This section reviews the empirical evidence on the impact of transport costs in household expenditure. In this section few studies are going to be introduced since the number of these studies will be discussed in the literature chapter.

RAC Foundation (2008) studied the cost of transport and its impact on UK households. An analysis of ONS (2007) Family Spending Report was used in the study. In this research it has been found that (14%) of household income is spent on transportation costs; they (households) spend (79%) on their motoring whilst (4%) of their weekly expenditure is spent on fuel purchasing. The rural households spend (20%) more on transportation travelling as compared to those who live in urban areas.

Anyango (1997) studied the comparative transport cost analysis in East Africa using the survey method to collect the information in Kenya, Uganda and Tanzania. The study identified that the transportation costs in the region were exceptionally high and detrimental to economic development; however, Kenya residents experienced poor road conditions which lead to high transport cost in the country. In Tanzania, the development of roads, maintenance and rehabilitation were the serious challenges which cause high transport costs; meanwhile, in Uganda, due to high transport costs, residents use the bicycle transport which is dominant in the rural area with long distance gravel road.

The Centre for Neighbourhood Technology (2000) studied the housing and transportation costs as a percentage of household budgets in Seattle metropolitan area. The primary data source was the 2000 CES of Bureau of Labour Statistics analysed in this study. The findings of the study show that (52.9%) of income was spent by all households on housing and transportation costs, on average in the Seattle metropolitan area. The study shows the number of people who need transport.

Haas et al., (2006) studied the housing and transportation costs trade offs and burdens of workings households in 28 metropolitan areas of the U.S. The survey method was employed with a sample of 29,607. The findings of the study indicate that households are spending more on transport and housing needs. The results also indicate that a number of factors cause high housing and transportation costs, and it is the regions where there are either a few factors at the extreme high end of costs or a number of factors at the medium level, which both add up to total high costs for working families.
Guo et al., (2010) researched the impact of transportation external cost pricing and transit fare reductions on household mode/route choice in Taiwan. A household mode/route choice model and a bilevel model for transportation external cost pricing and transit fare reductions were used in this study. In the bilevel model, the pricing of transportation external costs, were including congestion, air pollution, and noise were measured by applying the theory of marginal-cost pricing. The analytical results reveal that; after the implementation of external cost pricing and taxation, some commuting households turn to choose the rail transportation system because it is cheaper as compared to other modes of transport in Taiwan; and some commuting households may detour to more distant transit stations to avoid high congestion links on surface streets.

Raballand et al., (2008) studied the transport costs and prices in Sub-Saharan Africa: The Southern African case, with the following countries studied Burkina Faso, Ghana, Chad, Cameroon, Kenya, Uganda, Zambia, South Africa and Mozambique. This study employed a review of studies about transport prices and costs in Africa and also in South Asia and Latin America and; trucking surveys and field studies in four regions to check data from the surveys. In South Africa, the transport fares for Johannesburg-Durban are cheaper than in the rest of Africa and also the international transport in Southern Africa is the least expensive in Africa on long distances.

Moore (2010) explores the impact of transportation costs on affordable housing the case of North Carolina. In this study, two types of analysis were used; statistical analysis and the Quantum GIS software. The findings of the study indicate that affordable housing coincides with increased transportation costs in major metropolitan areas. The study also shows that the middle households in North Carolina cannot afford other basic needs due to high transportation costs.

Jakob et al., (2006) conducted a research on transport cost analysis: a case study of the total costs of private and public transport in Auckland, New Zealand. A survey method was employed in this study for the year 2006. Jakob assessed the external and internal cost of transport. The study also focused on estimating the total cost of both private and public transport. In this study, it was noted that the external costs were significant and the private transport generated 28 times more external cost than public transport. The internal cost
assessment showed that total revenues collected did not even cover (50%) of the total transport cost. The research also shows that not only the external costs of vehicle transport are high, but that contrary to popular belief that the total costs of private transport are subsidised by public transport users.

Gkagka et al., (2008) explores the transportation costs and final prices: a case study of fuels in Greece. The cross-sectional data was employed in this study in 53 major cities of Greece. The results in the study illustrate the highly significant positive effect of distance (transportation costs) on the prices of all types of fuel used by households. Secondly, in this study, it is noted that there is a positive effect of per capita GDP in the area where the filling station is located, at least for the fuels used in cars. Lastly it has been noted that transportation costs have a negative effect on household income when the prices of fuel increase.

Zegras et al., (1997) conducted a research on an analysis of the full costs and impacts of transportation in Santiago de Chile comparing poor and wealthier households. Estraus was developed as a travel forecasting model specifically for the city of Santiago. The findings of the study were that transportation expenditures vary depending on household income levels. The estimates suggest that private automobile transport ranges from less than (0.5%) of household expenditure for the poorest fifth population to nearly (15%) for the wealthiest fifth, with an overall average of almost (9%). An average of (6.8%) of household spending goes to public transport, ranging from (13.5%) in the poorest households to (3.6%) in the wealthiest.

Adams et al., (2009) explores the housing and transportation cost study in Portland. The questionnaire method was used to collect the data from households. The findings of the study indicate that small proportion of household income for housing and transportation was estimated at about (32%), for small areas the eastside and the southern part of downtown Portland, and the study also concluded that lower income groups in rental multi-family market tend to spend higher proportions of their income on transportation and housing costs when they are combined such that lowest income household in rental multi-family faces a highest combined housing and transportation cost burden in all demographic groups, averaging (79%) region wide, while the higher income group requiring a relatively lower proportions of their household income committed to housing and transportation.
ACEEE (1992) contends that the costs of auto transportation are high and subsidised by non-drivers. The survey method was employed in this study. The finding of the study was that total transportation related costs average more than $10,500 per household annually. These costs include private automobile ownership and maintenance expenses as well as the cost of roads, accidents, pollution, and congestion. Over 98% of this total results from the use of cars and light trucks. ACEEE notes that many costs of driving are born by all households, whether or not or how little they drive.

Soberman et al., (1999) examines the potential impact of full cost pricing on the sustainability of urban transport, using Toronto as a case study. The survey method was employed in this study. The analysis deals with the direct effect of mode choice and vehicle utilisation resulting from increased user costs which were achieved through fuel taxes or road pricing, as well as the indirect, longer term effects on location decisions. The analysis suggests that, overall, the impacts of large in road user costs appear to be less than proponents of full cost pricing would expect. In addition, the analysis also suggests that the greatest impacts of pricing occur within those choice markets where reasonable alternatives to the private automobile actually exist.

Anderson et al., (1998) studied the full cost of transportation in the Twin cities region for the years 1998 to 2020. The midrange estimate was that the costs were $27 billion in 1998, and the costs will grow to $42 billion in 2020 ($9,000 and $11,000 and $11,000 in per capita terms, respectively). These estimates include monetary and non-monetary costs to individuals, firms, and units of government. Costs are divided into three main categories: governmental costs, internal costs, and external costs. The midrange estimates were that (84%) of full costs were internal, (9%) were governmental, and (7%) were external. Road construction and maintenance accounted for approximately (70%) of governmental costs. Most time costs were non-monetary and internal. The costs of travel time by households accounted for (40%) of all costs of transport and the costs of owning and operating vehicles also accounted for (40%).

Ozbay et al., (2007) researched the cost of transporting people in New Jersey. This study has developed a state-of-the-art GIS-based interactive tool for calculating network-wide full marginal costs (FMC) of highway transportation in New Jersey. The proposed FMC calculation methodology on a sample network show that the traditional distance based approach overestimates the marginal cost of the network, and more importantly it provides
marginal cost on the basis of distance rather than trips, which is the most basic way of considering travel behaviour of drivers. Results obtained from application of the new tool on the North Jersey network demonstrate that FMC between an Origin-Destination (O-D) pair exhibit differences among various paths that connect any single O-D pair. These results also demonstrate the importance of analysing trips based on a number of factors in addition to travel times such as volume, capacity, road type, and distance travelled by households.

Olvera et al., (2008) studied the household transportation expenditure in Sub-Saharan African cities. The survey method was employed in this study. The findings from travel surveys data show that transport expenditure accounts for around (15%-20%) on household income, which is higher than the estimate from consumption surveys. Moreover, travel survey also indicates that the poor household’s spend a greater share of their income on transportation system than the others.

Agrawal et al., (1996) explores the travel behaviour and transportation expenditure by low income families. The survey method was employed in 73 adults as to how the rising of transportation costs impacts the low income families. The findings of the study indicate that most of low income household are concerned about their transportation costs, low income individuals actively and strategically manage their household resources in order to survive on limited means and to respond to changes in income or transportation costs and also when it comes to making mode-choice decisions, low income travellers like higher income travellers carefully evaluate the costs of travel against the benefits of each of the modes.

Inbakaran et al., (2008) examined the travel expenditure of Melbourne households’ spatial variation by purpose in Australia. The simple model was presented that is VISTA (Victorian Integrated Survey of Travel and Activity) of 2007 was employed in this study. There were 11 400 households that were randomly selected in Melbourne between May 2007 and June 2008. In this study, it has been found that transport costs make up about 15% of a Melbourne household’s total weekly expenditure whilst food and housing have greater costs as compared to transport cost.

Rice (2004) conducted a research on transportation spending by low income California households. The survey method was employed. The finding of the study indicate that low and higher income household spend different portion of their budgets on transportation, despite
the fact that low income household are more likely to use public transit, carpool or walk to work. Rice also shows that low income households’ in the states of urban areas allocated a slightly smaller proportion of their household expenditure to transportation than did higher income households. Across all forms of transportation, average annual expenditures among low income households came to $2 164, which accounted to 13% of their household budgets. Higher income household spend an average of $6 569 annually on transportation, which represent (15%) of their budgets.

Golob (2002) conducted a research on the dynamics of household travel expenditures and car ownership decisions. The panel data structural equation model was developed in this study for a period from 1985 to 1987 time frame in the Netherlands. Golob discovered that households travel expenditure increases as their income increase and also those who own their cars are travelling more during holidays.

Venter (2003) studied the transport expenditure of elderly, disabled and poor travellers in South Africa. The survey method was employed and the research was conducted in 2003. The results of this study indicate that a person’s presence in an urban or rural environment has the greatest bearing on the severity of their transport affordability. The study also shows that disabled persons in cities face affordability problems no worse than those of other persons, and environment to public transport accessibility could be a higher priority and on other side disabled persons in rural areas are worst off in terms of both access and expenditure in transport.

Ferdous et al., (2010) researched a comparative analysis of household transportation expenditure in United States. The MDCNEV (multiple discrete continuous nested extreme value) model was employed. The total number of households surveyed was 4084. Ferdous et al.’s model shows that a host of household and personal socio-economic, demographic and location variables affect the proportion of monetary resources that households allocate to consumption categories. Also those household adjust their food consumption, vehicle purchase and saving rates in a short run.

Vythoulkas (2006) studied the car ownership and household transport expenditure in Greece. The cross sectional method was employed from households’ budget survey. The period of this study was from 1982 to 2003. The findings of the study were that the transportation expenditure accounts around (6%) of total expenditure and declines as the age of the head of the household becomes higher than 55. The research also makes the evolution of car
ownership both in national and regional level of Greece. The analysis demonstrated that in contrast to the patterns observed in other countries of Western Europe, household car ownership levels in urban areas of Greece are much higher than those recorded in rural areas. Furthermore, the evolution of car ownership was compared to that of GDP per capita which increased but at a lower rate and that of car purchase and fuel prices which declined.

Morris et al., (1980) conducted a research on the comparative analysis of inter-urban variation in household transport expenditure in Australian. The survey method was used to collect data with two largest cities of Australian that is Sydney and Melbourne. This study was conducted for a period of three years which starts from 1966 to 1968. Morris et al found that regional variation in transport expenditure was greater in large cities on the other side residents in small cities were found to be more dependent on car for their motorised travel while in large cities car depended is most evident among low to middle income groups at a relatively early stage in the life cycle, located in outer sub-urban areas.

Behrens et al., (2006) conducted a research on unravelling travel costs: towards improved data collection and transport expenditure policy indicators. The survey test method was conducted between January and March of 2006 in Cape Town and Pretoria. A total of 52 workers were surveyed, spread equally across the two cities. The study indicates that respondents in households without cars, and more reliant on public and non-motorised transport, were more likely to produce more reliable estimates of monthly household travel expenditure than respondents from car owning households. The estimation of households’ transport expenditure was approximately R550 a month in these cities.

Lino (1989) conducted a research in Denmark, the study was exploring the factors affecting expenditures of single parent households (housing, transportation, food and clothing) . A double log model was employed. Data from 1984-85 on consumer expenditure survey for 224 single parent households was used for the analyses. Single parent households compose an increasing share of all households with children and these households often encounter financial constraints; thus, they have problems in terms of transportation costs, hence most of the time they walk, sometimes long distances, to reach food, clothing and public services. The study examines the factors influencing the expenditures of households. The findings of the research were that after tax, income significantly affected all four expenditures.
Dalal et al., (2008) studied an exploratory analysis of transportation household expenditure in Greater Sylhet in Bangladesh. The Tobit model was employed with a data source of more than 22,000 persons in 4,162 households. Dalal et al., found that those urban high income households are not affected by the increase of transportation costs because, they have the ability to increase their transportation expenditure in order to access most destination and almost all opportunities; however, this is different from urban poor households because they are restricted by distance, most of their trips take place by foot.

Giuliano (2001) researched the role of public transport in the mobility of low income households in the US. The 1995 nationwide personal transportation survey method was employed in this study. Giuliano found that low income households have less access to variety of goods and services due to limited mobility. Transport access is low due to limited and infrequent service. This condition results in households being engaged in various forms of car sharing, thus borrowing cars from others or getting lifts.

Zhang (2006) conducted a research on travel choice with no alternative. A survey of 1,600 households in Boston, Massachusetts and Atlanta, Georgia was designed to test whether the self-selection bias was sufficient cause to dismiss the effect of urban form on travel behaviour. The study also showed that there was significant latent demand for more areas in which the urban form could support preferred travel pattern, for example to walk or take transit to work and in other destinations. The study found that urban form and household preference affect travel behaviour and a greater number of households would self-select to take advantage of land use and transportation.

Berri et al., (2010) explores the transport consumption inequalities and redistributive effects of taxes: a comparison of France, Denmark and Cyprus. The decomposition by expenditure component of the Gini-index was applied using household-level data from repeated cross-sections of expenditure surveys spanning long time periods. The results highlight the effect of car social diffusion. Moreover, fuel taxes become regressive because they affect the poor households more than the rich households while the progressive character of taxes on the remaining car use commodities weakens with time.

Nolan (2001) examines the determinants of urban households transport decision: a micro econometric study in Ireland. The study employed micro-data from the 1994-1995 Ireland
household budget survey (HBS). This survey was used to estimate the income and socio-demographic determinants of urban households transport decisions whereby a Binary Model was estimated for the car ownership decision, while the car use and public transport expenditure decision employed Tobit Model. The survey consisted of 7,877 urban and rural households, but the focus of the study was on the 2,148 households in the Dublin area. The most significant results relate to the effects of income (as proxied by the total household expenditure), the number of adults in the household and the gender and age; and, it is noted that household income is significant in explaining the differences in households transport decisions. The results suggest that the effect of income on household car ownership is not constant, with the effect being more pronounced at lower income levels.

Polzin et al., (2008) researched the exploration of a shift in household transportation spending from vehicles to public transportation in Tampa. The diary and interview survey methods were employed from 29,804 respondents. The consumer expenditure survey data indicates that an average household savings of approximately $3,500 would be realised for each reduced vehicle. The study also indicates that the lower income households with low auto ownership costs may choose to give up a vehicle that produces a modest economic savings. The findings of this study also indicate that the transit impact of vehicle ownership reductions is currently highly dependent on increasing zero-vehicle households.

Piyushimita et al., (1981) examine the transportation expenditure and ability to pay: evidence from consumer expenditure survey in US. The single-equation Tobit model was employed for annual household transportation expenditure and also the annual total household–level expenditure as a proxy for permanent income. It is found that permanent incomes explain mobility investments better than annual incomes. However, mobility investments and ability to pay are likely to be endogenous because a greater investment in mobility would lead to positive economic outcomes such as the ability to travel to distant but higher-paying work employment, better and more productive integration of social and household activities into one’s work life, and flexibility in employment search and ability to change employers to obtain higher wages and benefits without having to relocate.

Afua et al., (2010) researched the transport sector in Rousay and Eday islands: energy, cost and emissions compared to Kirkwall. The field work survey was conducted to collect data
from these islands. The focus of the study was on the behaviour of transport related activities in three main sectors: households, agriculture and small businesses. The average transport energy demand of households in Rousay (excluding the ferry transport) is about (25%) higher than the one in Eday. However, when the ferry transport is included in the household travelling, the difference increases to almost (50%) and this has a negative impact on households’ monthly income of this area.

According to the surveys conducted by the Transport and Road Research Laboratory in the 1980s (Maunder and Fouracre, (1987)); invested the households’ transportation expenditure in the Nigeria. Thus, findings from household travel surveys data show that transport accounts for around (15–20%) of household income, which is higher than the estimate from consumption surveys. Moreover, travel surveys indicate that poor households spend a greater share of their income on transport than others.

Palstev et al., (2004) studied the role of existing fuel taxes in climate policy in USA and European countries. In this study, the modify emissions prediction and policy analysis model was developed to disaggregate the household transportation sector for the period 1997-2004. The revised and extended facility is then used to compare economic costs of cap-and-trade systems differentiated by sector, focusing on two regions: the USA where the fuel taxes are low, and Europe where the fuel taxes are high. The findings of the study show that the interplay between carbon policies and pre-existing taxes leads to different results in these regions: in the USA, exemption of transport from such a system would increase the welfare cost of achieving a national emissions target, while in Europe such exemptions will correct pre-existing distortions and reduce the cost of which it has negative effect on poor households in the USA.

A Airey (IT Transport Ltd) and M A Cundill (1983) studied household travel in the Meru District of Kenya. The household travel study relied on a panel survey methodology in which 300 households in 12 village areas were randomly selected for interviews in 1983. This baseline survey collected household socio-economic data and compiled a record of household travel over a four week recall period. The two subsequent surveys in 1986 and 1989 collected similar information from 291 and 283 households respectively within the original sample.
findings of the study show that the amount of travel, following the opening of the new road, increased substantially in the short-term, but less so over the longer-term. The travel rate (average journeys per household per month) rose between 1983 and 1986 by 125%. By 1989, the average was 25% lower than in 1986, but still up 68% on the 1983 journey levels. Households travel more when the transport costs decrease; and, they travel less when the costs are high and this shows that transport cost show the reason why the travelling is different in these years.

3.4 Summary

The chapter has examined the theoretical and empirical framework of the transportation cost on household income. The Keynesian theory of employment and income emphasis that household expenditure in transport, food, education and health depends on income that they earn, which insists that when income increases the expenditure also increases. Furthermore, the impact of transport cost on household expenditure was also discussed by the various empirical studies. A study by Olvera (2008) et al found that household expenditure on transport accounts for (15-20%) of their income; hence transport is one of the important items on household budget.

Chapter 4 discuss the methodology that was used in this study.
CHAPTER 4

RESEARCH METHODOLOGY

4.1 Introduction

Research methodology refers to the method by which data is gathered for a research project. Research methodology is important in a research work because it specifies the sampling design. The researcher explicitly defines the target population and the sampling method used. The researcher also provides the motivation for choosing a specific sampling method. Additionally, the researcher identifies the data collection method used. This could be self-administered questionnaires, interviews and the rationale for choosing a particular data collection method. Furthermore, the researcher identifies the methods of data analysis, describes data handling, statistical tests, computer programs and other technical information, and rationale for using a particular method. Finally, the researcher focuses on the limitations of the research. This study identifies significant methodology or implementation problem such as sampling errors, response and non-response errors and the constraints of cost and time (Cooper & Schindler, 2003).

This chapter discusses the method and techniques by which data was collected, where and when and from whom it was collected as well as the sample size used. It further comprises a research design and plan, population and sample, data collection instruments, sources and procedures for data analysis.

4.2 Research design

This study followed both quantitative research design and qualitative research design. A quantitative research method derives empirical generalisations which may be used to determine future courses of action. This type of research design involves obtaining data from a large group of respondents and is used in descriptive studies to quantify data and generalise the results from the sample to the population of interest. Tustin (2005) argues that a quantitative research design requires statistical summarisation. The research at hand required
statistical summarisation for investigating the impact of transportation costs on poor household income. Thus, the quantitative research method was used for the study.

4.3 Research instruments
The research instruments used was a questionnaire; A questionnaire is a form containing a set of questions, especially one addressed to a statistically significant number of subjects as a way of gathering information for a survey (Martins, 1999). The questionnaire used herein consisted of open-ended questions and closed-ended questions. An open-ended question is a question in a questionnaire that allows respondents to respond in their own words whilst a closed–ended question provides the respondents with different options. (Cooper & Schindler, 2003). A copy of the questionnaire is contained at the back.

4.4 The sampling procedure
Cooper & Schindler, (2003) describe sampling as the procedure by which some elements of a given population are selected as representative of the entire population. The primary idea of sampling is that by selecting some elements of a population, the researcher can draw conclusions about the entire population. A sampling method can be classified as probability or non-probability.

The following section examines the description of the population and sampling method selected by the researcher for the study, as well as the motivation for selecting the sampling method. It also examines the sample size used for the research study and furthermore, explains how the sample size is calculated.

4.5 Description of the population and sampling frame
The study covers the Nkonkobe Local Municipality in the Eastern Cape Province of South Africa. The researcher also chose this region as a study area because of its close proximity to the university; and also, this kind of study has never been conducted before. The sampling method is discussed below.
4.5.1 Sampling method
The researcher will use the non-probability sampling method for the study. Non-probability sampling relies on the personal judgment of the researcher rather than chance to select sample elements. The researcher can consciously decide which elements to include in the sample. Non-probability samples may yield good estimates of the population characteristics. However, they do not allow for objective evaluation of the precision of the sample results. Commonly used non-probability sampling techniques include convenience sampling, judgmental sampling, quota sampling and snowball sampling (Malhotra, 1993). The sampling technique used in the research is going to be discussed in section 4.5.2.

4.5.2 Sampling technique
The sampling technique that was used in this study was a convenient sampling technique. Convenient sampling attempts to obtain a sample of convenient elements. The selection of sampling units is left primarily to the interviewer. Often, respondents are selected because they happen to be in the right place at the right time. There are some examples of the convenient sampling which they include “people in the street” interviews, mall-intercept interviews without qualifying the respondents, members of social organisation etc. (Malhotra, 1993).

Convenient sampling is the least expensive and least time consuming of all sampling techniques. The sampling units are accessible, easy to measure, and cooperative. This type of sampling is not representative of any definable population. Convenient sampling can be used for focus groups, pretesting questionnaires, or pilot studies (Malhotra, 1993).

4.5.3 Sample size
Martins, (1999) noted that the correct sample size in a study is dependent on the nature of the population and the purpose of the study. The sample size usually depends on the population to be sampled, although there are no general rules. Generally, sample sizes larger than 30 and less than 500 are appropriate for most research.
4.6 Research technique
The research technique that was used to collect primary data was a self-administered questionnaire. A self-administered questionnaire is a form containing a set of questions, usually presented to the respondent by an interviewer or a person in an official capacity who explains the purpose but does not actually complete the questionnaire (Cooper & Schindler, 2003). This technique reduced interview bias as well as saving time and money. Also data can be collected within a short period of time because many respondents can answer the questionnaire simultaneously. The researcher will only present to assist in explaining ambiguities rather than asking questions himself.

The researcher used the self-administered technique for the following reasons:

- It is cheap and easy to administer;
- Preserved confidentiality;
- It will be completed at respondent’s convenience; and
- It will be administered in a standard manner (Cooper & Schindler, 2003).

The following section examines the questionnaire design.

4.6.1 Questionnaire design
The layout of the questionnaire will be kept very simple to encourage meaningful participation by the respondents. The questions will be concise as possible and care will also be taken on the actual wording and phrasing of the questions. This is because the appearance and layout of the questionnaire is of great importance in any survey where the questionnaire is to be completed by the respondent (Loubser, 1999). The literature in the study will be used as guideline for the development of the questions in the questionnaire. The questions that are used in the questionnaire are discussed below.

4.6.2 Open-ended questions
It is a free response, that is, it calls for a response in the respondent’s own words and it is normally independently. The response variations may be vast and no set of alternative responses is supplied. Open-ended responses are adaptable. Using this response type, various
types of primary data can be collected, from demographic characteristics to opinions, attitudes and behaviour. Open-ended responses are great value in exploring complex and variables topics. They are often used to search for additional information through questions such as ‘Why?’ and ‘Please explain?’ (Tustin et al., 2005; Cooper & Schindler, 2003).

The researcher used the open-ended questions for the following reasons:

- They encourage a full meaningful answer using the subject’s knowledge or feelings;
- They avoided bias that may result from suggesting responses to individuals;
- They cut down on two types of response error. Namely respondents were not likely to forget the answers they had to choose from if they were given the chance to respond freely. Open-ended questions simply do not allow respondents to disregard reading the questions and “fill in” the survey with all the same answers; and
- They allow respondents to include more information, including feelings, attitudes and understanding of the subject. This allowed researchers to better access the respondents’ true feelings on an issue (Cooper & Schindler, 2003).

The subsequent section discusses the closed ended questions.

### 4.6.3 Closed-ended questions

These types of questions provided the respondents with different options. The majority of the questions in the questionnaire were closed-ended because of the following reasons:

- The question did not require an explanation from the respondents;
- It increased the chances of participation by the respondents; and
- More easily analysed since every answer can be given a number or value so that statistical interpretation can be assessed (Wheather & Cook, 2000).

Section 4.6.4 examines the dichotomous questions.

### 4.6.4 Dichotomous questions

A dichotomous question is a question which offers two alternatives to choose from (Cooper & Schindler, 2003). Dichotomous questions were used because of the following reasons:
Some questions in the questionnaire had only two possible answers. For example, questions relating to the gender of the respondents; and

These questions simplified coding and data analysis, since the responses were predetermined. Multiple choice questions are discussed in the section that follows.

4.6.5 Multiple choice questions
A multiple choice question is a fixed question with more than two alternative answers (Cooper & Schindler, 2003). Multiple choice questions were used in the study because of the following reasons:

- These types of questions are easy to answer by the respondents. Non-response error was thereby reduced; and
- They simplified coding and analyses of data since the response were predetermined.

4.6.6 Five-point Likert scale type questions
A Likert scale is a verbal scale which requires a respondent to indicate a degree of agreement or disagreement. Five-point scale questions were used by the researcher for the following reasons:

- It eliminated the development of response bias amongst the respondents;
- It assessed attitudes, beliefs, opinions and perception;
- Using a Likert scale made the response items standard and comparable amongst the respondents; and
- Responses from the Likert scale questions will be to code and analyse directly from the questionnaire from the questionnaires (Cant, Gerbel-nel & Kotze, 2003).

The combination of these different types of questions ensured the collection of complete information from the respondents. Section 4.7 discusses secondary data used in the research.
4.7 Secondary data
Various sources of secondary data such as literature review from available published material will be used. This includes journals, books, conference reports, and internet sources and masters dissertations relating to transport expenditure by household. Other relevant sources of information such as published data obtained from NHTS, GHS, Stats SA, DOT were also assessed and deductively applied. Responses to the questionnaire will be analysed and evaluated using techniques such as tabulation, statistical graphs.

The subsequent section discusses the data analysis and statistical techniques.

4.8 Data analysis and statistical techniques
Data analysis consists of running various statistical procedures and tests on the data (Barrow, 1999). It is the conversion of meaningless data into something which can easily be understood. The purpose of any research is to deduce information from the data gathered.

4.8.1 Descriptive statistics
Marshall and Rossman, (1999) define descriptive statistics as condensing large volumes of data into a few summary measures. The descriptive statistics used in the present study included percentage distribution and mean scores. Percentages are defined as the number of times a certain answer appears in the data. The mean calculates and average across a number of observations and the standard is the square root of the variance around the mean, in other words, how the mean represents the data (Mellville & Goddard, 1999).

4.8.2 Inferential Statistics
Inferential statistics is the area of statistics which extends the information extracted from the sample to the actual environment in which the problem arises (Mellville & Goddard, 1999).
4.9 Pretesting
Pretesting refers to the testing of the questionnaire on a small sample of respondents in order to identify and eliminate potential problems. Even the best questionnaire can be improved by pretesting. As a general rule, a questionnaire should not be used in the field survey without adequate pretesting. A pretest should be extensive and all aspects of the questionnaire should be tested, including question content, wording, sequence, form and layout, question difficult and instructions. The respondents for the pretest and for the actual survey should be drawn from the same population (Malhotra, 1993). In this study, pretest was used as a research instrument in the survey’s development stage through a pilot study. For the purpose of the pilot study, data was collected from about 10-20 respondents. This was subsequently analysed using Cronbach Alpha Test software.

4.9.1 Content validity
This is a non-statistical type of validity that involves “the systematic examination of the test content to determine whether it covers a representative sample of the behaviour domain to be measured” (Babbie & Mouton, 2001). A panel of experts was used to review the items and comment on whether the items cover a representative sample of the behaviour domain.

4.9.2 Internal validity
Internal validity refers to the confidence that is placed in the cause and effect relationship. In other words, it addresses the question: “to what extent does the research design permit us to say that the independent variable causes a change in the dependent variable” (Babbie & Mouton, 2001).

4.10 Ethical considerations
The researcher take cognisance of the ethical guide lines as prescribed by the university research body. All the participants will be voluntarily interviewed and their names were kept confidential. The responses will be kept off the record, as the respondents will not be asked to
fill in their names or give any identification. The researcher will inform the respondents on how the information collected from the research will be used.

4.11 Summary

This chapter examined the research methodology of the study. The scope of the survey, the sampling method and the organisation of the survey were comprehensively discussed. Additionally, the chapter examined the data gathering technique used for the research study, especially the rationale for choosing the self-administered questionnaire. Furthermore, the chapter focused on the processing of data and the statistical packages used to analyse data.
CHAPTER 5

PRESENTATION OF EMPIRICAL FINDINGS

5.1 Introduction
The aim of this chapter is to present the empirical findings. The objective of this study is to investigate the impact of transport costs on households’ income in the Nkonkobe municipality. This presentation of the empirical findings is divided into four sections. The first section presents the demographic data. The second section presents the economic status of the respondents. The third section presents information on access of transport and the fourth section presents the results on the Five Likert scale measurement.

5.2 Section A: Personal information

5.2.1 Gender
The gender of the respondents is portrayed in Figure 5.1 below:

Figure 5.1: Gender of the Respondents

Source: Survey Data (2011)

The majority (54%) of the respondents were females whilst the remainder (46%) were males.
5.2.2 Age groups of the respondents

The age groups of the respondents are portrayed in Figure 5.2

Figure 5.2: Age group of respondent

![Age group of respondent](image)

Source: Survey Data (2011)

Over one-third (33%) of respondents were in the age group of 26-35 years, followed by approximately (23%) of those who were in the age group of 36-45 years. Those in the age group of 16-25 years made up almost (14%) whilst those in the age group of 65 and above also constituted (14%). The respondents in the age group of 56-65 years made up a mere (6%).

5.2.3 Education levels of the respondents

Education levels of the respondents are portrayed in Figure 5.3 below:
Figure 5.3: Educational levels of the respondents

<table>
<thead>
<tr>
<th>Educational levels</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>25%</td>
</tr>
<tr>
<td>grade 1-7</td>
<td>13%</td>
</tr>
<tr>
<td>grade 8-10</td>
<td>9%</td>
</tr>
<tr>
<td>grade 11-12</td>
<td>16%</td>
</tr>
<tr>
<td>technikon</td>
<td>19%</td>
</tr>
<tr>
<td>university</td>
<td>19%</td>
</tr>
</tbody>
</table>

Source: Survey Data (2011)

From the Figure 5.3 above, it can be noted that (25%) of the respondents had no education. However, (19%) of the respondent had tertiary level of education university and technikon respectively. Sixteen percent of the respondents had grades 11 and 12 whilst 13% of the respondents had grades 1-7 levels of education. Clearly, a large number of people who were surveyed were not exposed to formal education.

5.3 Section B: Economics status

The economic status of the respondents is presented in the following section:

5.3.1 Employment status of the respondents

The employment status of the respondents is presented in Figure 5.4 below.
Approximately (56%) of the respondents in the Nkonkobe Local Municipality are employed. However, (44%) of the respondents are not employed at all. Similar results were found by ECSECC, 2000 which states that (48%) of the people in this area are unemployed while (31%) is employed.

5.3.2: Occupation of the respondents

Figure 5.5 below portrays the occupation of the respondents.

Figure 5.5: Illustration of the occupation of the respondents
Source: Survey Data (2011)

The majority (61%) of the respondents’ occupation is indicated as other (Figure 5.5). Other occupations included informal construction work, cleaners and elementary domestic work. Those who indicated that they were students constituted (19%), whilst (9%) of the respondents were educators and (5%) were health workers and casual workers in the formal sector respectively, government officials made up a mere 1%.

5.3.3: The main sources of income of the respondents
The main sources of income for the respondents are portrayed in Figure 5.6 below

Figure 5.6: Source of income of the respondent

Source: Survey Data (2011)

The highest percentage (44%) of the respondents indicated that their sources of income were from salaries. However, (13%) of the respondents indicate that their source of income was from wages, followed by the old age pensioners (16%). The respondents who earn income through child grant and disability grant have the smallest percentage than all other sources of income which is equal to (1%). The other sources of income for approximately (25%) of the respondents are pocket money, stipend, and selling fruit. These results suggest that the highest number of the respondents is employed because they live on salaries. It is mainly this component of the respondents that are likely to depend on public transport.
5.3.4: Monthly earnings of the respondents

Figure 5.7 illustrates the monthly earnings of the respondents.

Figure 5.7: Monthly earnings of the respondents

Source: Survey Data (2011)

The highest percentage (38%) of the respondents had the monthly earnings of R500 to R1500. Following this are those respondents who earn less than R500 a month which they constitutes (18%) of the respondents. The respondents who earn between R1500 to R3500 constitute (16%). However, those who earn R10000 made up a mere 5% and those earning R6500 to R10000 constitute (13%) of the respondents. Clearly, the respondents in this area are low earners and may also be regarded as being the working poor.

5.3.5: Household monthly income of respondents

The household monthly income of respondents is presented in Figure 5.8 below.
From Figure 5.8 above, the results conclude that the highest of the respondents average monthly income is between R1 500 to R3 500 which is (30%), followed by those who earn total average that is between R3 500 to R6 500 which constitutes (26%) and another group that earns a total average of more than R10000 a month in their households respectively. However, the respondents who have an average household monthly income ranges between R6 500 to R10000 which constitutes (19%) of the respondents. These results indicate that the households of this area are poor and unable to meet their financial needs.

5.3.6: Heads of households from the respondents

The heads of households of the respondents is shown in Figure 5.9 below.
More than half (54%) of the respondents indicated that they were heads of their households whilst the remainder (46%) were not heads of the households.

**5.3.7: Households’ size of the respondents**

The households’ sizes of the respondents are portrayed in Figure 5.10 below.

**Figure 5.10: Households’ size of the respondents**

Source: Survey Data (2011)
Approximately (20%) of the respondents consist of five members in their households, followed by (19%) who had four household members; households with three members constitute (17%) of the respondents, whilst households with six and seven members share the equal percent (15%) of the respondents. However, the largest household size in this area consists of ten household members which constitutes (5%) of the respondents.

5.3.8: Age group of people in each household
This question will provide information about the ages of people that are living in particular household in the area of research; this will enable the research to estimate those who are economically active and dependent on their family members.

The majority (55%) of the respondents state that they have all the age groups in their households. However, 40% of the respondents state that they do not have old age pension group in their families, whilst (5%) of the respondents constitutes only the old age people in their households.

5.3.9: Household members that are: students, employed, unemployed but are able and willing to work, are actively looking for work
Figure 5.11 below present's household members who are students, employed, unemployed but are able and willing to work and households with members who are actively in search of work.
Figure 5.11: Average number of household members according to their activities

The results in Figure 5.11 above indicate that on average most household members were students (2.36), followed by (1.27) of those who were employed; also (1.25) were unemployed and 0.9 were actively looking for work. These results suggest that a majority of the society constitutes of dependants. On average, the number of people who depend on households’ income are approximately 2.45 per household.

5.3.10: Households expenditure patterns

Figure 5.12 below illustrates the amount of money that households spend.
Figure 5.12: Households expenditure patterns

![Households expenditure patterns](image)

Source: Survey Data (2011)

Figure 5.12 above; shows that the respondents of this area are spending most of their income on transport which amounts to an average of R982 a month. Following these items is food in which households spend R597 from their monthly income. However, education expenditure by the households of Nkonkobe Local Municipality amounts to R460 a month. The second last item on which these households spend is health which amounts to R290 a month; other items amount to R229 a month. Similar findings by NHTS (2003) state that household spend more than R500 per month on public transport.

5.4 Section C: Access to Transport

The information obtained from this section assisted the researcher to know the modes of transport that they commonly used and the cost that paid for the transport, overall expenditure for those who own their cars, distance that they travel reach their destination, the time that they have to wait for the mode of transport that they use, number of times that they use transport a week, reason for using transport, transportation problems that they face and how does increase the transportation cost to the overall budget.
5.4.1: Mode of transport commonly used

Modes of transport that are commonly used are portrayed in Figure 5.13 below.

Figure 5.13: Mode of transport that is commonly used

Source: Survey Data (2011)

Of the respondents (38%) state that they commonly use taxi for their travelling purposes. Following this group of respondents are those who postulate that they commonly use bus more than any other mode, thus constitutes (26%) of the respondents, and another group (25%) states that they commonly use bakkies to access important services. However (10%) of the respondents use their own cars to travel, only (1%) states that they use the other mode or transport which include bicycle and riding horses. Similar findings by the DoT (2003) postulate that the bakkie taxi was the mode of transport that commonly used by the households in the Eastern Cape Province of which they complain about the conditions of these bakkies and also the road infrastructure which was not in good conditions during the survey period.

5.4.2: Mode of transport that respondents prefer most

The mode of transport preferred by most respondents is illustrated in Figure 5.14 below.
Figure 5.14: Mode of transport that respondents prefer most

[Diagram showing mode of transport preferences]

Source: Survey Data (2011)

Approximately (37%) of the respondents state that the mode of transport that they prefer most was the bus and taxi as compared to other modes of transport. Following these two modes of transport are those respondents who prefer to use their own cars for travelling thus constituting (18%) of the respondents. However, only (4%) of households prefer the bakkie, while (4%) of the respondents prefer travelling by train.

5.4.3: The overall expenditure for those respondents who use their own cars including fuel cost, maintenance and insurance.

The question gives the information on those respondents who own their cars. Of the response rate the average of the overall expenditure on their private cars is R2500 which is used on the maintenance of the vehicle.

5.4.4: The public transport cost

Figure 5.15 below presents the public transport cost of the respondents.
Figure 5.15: Public transport cost of the respondents

Source: Survey Data (2011)

The highest percentage (31%) of the respondents paid R25 or more for travelling from their communities to the frequent destinations. Following are the respondents who paid between R20 to R25 which is (26%) for transport. However, (24%) of the respondents pay R15 to 20, whilst (14%) pay between R10 to R15; the last group of the respondents (5%) pays R5 to R10.

5.4.5: Distance travelled by the respondents from their communities to their frequent destinations.

Figure 5.16 below illustrates the distance travelled by the respondents from their community to their frequent destinations.
Figure 5.16: Distance travelled by the respondents

Source: Survey Data (2011)

Amongst the 80 participants who responded to the questionnaire, (32%) of the respondents travel a distance that is between 35 to 45km from their communities to their frequent destinations, 31% of the respondents travel almost 45 to 55km. However, (16%) travel a distance between 15 to 25, whilst (13%) travel between 25 to 35km from their communities to their frequent destinations. Hence, these distances illustrate transport costs paid by the respondents.

5.4.6: Amount of time that respondents wait by the respondents for the mode of transport

Figure 5.17 below portrays the amount of time that the respondents have to wait for the mode of transport.
Amongst the 80 respondents who responded to the survey, (35%) of the respondents have to wait between 5 to 10 minutes to get a mode of transport from their community to their destination. In addition (25%) of the respondents wait between 10 to 15 minutes for the mode of transport. However, (19%) of the respondents have to wait a slightly longer, like 15 to 20 minutes to get transport; and (5%) of the respondents postulate that if they wait for more than 20 minutes for transport. This indicates that there is shortage of transportation system in some of the area in the Nkonkobe Local Municipality.

5.4.7: The time that the respondents have to wait for the taxi fill up and leave the rank

This section is important to the study because it illustrates the amount of time lost by households while waiting for transport.

According to the survey data of (2011) in the Nkonkobe Local Municipality, it is noted that taxis can take up to 34 minutes to be full before it can take off.
5.4.8: The time that the mode of transport takes to reach respondents’ destination
This section is important to the study because it discusses the amount of time taken by taxis to reach the respondents’ destinations. The distance also determines the transport fare per household. The respondents postulate that the average time taken by the mode of transport to reach their destination was 56 minutes.

5.4.9: Price of time spent in waiting for the transport
The amount of time that respondents take while waiting for transport has costly implications on their overall earnings. The estimated average price of the respondents’ waiting time was R12 on average.

5.26: Distance travelled by the respondents to reach the public services
The distances travelled by the respondents to reach the public services are illustrated in Figure 5.18 below.

Figure 5.18: Distance travelled by the respondents to reach public services

Source: Survey Data (2011)
A vast majority (58%) of the respondents state that they travel less than 60 minutes to reach clinic services in the Nkonkobe Local Municipality and (42%) of the respondents also said that they travel less than 60 minutes to reach clinic. More than half (51%) of the respondents postulate that they travel more than 60 minutes to reach the police station; and, (49%) also take equal amount of time to travel the same distance. An overwhelming majority (66%) of the respondents state that they travel less than 60 minutes to reach education centres whilst (34%) of the respondents travel more than 60 minutes to reach education centres.

Similar results were found by the General Household Survey (2008) with 382 respondents 196 of these respondents have to travel between 30-44minutes to reach the nearest clinic which constitutes (51%); however, 89 out of 175 of respondents (51%) take 60 minutes or more by foot to reach nearest clinic. Data from GHS (2008) postulates in South Africa, of 4 116 respondents, 3 099 (75%) were walked to their nearest school.

5.4.10: Number of times that the respondents use transport a week

Figure 5.19 below portrays the number of times that the respondents use transport in a week.

Figure 5.19: Number of times that the respondents use transport a week

![Pie chart showing 46% daily, 30% once a week, and 24% twice or more]

Source: Survey Data (2011)

The highest percentage (46%) of the respondents use transport every day. However, approximately (30%) of the respondents use transport once a week, whilst (24%) of the respondents use transport twice or more a week.
5.4.11: The main reason for using the transport by the respondents

The main reasons for using the transport are illustrated in Figure 5.20 below.

Figure 5.20: The main reason for using the transport by the respondents

Source: Survey Data (2011)

The highest percentage (48%) of the respondents uses transport to get to work. (14%) of the respondents are students, and the same percentage also constitutes those who visit their family members or friends. However, (10%) of the respondents states that they use transport to visit health care centres, whilst (6%) of the respondents are in search of employment. However, (9%) of the respondents postulate that they use transport for their personal issues and none (0%) of the respondents use transport to run their businesses.

5.4.12: Transportation problems faced by the respondents

Figure 5.21 illustrates the transport problems encountered by the respondents.
Figure 5.21: Transportation problems faced by the respondents

Source: Survey Data (2011)

Approximately half (50%) of the respondents agreed that transport costs are quite high. 28% of the respondents postulate that safety and drivers' behaviour is quite unruly. 13% of the respondents encounter the challenge of transport unavailability since mode of transport can be accessed far from their homes. However, (10%) of the respondents states that they face other transportation problems.

Similar findings by the DoT (2003) reveal that 63% of South Africans find transport costs to be quite expensive. Moreover, the survey also indicates that (50%) of the survey population said that the public transport was either not available or far.

5.4.13: A change or increase in transportation cost effect on overall budget or expenditure of households
Figure 5.22 illustrates how change or an increase in transportation costs can affect the overall budget of the respondents.
Figure 5.22: A change or increase in transportation cost effect the overall budget or expenditure of household

![Pie chart showing 90% yes and 10% no response]

Source: Survey Data (2011)

In summary, the majority (90%) of the respondents’ express that the increase of transportation costs has a negative impact on their overall expenditure; they state that they have to sacrifice some of their needs. Ten percent of the respondents states that their overall expenditure is not affected by an increase of transportation costs.

5.4.14: Number of trips that are taken by the respondents per day or week

Figure 5.23 illustrates the number of trips that are taken by the respondents per day or week.
Figure 5.23: Number of trips taken by respondents per day or week

Source: Survey Data (2011)

The results from the survey data (2011), indicates that approximately (60%) of the respondents take five trips per week, mostly when they go to work. However, (40%) of the respondents take trips twice or thrice a week as they go for shopping, visiting health centres, and when in search of employment.

5.4.15: Fatal accidents

Figure 5.24 below shows the number of respondents who agree that they lost their family members as results of road accidents.
Figure 5.24: Lost anyone in your family as a result of transport accidents by the respondents

![Bar chart showing percentages of respondents who lost family members in transport accidents.]

Source: Survey Data (2011)

The overwhelming majority (77%) of the respondents states that they did not lose anyone in their families as a result of road accidents. However, (23%) of the respondents agreed that they lost their family members as a result of transport accident like being hit by a car or a truck.

5. 4.16: Arrive Alive Campaign effective

Figure 5.25 illustrates the effectiveness of the Arrive Alive Campaign.
Figure 5.25: Effectiveness of the Arrive Alive Campaign

Source: Survey Data (2011)

More than half (55%) of the respondents postulate that the Arrive Alive Campaign is not effective in this area or in the Eastern Cape province as a whole. However, (45%) of the respondents agreed that the Arrive Alive Campaign is effective in this area.

During the financial years of (1997-2002), the RAF contributed substantially to the costs of the Arrive Alive Campaign with R183.25 million (DoT, 2002). Considering that most of the respondents expressed that the campaign is not effective, one can conclude that the government should review the use of large amounts of money in this initiative.

5.4.17: Awareness of Road Accident Fund (RAF)

Figure 5.26 below illustrates the respondents’ awareness of the Road Accident Fund.
The majority (53%) of the respondents expressed that they are aware of the Road Accident Fund; meanwhile (47%) of the respondents states that they are not aware of the RAF.

5.4.18: Need of information about the Road Accident Fund

Figure 5.27 illustrates the need of information about RAF.
An overwhelming majority (80%) of the respondents agreed that they need the information about the RAF. However, (20%) of the respondents states that they were very much aware of the RAF but they complained about the transparency and accessibility of the fund.
### 5.4.19: Analysis of the Lirket Scale questions

**Table 5.1: Mean estimation**

<table>
<thead>
<tr>
<th>Question</th>
<th>Mean</th>
<th>Std. Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport cost are too high</td>
<td>1.43</td>
<td>.0685375</td>
</tr>
<tr>
<td>Accidents too high</td>
<td>2.08</td>
<td>.1040231</td>
</tr>
<tr>
<td>Road accidents fund is easily accessible</td>
<td>3.72</td>
<td>.1257572</td>
</tr>
<tr>
<td>There is transparency with regard to RAF</td>
<td>3.8</td>
<td>.1102357</td>
</tr>
<tr>
<td>Road conditions are bad in this area</td>
<td>2.15</td>
<td>.1023459</td>
</tr>
<tr>
<td>There is too much congestion at taxi rank</td>
<td>2.52</td>
<td>.1036898</td>
</tr>
<tr>
<td>The conditions at taxi rank leads to high levels of crime in this area</td>
<td>1.88</td>
<td>.0924247</td>
</tr>
<tr>
<td>Law enforcement must be implemented on our roads in this area</td>
<td>1.38</td>
<td>.0765013</td>
</tr>
<tr>
<td>There must be a stricter government intervention in the taxi industry</td>
<td>1.35</td>
<td>.0592677</td>
</tr>
<tr>
<td>More buses must be provided in this area</td>
<td>1.67</td>
<td>.0867395</td>
</tr>
<tr>
<td>There must be more trains in this area</td>
<td>2.88</td>
<td>.1081983</td>
</tr>
<tr>
<td>The behaviour of taxi drivers is unacceptable in this area</td>
<td>1.57</td>
<td>.1121919</td>
</tr>
<tr>
<td>Noise level is too high in this area because transport</td>
<td>2.7</td>
<td>.1250316</td>
</tr>
<tr>
<td>Traffic congestion in this area causes too much air pollution</td>
<td>3.07</td>
<td>.116346</td>
</tr>
<tr>
<td>I cannot visit the health care centre’s as often as i wish because of the transport Costs</td>
<td>2.1</td>
<td>.1418682</td>
</tr>
<tr>
<td>I cannot visit my religious gathering as often as i wish because of transport cost</td>
<td>2.17</td>
<td>.1340402</td>
</tr>
<tr>
<td>I or my child has missed school so often because of transport cost</td>
<td>3.07</td>
<td>.1618475</td>
</tr>
<tr>
<td>I or my family member have stopped looking for a job because of transport cost</td>
<td>1.73</td>
<td>.1216237</td>
</tr>
<tr>
<td>I am no longer able to go cinema as a result of high transport costs</td>
<td>2.57</td>
<td>.1316587</td>
</tr>
<tr>
<td>I prefer spending time at the tavern for my recreation because it is near and there are no transport costs involved</td>
<td>2.63</td>
<td>.1543091</td>
</tr>
<tr>
<td>I have reduced my expenditure in food as a result of transport cost</td>
<td>1.37</td>
<td>.082245</td>
</tr>
</tbody>
</table>

Source: Survey Data (2011)

Respondents were asked to rate their feelings about the challenges they encountered regarding the transport sector in the Nkonkobe Municipality. A Likert scale measurement of 1 to 5 was used (1 = Strongly Agree, 2 = Agree, 3 = Neutral, 4 = Strongly Disagree, 5 = Disagree).
The result on Table 5.1 illustrates the response in the Likert scale questions. Overall the mean scores in Table 5.1 fall between 1 and 3; thus, the majority of the respondents agreed with the aspects measured by the Likert scale.

Table 5.1 shows that respondents (1.43) strongly agree that transport costs are high. Transport costs are high for the Nkonkobe residents because a majority of them do not work; also, the road infrastructure is another reason. The respondents also express that there are a lot of accidents in this area; from the table above, the mean score for accidents is (2.08); while those households also states that if they are not sure or (neutral) about the accessibility of road accident fund, this means that if there is lack of information or knowledge about this fund, of the respondents the road accident fund accessibility constitutes (3.72) mean score and those respondents are still neutral on the issue of transparency with regard to RAF, this indicate that government have to organise the workshops to give more information to the people of this area about the RAF which consists of (3.8) mean score because the road accident fund was established to help individuals that were involved in accidents in South Africa as whole. Following are the results from the respondents who indicate that the road infrastructure is unfavourable (mean score 2.15). This indicates that the Nkonkobe Local Municipality needs to upgrade the roads.

On the other hand, the respondents (mean score 2.52) also agreed that there is congestion at the taxi rank, resulting in high rates of crime. This is an indication that the local government should intervene. Some respondents (mean score1.88) agreed that congestion at the taxi ranks does indeed lead to crime. Other respondents (mean score 1.38) expressed that law enforcement must be implemented on the roads to ensure road safety.

The households (mean score 1.73) in Nkonkobe Local Municipality strongly agree that high transport costs lead to them to stop searching for employment because they cannot afford to pay these costs on a daily basis. On Table 5.1 an average 5.36 mean score shows that some of the respondents expressed that they prefer spending time at the tavern for their recreation because of its close proximity and also does not require any transport costs, thus constituting a mean average of (2.63).
5.5: Implications of the findings

The majority (54%) of the respondents were females whilst (46%) of the respondents were males. This finding is not surprising because in South Africa generally, there are more women than males. The highest percentage (33%) of the respondents were between ages 26-35 years followed by the age group between 36-45, this shows that people who were employes as well as being the majority of the transport users were feeling the need for change in the transport sector in Nkonkobe Local Municipality.

Out of 80 respondents, (25%) of the respondents were not educated, while (19%) of the respondents had tertiary level and (16%) had grades 11-12, implying that standard of education in this area is quite low, probably caused by long distances that people have to walk to reach education centres; and the lack of funds to pay for the school fees. The employment rate of the respondents in this area shows that more than half (56%) of the community members were employed whilst (44%) of the respondents were unemployed. Accordingly, Keynes theory postulates that as the employment increases the economy grows; however, poverty in this area is high. The education level of the respondents indicates that the occupation of these respondents illustrates that the majority (61%) did not possess qualifications as confirmed by the types of professions which include construction worker, domestic worker and cleaner. (38%) of the respondents indicated that their source of income was from salaries; hence, they depend on public transport. It was noted that (38%) of the respondents had monthly earnings between R500-R1 500, thus indicating that these respondents were not high earners and are classified as poor people. This is line with the Keynesian theory of income and employment which states that as income increases, the expenditure by households also increase. More than half (54%) of the respondents were heads in their households; therefore, they were responsible for paying school fees, buying groceries, transportation and health care costs.

The highest percentage (20%) of the respondents has five members in their households; this shows that people in this area have small families. The family members were dominated by the students who were also dependants, with an average of 2.36 in each household. Their expenditure patterns indicated that they spend more of their income on transport which amounts to an average of R982 per month. The respondents used the following modes of transport: taxis (38%) and the bus (26%). However, (25%) of the respondents commonly use bakkies and they have raised concerns on the level of safety of this mode of transport because
of the drivers’ risky behaviour. The most preferred transport mode by the respondents was taxi and bus with (37%) followed by (18%) of the respondents who states that they prefer to use their own cars. This indicates that people use other modes of transport because they do not have choice or alternative transport in their communities except the one they commonly use. The cost or prices of transport that the respondents use were the same because (31%) of the respondents pay R25 or more on public transport from their communities to their destination. This implies that those people stay far from town or public services.

The amount of money that respondents paid for their travelling was determined by the distance which led to (31%) of the respondents travelling between 45-55km from their communities to their destination. This implies that those respondents live far from town and public services. On the other hand, (19%) of the respondents have to wait 15-20 minutes for the mode of transport, this shows that the respondents in this area face a shortage of transport. The average time that the taxi takes to fill up was 34 minutes, hence the respondents prefer hiking which is faster. However, the average time that the mode of transport takes to get to the respondents destination was 56 minutes which is close to an hour, thus indicating that the distance travelled to reach the destination is long. Accessing public services was a major problem to some of the respondents because more than half (51%) of the respondents were travelling more than 60 minutes to reach police station.

The highest percentage (46%) of the respondents use transport everyday, (30%) of the respondents use transport once a week; hence, transport was in demand during the survey. 48% of the respondents use transport to get to work and (14%) to go to school. However, there were transport challenges encountered and half (50%) of the respondents agreed that transport is expensive. This implies that government subsidy is needed in this area. The increase of transport costs affects the majority (90%) of the respondents’ budget. In the Nkonkobe Municipality, only (23%) of the respondents postulate that they lost their family members as a result of accidents and they have not received anything from the government for their loss. (77%) of the respondents did not lose any family members as a result of accident. The Arrive Alive Campaign is one of the projects aimed at decreasing the rate of accidents in South Africa. More than half (55%) of the respondents stated that the Arrive Alive Campaign is not effective; however, some stated that it is effective only in a few provinces such as Gauteng and the Western Cape. This implies that DoT should prioritise ensuring the effectiveness of the Arrive Alive Campaign. Out of 80 respondents, (53%) were
not aware of the RAF, this indicated that there was lack of information concerning the fund; so, the local government should conduct workshops to raise awareness on how to access funds after a road accident. However, (80%) of the respondents said that they need information about the RAF.
CHAPTER 6

SUMMARY, CONCLUSIONS, RECOMMENDATIONS AND LIMITATIONS

6.1 Summary of the study and conclusions
The aim of this study was to analyse the impact of transportation cost on household’s income in the Nkonkobe Local Municipality. Transportation costs and households income has long been a subject that was neglected particularly in rural areas whereby the majority of households are unemployed.

Chapter one provided the introduction and background, problem statement, objective of the study, significance of the study and hypothesis. Chapter two sets the tone of this dissertation by providing an overview of the transportation cost on households’ income. The chapter also discussed the contribution of the transport sector to the South African economy, household expenditure on transport, food, health and other items. In this chapter it was discovered that households in South Africa spend more on the following items: housing, water and electricity with (23.6%) of their income a year followed by transport with (19.9%) (IES 2005/06). Findings from NHTS (2003) postulate that (15.6%) of households in the Eastern Cape Province spends more than R300 per month on public transport.

Chapter three presented the literature review. In this chapter various theories and empirical literature review of developing were explored such as Keynesian theory of income and employment; however, this theory revealed that household expenditure depends on the level of income, the theory also revealed that when household or individual income increases, it also results in an increase on transport expenditure. On the other hand, Solow’s growth theory holds that an increase in transportation costs affects the household savings negatively. However, the theory emphasises that when transportation cost rises, household budgets are increasingly strained because transport is the highest expenditure in most households. The theories discussed in chapter three suggest the need for a development of the economy.

Chapter four presented the method that was implemented in this study. The study employed both quantitative research design and qualitative research design. The study also applied the self-administered questionnaire research instrument which includes open-ended questions, closed-ended questions, dichotomous questions, multiple choice questions and five–point Likert scale type questions. However, the research technique that was employed in study was
primary data collection using the self-administered questionnaire whilst the secondary data was used for the overview chapter.

Chapter five presented the empirical results from the survey data of 2011 which was conducted in the Nkonkobe Local Municipality. The implications of the empirical results were discussed in chapter five. It is clear from these results that Nkonkobe municipality is far from providing an adequate transport infrastructure for the people in this area. These results call for the intervention of the government in all spheres. However, the magnitude of the challenges faced by the community in this municipality also calls for the interventions from the private sector to work in conjunction with the government. The area under review is a poor area with a large number of people being unemployed. The government on the other hand, is promoting entrepreneurship as a means to fight poverty and unemployment. Without adequate infrastructure in this area, all entrepreneurial activities are handicapped because the access roads need to be reconstructed. Of concern is the fact that the budget allocation toward transport infrastructure is below what is needed to address the backlogs. Furthermore, the mere fact that the transport sector is dominated by private taxis is counter developmental. Private entrepreneurs are profit driven and no subsidies are considered for the poor and the elderly. It is against this background that government intervention is important in order to help those who are poor, old aged and unemployment with some form of subsidies. It is needless to mention the fact that all endeavours by the government to uplift the socio-economic status of the people in this area without addressing the transport issues will become a futile exercise. The results of this study show that the highest expenditure of the people in this area is transport. It is on these grounds that public involvement in this area will be of benefit to the community.

6.2 Recommendations

The recommendations following the conclusions will be discussed in the next section and will follow the same sequence as the conclusion. Similar recommendations might apply for the different sections but will not be duplicated. The respondents were asked to provide some recommendations towards the improvement of the public transport in Nkonkobe Local Municipality.

The respondents’ perceptions about the public transportation service are outlined below:
Road conditions are unfavourable in the Nkonkobe Local Municipality. Since the area is largely rural, the roads are dominated by gravel roads; hence, the local government must improve the road infrastructure.

The households in the Nkonkobe Municipality have raised concerns regarding the buses and bakkies that operate around the area; the residents state that these modes of transport are in dismal conditions; so, the government must intervene, alternatively, these old bakkies and buses must be replaced because they not safe.

The respondents expressed that when fuel costs decrease, public transportation costs must also decrease.

The majority of respondents were in a view that local government subsidy for buses is needed in this area because most of the buses in operation need to be upgraded.

The government officials must be transparent about the Road Accident Fund.

This information should be made available to the government, to institutions and businesses involved in planning, design and building of roads and to transport bodies and road user association.

People are encourage to use bus transport although is slow, because it is affordable to the majority of people in order to avoid to spend more on transportation system.

6.3 Potential areas of further research

Based on the quantitative and qualitative research done for this study the following potential areas for further research have been identified:

- Households need to be informed about the benefits of the Road Accident Fund.
- There is need for further study on cost and benefit analysis of transport on poor households.

6.4 Summary

Little research has been done on the impact of transport costs on household income in South Africa. This study has attempted to make a contribution to this area and has revealed devastating findings and also suggested viable recommendations. The literature review introduced various elements within households’ expenditure, especially transport cost. This
chapter illustrated that the objective of the study was achieved. The empirical results of the study postulated that the hypotheses cannot be rejected as indicted in chapter one.

The main findings of the study showed that transport costs, educations, health, food and other items are major determinants of household income. The issue of transportation costs is an important to households’ because all other items depend on transportation for their availability. Households in rural areas like Nkonkobe Municipality are encouraged to make savings. Policy makers should place a greater emphasis on the issue of transportation costs since it is a major factor on rural poverty. It is appropriate to establish the ways that could make transportation costs to be affordable, to be safer, more available and more secure. As the policy by the DoT (2003) postulates that there is need increase investment in public transport infrastructure, to restructure current subsidies in order to promote integrated settlements and to develop public transport projects that will improve access to opportunities for the urban and rural poor. It is hoped that the findings of this study will positively contribute to the areas of theory and households’ development in the rural areas as well as policy formulation in the DoT in the Eastern Cape and the rest of the country.
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Ozbay, K., Yanmaz-Tzel, O., Bartin, B., Mudigonda, S., Berechman, J. (2007) “ Cost of Transporting People in New Jersey. Available Online @


Strathman, J., G., Dueker, K, J, Davis, J, S (1994) “Effects of household structure and selected travel characteristics on trip chaining” Available Online @ http://www.springerlink.com/content/v3h7368g23r44666 (accessed on 02 December 2010).


Questionnaire

The Department of Economics at the University of Fort Hare is carrying out a survey on the impact of transport costs on households’ income in the Eastern Cape Province: A case of Nkonkobe Municipality. The primary objective of the survey is to examine the impact of transport costs on household’s expenditure. The information obtained in this survey will be treated with strictest level of confidentiality and will be used for academic purposes only. No names of persons, firms or organisations will be mentioned in our report. Your participation in the survey will long go away in achieving the researcher’s objectives as well as findings solutions to the transport problems in this region.

Section A

Personal information.

1. Gender of the respondent

<table>
<thead>
<tr>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
</table>

2. Age of the respondent

<table>
<thead>
<tr>
<th>16-25</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>26-35</td>
<td></td>
</tr>
<tr>
<td>36-45</td>
<td></td>
</tr>
<tr>
<td>46-55</td>
<td></td>
</tr>
<tr>
<td>56-65</td>
<td></td>
</tr>
<tr>
<td>65+</td>
<td></td>
</tr>
</tbody>
</table>
3. Educational level of respondent, indicate by X

<table>
<thead>
<tr>
<th>None</th>
<th>Grade 1 to Grade 7</th>
<th>Grade 8 to Grade 10</th>
<th>Grade 11 to Grade 12</th>
<th>Technichon</th>
<th>University level</th>
</tr>
</thead>
</table>

**SECTION B: ECONOMIC STATUS**

4. Are you employed?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

5. State the type of occupation

<table>
<thead>
<tr>
<th>Educator</th>
<th>Health worker</th>
<th>Government</th>
<th>Casual worker (formal sector)</th>
<th>Casual worker (informal sector)</th>
<th>Business owner (formal sector)</th>
<th>Business owner (informal sector)</th>
<th>Student</th>
<th>Other</th>
</tr>
</thead>
</table>
6. State the main source of income

<table>
<thead>
<tr>
<th>Source of Income</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary</td>
<td></td>
</tr>
<tr>
<td>Wage</td>
<td></td>
</tr>
<tr>
<td>Old age pension</td>
<td></td>
</tr>
<tr>
<td>Child grant</td>
<td></td>
</tr>
<tr>
<td>Disability grant</td>
<td></td>
</tr>
<tr>
<td>other</td>
<td></td>
</tr>
</tbody>
</table>

7. How much do you earn monthly?

<table>
<thead>
<tr>
<th>Monthly Income</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than R500</td>
<td></td>
</tr>
<tr>
<td>R500-R1500</td>
<td></td>
</tr>
<tr>
<td>R1500-R3500</td>
<td></td>
</tr>
<tr>
<td>R3500-R6500</td>
<td></td>
</tr>
<tr>
<td>R6500-R10000</td>
<td></td>
</tr>
<tr>
<td>R10000+</td>
<td></td>
</tr>
</tbody>
</table>

8. What is your household monthly income?

<table>
<thead>
<tr>
<th>Monthly Income</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>R500-1500</td>
<td></td>
</tr>
<tr>
<td>R1500-3500</td>
<td></td>
</tr>
<tr>
<td>R3500-6500</td>
<td></td>
</tr>
<tr>
<td>R6500-10000</td>
<td></td>
</tr>
<tr>
<td>R10000+</td>
<td></td>
</tr>
</tbody>
</table>
9. Are you the head of household.

<table>
<thead>
<tr>
<th>Yes</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

10. Household size

How many people that are living in your household? Give the number............................

11. Age groups of people in your household:

<table>
<thead>
<tr>
<th>Less than 25</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>25-35</td>
<td></td>
</tr>
<tr>
<td>36-45</td>
<td></td>
</tr>
<tr>
<td>46-55</td>
<td></td>
</tr>
<tr>
<td>56-65</td>
<td></td>
</tr>
<tr>
<td>65 +</td>
<td></td>
</tr>
</tbody>
</table>

12. How many of your household members are:

<table>
<thead>
<tr>
<th>Students</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Employed</td>
<td></td>
</tr>
<tr>
<td>Unemployed but are able and willing to work</td>
<td></td>
</tr>
<tr>
<td>Are actively looking for work</td>
<td></td>
</tr>
</tbody>
</table>

13. How many people in your household depend in your income? Give the number.........................
14. How much money do you spend on the following items monthly?

<table>
<thead>
<tr>
<th>Item</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td></td>
</tr>
<tr>
<td>Food</td>
<td></td>
</tr>
<tr>
<td>Transport</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

**Section C: Access to transport**

15. Which mode of transport do you use commonly?

<table>
<thead>
<tr>
<th>Mode</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus</td>
<td></td>
</tr>
<tr>
<td>Taxi</td>
<td></td>
</tr>
<tr>
<td>Train</td>
<td></td>
</tr>
<tr>
<td>Bakkie</td>
<td></td>
</tr>
<tr>
<td>Own car</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

16. Which mode of transport do you prefer the most?

17. Expenditure on Public transport and income, If you have your own car what is the overall expenditure on it including fuel cost, maintenance, insurance etc Explain.

...............................................................................................................................
...............................................................................................................................

18. How much do public transport costs you from your community to town?

<table>
<thead>
<tr>
<th>Cost</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>R5-10</td>
<td></td>
</tr>
<tr>
<td>R10-15</td>
<td></td>
</tr>
<tr>
<td>R15-20</td>
<td></td>
</tr>
<tr>
<td>R20-25</td>
<td></td>
</tr>
<tr>
<td>R25 or more</td>
<td></td>
</tr>
</tbody>
</table>
19. How much distance do you travel from your community to town or city?

<table>
<thead>
<tr>
<th>Distance</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>5-15km</td>
<td></td>
</tr>
<tr>
<td>15-25km</td>
<td></td>
</tr>
<tr>
<td>25-35km</td>
<td></td>
</tr>
<tr>
<td>35-45km</td>
<td></td>
</tr>
<tr>
<td>45-55km</td>
<td></td>
</tr>
</tbody>
</table>

20. State the reason(s) for using the mode of transport you have indicated above

........................................................................................................................................................................
........................................................................................................................................................................

21. How long do you have to wait for a public transport?

<table>
<thead>
<tr>
<th>Waiting Time</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2-5 minutes</td>
<td></td>
</tr>
<tr>
<td>5-10 minutes</td>
<td></td>
</tr>
<tr>
<td>10-15 minutes</td>
<td></td>
</tr>
<tr>
<td>15-20 minutes</td>
<td></td>
</tr>
<tr>
<td>20+ minutes</td>
<td></td>
</tr>
</tbody>
</table>

22. If you are using a taxi most of the time how long does it take for it to fill up before leaving the rank to your destination?

23. How long does your transport take to get you to your destination?

24. If you were to price your time how much would you price the time lost in waiting for the transport?

25. How much distance did you travel to reach the public services?

<table>
<thead>
<tr>
<th>Service</th>
<th>Less than 60 minutes</th>
<th>More than 60 minutes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinic</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
26. How many times do you use transport a week?

<table>
<thead>
<tr>
<th>Frequency</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Once a week</td>
<td></td>
</tr>
<tr>
<td>Twice or more</td>
<td></td>
</tr>
<tr>
<td>Everyday</td>
<td></td>
</tr>
</tbody>
</table>

27. State the main reason for using the transport:

<table>
<thead>
<tr>
<th>Reason</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Going to work</td>
<td></td>
</tr>
<tr>
<td>School</td>
<td></td>
</tr>
<tr>
<td>Visiting family/friends</td>
<td></td>
</tr>
<tr>
<td>Going to health care centres</td>
<td></td>
</tr>
<tr>
<td>Job hunting</td>
<td></td>
</tr>
<tr>
<td>Running own business</td>
<td></td>
</tr>
<tr>
<td>Other (please specify)</td>
<td></td>
</tr>
</tbody>
</table>

28. What transportation problems do you face?

<table>
<thead>
<tr>
<th>Type of problem</th>
<th>Number of households</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not available/too far away</td>
<td></td>
</tr>
<tr>
<td>Too expensive</td>
<td></td>
</tr>
<tr>
<td>Safety /driver behaviour</td>
<td></td>
</tr>
<tr>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

29. How does a change or increase in transportation cost affect the overall budget or expenditure of household? Explain

..................................................................................................................................................................................
..................................................................................................................................................................................
30. How many trips did you take per day or a week and how much did you pay per trip? Give explanation and figures

..............................................................................................................................................................................

....................................................................................................................................................................................

31. Have you lost anyone in your family as a result of transport accident?

<table>
<thead>
<tr>
<th>Yes</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td></td>
</tr>
</tbody>
</table>

32. If yes in question 31 above briefly explain........................................................................................................

....................................................................................................................................................................................

33. Have you or anyone in your family suffered injury or any loss as a result of transport accident YES/NO?

Briefly explain................................................................................................................................................................

....................................................................................................................................................................................

34. In your opinion is the arrive alive campaign effective YES/NO?

Briefly explain..........................................................................................................................................................

..............................................................................................................................................................................

35. Are you aware of Road Accident Fund YES/NO?

36. Do you need any information about RAF YES/NO?

37. Is the traffic department efficient in this area YES/NO?
Section D: Likert Scale Measurement

<table>
<thead>
<tr>
<th>Strongly Agree (1)</th>
<th>Agree (2)</th>
<th>Neutral (3)</th>
<th>disagree(4)</th>
<th>strongly disagree (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport costs are too high</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accidents too high</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road Accident fund is easily accessible</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is transparency with regard to RAF</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road conditions are bad in this area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There is too much congestion at taxi rank</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The condition at taxi rank leads to high levels of crime in this area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Law enforcement must be implemented on our roads in this area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There must be stricter government intervention in the taxi industry</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>More buses must be provided in this area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>There must be more trains in this area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The behaviour of taxi drivers is unacceptable in this area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noise is too high in this area because of transport</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traffic congestion in this area causes too much air pollution</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I cannot visit the health care centres as often as i wish because of the transport cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I cannot visit my religious gathering as often as i wish because of transport cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I or my child has missed school so often because transport cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I or my family member have stopped looking for a job because of transport cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am no longer able to go to cinema as a result of high transport costs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I prefer spending time at the tavern for my recreation because it is near and there are no transport costs involved</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I have reduced my expenditure in food as a result of transport cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
37. Provide some recommendations towards improvement of public transport in this area.