A PROPOSED MODEL FOR THE MEASUREMENT OF CAPITAL GENERATION BY SMALL BUSINESSES AS A CONTRIBUTION TO ECONOMIC DEVELOPMENT

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Submitted in fulfilment of part of the requirements for the degree of Doctor of Business Administration in the Faculty of Economic and Management Sciences
University of Pretoria

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September 2006

Preface

I am extremely grateful to my supervisor, Dr Marius Pretorius for his guidance, insight and constructive comments for the past three years.

I appreciated the enthusiastic encouragement of my friends and family during the past years. The patience and support of my wife, Louise, and my sons, Christiaan, Nicholaas and Sebastiaan, kept me going.

Synopsis

Economic development is a relatively new field of economics that started only thirty years ago. Many of the measurements applied in measuring the effectiveness of small businesses in South Africa are based on measuring *growth*, which is not always related to *development*. Using capital generation as one of the measurable parameters in economic development, a model was designed to measure the contribution of small business towards capital generation and, subsequently, development.

The model considered the contribution of small businesses towards capital generation by measuring growth in assets, owners' incomes, employees' incomes and taxes paid. For these parameters to contribute to growth, additional capital needs to be generated by businesses. Job creation was also measured as an important parameter used to calculate employees' and owners' incomes.

The model was tested with actual data gathered through personal interviews with businesses and analyses of the financial information of the businesses. The data were collected to cover a five-year operational period. The model contributed to an understanding of the ability of small businesses to support development in South Africa.

The model was used to test the capital contributions of businesses of different age groups and sizes as well as within different manufacturing environments and locations in Gauteng and North West. Reducing the high failure rate of small businesses will play an important role in any future developmental interventions to increase the contributions of these small businesses. If the high failure rate is ignored and if only successful businesses are considered, it is seen that small businesses contribute to job creation. Small businesses, in general, increased employment below the total employment growth rate for the areas of the study,

although the businesses which employed fewer than ten people outperformed the industry average.

The data suggest that small businesses generally do contribute to capital generation. Small businesses, which employed fewer than 20 people, contributed positively to all aspects of capital contribution, compared to businesses which employed more than 20 people. These businesses performed positively only in tax contribution. It is positive that small businesses invest in, and increase, assets, but it is concerning that tax contribution growth outperforms all other capital generation parameters. Employees' incomes, and especially owners' incomes, showed a negative growth contribution to capital generation. There were definite trends in the data that businesses which employ the most assets, with large salary bills, large owners' payments and large tax contributions showed slower growth than did businesses employing smaller total capital contributions in these parameters.

The motor industry, which showed phenomenal growth over the past few years, did not manage to increase the capital it used taking into account the effect of the consumer price index, excluding interest rates on mortgage bonds. This was also clear in the different regions which support the industry. The industry data can be used to study the different industries in more detail. Although more businesses contributed to growth in the four parameters, the net contributions in certain instances, or parameters, were negative.

The results show that small business contributes both to economic *development* and to *growth*. It is also clear that the model can be used to analyse business contributions to development. It is unclear whether small business is the best way of stimulating development based on growth in capital contributions. The results and the analyses show that the model can be used as a successful management tool to stimulate development-related initiatives.

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Chapter 1: Introduction

1.1 Background

The objective of this study was to propose a model that can determine the contribution of small business to capital generation and consequently to the development of the South African economy.

An economy needs jobs that are supported by an increase in gross domestic product output by job and an increase in income *per capita* to achieve economic stability. It is also important to create growth through the factors supporting growth. It appears that the four factors of growth, namely the size and quality of the labour force, the quantity and quality of capital, improvements in technology and the availability of natural resources, specifically referred to in Sub-section 3.3, are difficult or impossible to manipulate. It is especially difficult to manipulate the size of the workforce and the availability of natural resources. The other two factors, namely quantity and quality of capital and improvements in technology, are linked to capital generation and are relatively easier to manipulate. Even the quality of the work force can be improved if capital is available. An economy needs capital to increase the quality of labour, availability of capital for research and development or to improve the level of technology, thereby improving competitiveness.

The terms *growth* and *development* as two important parameters in this study are defined as follow:

1. ***Growth*** in this study refers to economic growth which is the process of increasing gross domestic product[1]
    a. ***Growth*** does not necessarily imply *capital generation* as explained in Chapter 3

[1] See sub-section 3.2 for full discussion

2. ***Development*** in this study refers to *capital generation* measured via an increase in assets and/or an increase in owners income and/or an increase in employees income and/or an increase in the payment of taxes.
    a. *Capital generation* plays a role in economic development, but it is not the only factor playing a role in economic development. Economic development is a wide field of study of which development through capital generation only refers to a small section.
    b. *Capital generation* plays a role in stimulating at least three of the four factors of *growth*, but it is not the only stimulant
    c. Naturally, *capital creation* implies *growth*, but *growth* does not necessarily imply *capital generation* as explained in Chapter 3.

Capital generation, as a factor influencing economic development (Thirlwall, 1999: 109), can be manipulated through various economic and business interventions. As a controllable factor, capital generation in small businesses is measured by the proposed model as a way of supporting economic development. Economic growth is measured by utilising readily available financial data to calculate the contribution of business to capital generation. The model is explained in detail in Chapter 3.

In essence, the model calculates the capital growth of a business by analysing the growth in assets, taxes, employees' and owners' income. If growth is positive, taking into account the effect of inflation, the business is contributing to capital generation. The business can, therefore, pay its employees and owners better, thereby increasing their spending power, it can contribute more to taxes to improve the country's overall strength, and it can strengthen the position of the business by enlarging its asset base.

The problems associated with small business development, and the lack of effective measurements to confirm the effectiveness of these development

efforts, result in a management dilemma for development and government agencies which support the development of both small, medium-sized and micro enterprise. The impact of their efforts on the economy, with regard to capital generation, cannot be effectively measured and can therefore not be optimised. This management dilemma will be discussed in more detail in sub-section 1.2.

It is also argued that the pure creation of jobs and increasing the contribution to gross domestic product will not necessarily improve the economy and therefore should not be used as measuring tools in developing economies. This is contrary to the current measurement of the contributions of small and medium-sized enterprises in South Africa. The proposed model is more in line with international trends and is supported by the World Bank (the International Bank for Reconstruction and Development/the World Bank 2000: xxiv) and recent economic research (Mohr and Fourie, 2002: 684).

The proposed model will improve the decision-making criteria of state departments, aid organisations, and financial and non-financial development organisations. The model will add an economic-development dimension to the current decision-making criteria and assist these entities to optimise limited capital and human resources. The proposed model appears flexible and can be adapted in order to enable research in specific fields of small business development. It will enable the researcher to identify areas of strength within the economy where small enterprises perform better than in other areas. This research can support development agencies to focus their energies towards areas of higher potential development in small and medium-sized enterprises.

Based on economic theory, discussed in Chapter 3, there are various parameters that must be addressed to ensure real economic growth. Economic growth is only achieved when there is an increase in the real potential (full employment) income. Naturally, growth comes into its own only when potential is fully utilized.

Lastly, gross domestic product, per head of the population, must increase. The conflicting evidence regarding the contribution of small businesses to development, analysed later in this chapter, can be attributed to the methods of interpretation and measurement that are not standardized. This proposed model provides insight to the creation of capital affects related to economic development and the development of individual businesses. Capital provides businesses with the opportunity to attract good resources, to expand the business and to absorb risk in order to grow.

This chapter serves to operationalise the key concepts in the problem statement of the actual phenomena to be studied. The chapter also formulates the items used to define all the variables in the study. A separate chapter is dedicated to defining small business because of the importance and complexity of such a definition for the study.

It was not the objective of this research to *question* the contribution of small businesses to economic development. Rather, the research aimed to *analyse* and *interpret* the degree that small businesses contribute to economic development in South Africa through capital generation. The degree that they contribute to economic development, and the impact associated with this development, is limited to aspects of the model that are necessary to understand their capital contributions. Information regarding the impact of the development of small and medium-sized enterprises will help the 250 development agencies (in 2001), to optimise their resource planning (Harley, 2001: 11).

The parameters, or risk factors, influencing the success of small businesses have been analysed in the literature (Chapter 4). The effects that these risk factors have on the success of small businesses were accounted for by analysing the data, drawing conclusions and making recommendations. The proposed model, and model results, must not be read in isolation. The secondary benefits of small business development were considered, as were the risk factors influencing

development. These benefits are reducing the burden of government to support the unemployed, to develop entrepreneurial skills, to create new markets and to distribute income over a broader income basis, and so on.

Primary data used in the study highlight important issues that impact on development and on the application of limited resources. The net result of the study is a model to determine the measurement of capital generation by small businesses as a contribution to economic development.

1.2 Research problem

There are two main research dilemmas:

1. The first is that there is conflicting evidence about the contribution of small businesses to development, both locally and internationally. The impact of small business on development, as a method of stimulating the South African economy, is therefore studied to determine the actual contribution of these businesses to the economy.
2. Secondly, conflicting statements about the contribution, and way that contribution is measured, raises the question of what the best method to measure small business contribution in a developing country should be.

Various statements in the literature confirm that small businesses contribute to economic development in South Africa and other developing and transitional economies (Levy, 1996: 1, Belisle, 1997: 18, and Bureau of Market Research, 2001: 1). In the White Paper of the Department of Trade and Industry, 1995, sub-section 2.2.3, the impact on economic development is acknowledged: “The small business sector is seen as an important force to generate employment and more equitable income distribution, to activate competition, exploit niche markets (both nationally and internationally), enhance productivity and technical change, and through all of this stimulate economic development.” Physical proof of

government's belief in the contribution of small business is seen in the National Small Business Council programme. It is also stated that small and medium-sized enterprises have the potential to become significant exporters, to promote economic growth, and to alleviate poverty among various groups in a society (Badrinath and Kirpal, 1997: 6). One of the greatest challenges facing the South African government in future decades will be economical growth that brings tangible benefits to the majority of the population (Toomey, 1998: 217).

The report of the Bureau of Market Research (2001: 3) states "The role of the informal sector is particularly relevant when levels of unemployment and poverty are high and economic growth is slow. The development of the informal sector has been suggested as a possible means of providing some form of survival or subsistence income".

Contradictory to the statements supporting small business development is that of Bradburd and Ross (1989: 259), who showed that in the United States large businesses are generally more profitable than are small businesses in heterogeneous industries, except where niches exist. There is a direct link between capital generation and profitability. This raises the question of whether small business development is the optimal tool for establishing economic development. This again is contradicted by Burns and Dewhurst (1986: 195), who state that small European businesses are more profitable than larger businesses. There is mixed empirical evidence supporting claims that small and medium-sized enterprises create jobs (Hallberg, 2000: 5).

It is clear from the statements that small and micro business development is seen as an important driver in the South African economy. The relevance of these statements must be questioned considering that, according to the Katz Commission, 90% of taxes are collected from 8% of businesses in South Africa (Cape Argus, 1997 (1): 1). The hypothesis that they either contribute (H_{10}), or do not contribute (H_{1a}), will be tested.

Statistical data on small business success from financial institutions and statistics published by the state on small business development indicate that the success rate for small businesses in South Africa is between 20% and 30%, depending on the relevant business sector (Nattrass, and Glass, 1986: 2). Data from the Anglo American Small Business Development Arm (1995 to 2001) also highlighted the risk of failure in small and medium-sized enterprises.

In contrast to South Africa, small and medium-sized enterprises in India, Bangladesh, and Pakistan contribute 90% to employment in the industrial sector and between 60% and 70% of domestic industrial production. The positive results retrieved from small business development in Asia are being used to justify the South African small business strategy (Rutten and Upadhya, 1997: 8).

Another hypothesis is that differences between developing economies will have differing impacts when policies are being designed (Hallberg, 2000: 2). This research does not address this hypothesis.

Historically, there was a general trend of small business decline[2] in the developed nations of Europe, especially the United Kingdom and the North American nations (Canada and the United States of America). The decline in the economic weight of small businesses has been reflected in a major shift in the proportion of the working population that earns its income from profits as opposed to wages or salaries (Bannock, 1981: 2). Storey (1996: 24) showed a similar trend[3]. This trend has started to change because of the new integrated world economy where flexibility is now becoming more important. Similarly, only those businesses that can offer better value-added products and services to an expanding and international client base, and deliver them quickly, will succeed.

[2] See chapter 4: The importance of small businesses
[3] See sub-section 4.3.4: Small business impact on employment

This trend has not only decreased the importance of size, but also provides an advantage to smaller entrepreneurial businesses (Jetro, 1999: 3).

It can be concluded that:

1. Different levels of economic development have different small and medium-sized enterprise strategies supporting the economy (Hallberg 2002: 2).
2. South Africa prefers economic growth, used in the first world, as a measurement tool since all reports refer to growth measured by Gross Domestic Output and no reports refer to development through capital generation as a measurement (Badrinath and Kirpal, 1997: 6 and Bureau of Market Research, 2001: 3).
3. Using economic *growth* as a measurement of economic prosperity in gross domestic product and job creation shows positive results in local and international published statements.
4. Using *development* measures, measuring capital generation, such as the contribution to tax and asset growth, shows negative contribution to capital generation in South Africa.

A research problem is formulated in sub-section 1.3 to analyse the impact of manufacturing small businesses on economic development in South Africa: A proposed model for the measurement of capital generation by small businesses as a contribution to economic development.

1.3 Problem statement

Institutions such as the South African government, donor countries and private businesses invest large amounts of time, resources and money in small business development to stimulate the economy. These investments are made without a proper tool to measure the net direct effect of the investments on the economy and specifically on economic development. Weaknesses of not having proper measurement tools include:

1. Researchers currently using gross domestic product and job creation as measures of growth only and ignoring the impact that small business development has on economic development.
2. Researchers measuring the financial success of businesses and ignoring their impact on government and employees.

It is not possible to determine whether small businesses in South Africa contribute to capital generation and, therefore, development. It is critically important for a developing country with limited resources to know what the net effects of these investments are to enable it to invest available resources for economic growth and development in the best possible ways.

No studies, similar to the work done in this study, have been attempted to establish the effectiveness of small business development or to measure its contribution to capital generation in South Africa. However, models do exist to determine the macro-economic impact of business development on growth. These models measure the effects of gross domestic product and job creation on growth (Reid, 1995: 6).

The South African government has aggressively embarked on a drive to develop the small business sector. This drive is based on international studies which state the effectiveness of small business development on job creation and on the gross

domestic product. Actions, based either on myth or reality, encourage governments in both developing and industrialized countries to intervene to promote small and medium-sized enterprise development (Hallberg, 2000: 22). However, scale-based enterprise promotion has little empirical support.

Because the effects, of enterprise development on the South African economy, are not known, large amounts of scarce resources are invested without knowing how effective these investments are. If the net results of these investments cannot be determined, it becomes very difficult to determine the weaknesses and strengths of the strategy. No intervention is possible to influence positively the internal and external factors hampering small business development since the relative influences of these factors are not measured.

Small business development was successful in certain countries within their specific macro-economic environments. There are some similarities between South Africa and these countries, but there are just as many differences.

1.4 Research questions

The fundamental question that needs to be answered is whether small business in South Africa contributes to capital and job generation and, therefore, economic development. The word *additional* in the hypotheses refers to the increase in capital generated over and above the increase in capital generated to cancel the effect of inflation. The hypotheses necessary to test the research question are:

1. H_{10}: Small businesses do not generate additional capital.
2. H_{1a}: Small businesses generate additional capital.

The H_{10} and H_{1a} hypotheses have the sub–hypotheses which follow:

i. H_{20}: Small businesses do not generate additional income for their employees.
ii. H_{2a}: Small businesses generate additional income for their employees.
iii. H_{30}: Small businesses do not generate additional income for government (tax).
iv. H_{3a}: Small businesses generate additional income for government (tax).
v. H_{40}: Small businesses do not generate additional income for their owners.
vi. H_{4a}: Small businesses generate additional income for their owners.
vii. H_{50}: Small businesses do not generate additional income for investment in assets (capital and goods).
viii. H_{5a}: Small businesses generate additional income for investment in assets (capital and goods).

These eight sub-hypotheses are followed by the final two hypotheses regarding job creation by small businesses:

1. H_{60}: Small businesses do not contribute to job creation.
2. H_{6a}: Small businesses do contribute to job creation.

1.5 Research objective

The objective of this research was to propose an efficient and effective model to analyse the impact of the development of the manufacturing small business sector on capital generation in South Africa. All over the world small and medium-sized enterprises play a disproportionately large role in light manufacturing, especially of differential products (products that are not manufactured by larger companies because of low volumes or specific technical issues). There is a

similar pattern in South Africa, although on a smaller scale compared to international norms (Levy, 1996: 1).

For the proposed model to be successful, it needs to comply with the parameters which follow:

1. The data should be easily accessible and accurate. This was achieved by using data from the audited financial statements of a business. The data were obtained from a structured interview or directly from the audited financial statements.
2. The proposed model should be operationally applicable to different sectors.
3. The proposed model should be operationally applicable to different geographical regions.
4. The data should be easy to interpret.
5. The effect of inflation and fluctuations in employment should be considered. This was done by correcting the data to eliminate the effects of inflation by normalising the data with the consumer price index, excluding interest rates on mortgage bonds, and by normalising different employment numbers to analyse the impact on *per capita* income growth.
6. Trends should be considered. Data were shown as percentages to analyse the trends.
7. The effect of business cycles should be minimised. Different manufacturing industries were analysed to reduce the effect of business cycles on the industries and the analyses were done over a five-year period.

1.6 Approach

Definitions of *small business* in both the South African and international contexts needed to be understood so that parallels with international research could be drawn.

A model needed to be developed to understand the impact of small businesses on development in a South African context. The model was based on the understanding of the definitions of *small business*. International best practice and development economic theory were used to construct the model and the measuring parameters. Based on the parameters that needed to be measured, a practical solution to obtain information to analyse the parameters necessary to measure development was designed.

Data were collected by using interviews or by obtaining financial data directly from the institutions. The data were used to fill the model to be used to determine the contribution of businesses to development and to capital generation. Lastly, the results of the study were used to draw conclusions, to make recommendations, and to identify areas for future research.

1.7 Benefits of the study

The study will benefit two main groups:

1. Governments and development agencies will have a model to analyse the impact of their developmental efforts on capital generation on the level of small businesses and on the macro economy
2. Researchers and institutions will have a research tool to improve their understanding of the impact of small businesses on development and capital generation.

The proposed model will provide users with a tool to evaluate capital generation and job creation by small business as well as larger businesses as:

1. It measures the number of direct jobs created.
2. The number of jobs created can be compared with the average number of jobs created in the industry.

3. The contribution of sectors and industries to job creation can be measured.
4. Capital generation can be measured to determine if small businesses generate additional capital in assets, taxes and in the incomes of owners and employees.
5. Capital generation can be measured to determine which sectors, industries or sizes of businesses generate the most additional capital.
6. It gives an indication of the strength of the businesses based on their ability to grow assets.
7. It gives an indication of the effectiveness of small businesses in improving the lives of employees.
8. It gives an indication of the abilities of small businesses to contribute to government income through tax.
9. It highlights areas of concern and opportunity.
10. A better understanding of current small business development in South Africa is created.
11. It provides clearer definitions for identifying manufacturing small businesses in South Africa.

1.8 Nature and form of results

The proposed model determines whether businesses contribute to economic development through capital generation. The results were analysed by reporting on the businesses' contribution towards tax, asset growth, employees' and owners' incomes.

The proposed model highlights areas of small business development in South Africa by identifying the optimal business size and age to be targeted. It assists stakeholders to identify the optimal impact areas on which to focus developmental efforts. These include high growth sectors when stakeholders are considering investing in this sector of the economy. The model gives a picture of

the effectiveness of small business development when measured against its impact on the development of the economy. The proposed model uses a direct analysis approach and does not consider the indirect benefits that small businesses provide.

1.9 Conclusion

This study is relevant to an understanding of the impact of small business development on the South African economy, especially considering the conflicting evidence about the contributions of small businesses and the different ways they are measured in the literature.

It is important that the model is based on economic theory and best practice and that it is tested against actual primary data. The relevance and importance of managing the scarce financial and human resources effectively in South Africa must be acknowledged as one of the main drivers to justify this study. South Africa, with its high population growth rate, the Auto Immune Deficiency Syndrome, unemployment and lower-than-expected economic growth, will benefit by making the right decisions in supporting economic development. Small business development is only one way of assisting economic development.

Without a model to determine the impact of small business development on the economy in South Africa, no investment or development organisation can make an objective investment decision to benefit the economy optimally, especially as capital generation is an important parameter for development. The model will not analyse the secondary spin-offs of small business in South Africa and will only inform the reader of these secondary benefits.

Chapter 2: Defining a Small Business in South Africa

2.1 Introduction

The term *small business* is defined and used differently in South African literature. The same is seen internationally. The differences between the definitions, as described in this chapter, make it difficult to find similarities between local and international research. Rothwell and Zegveld (1983: 8) and Hallberg, (2000: 1) support this when they state that the role of small and medium-sized enterprises in the economy varies nationally, as does their contribution to technological innovation. Stanworth and Gray, (1991: 3) contends that the definitions may even change over time. Sauermann, (1997: 7) also confirms the difficulty of defining a small business by stating that a small business cannot even be defined in exact terms. There is no accepted international benchmark against which to measure and interpret. These differences in measurement and interpretation are seen throughout the research.

The literature sources used here span three decades. The reasoning behind this is to analyse differences between economies and cultures and to become aware of the shifts that occur as countries develop and changes in the economy occur.

It is important to understand and define a small business in South Africa in order to understand the unit of analysis. This chapter will look at South African and international definitions. A better understanding of the different measurements will assist the writer to incorporate more literature and to develop a better understanding of the context.

The definition developed in this chapter will be used as one of the parameters to define the scope of the study and clarify its delimitations. The sources of currently-used definitions which follow will be used to develop a definition to be used in this thesis:

1. Small businesses as defined in South African literature and as published by private and public institutions, in research papers and other publications.
2. International definitions of small businesses.
3. Practical applications of definitions, such as in procurement policies and other indirect methods, as additional sources to define and verify the relevance of definitions of small business used in local and international literature.

Different units of measurement used in defining small business must also be considered. Measurements, and units of measurement most applicable to South Africa, must be selected. Information about small businesses must be accessible and measurable. These businesses must at least be registered entities with good fundamental accounting practices. These will minimize personal data interpretation and bias.

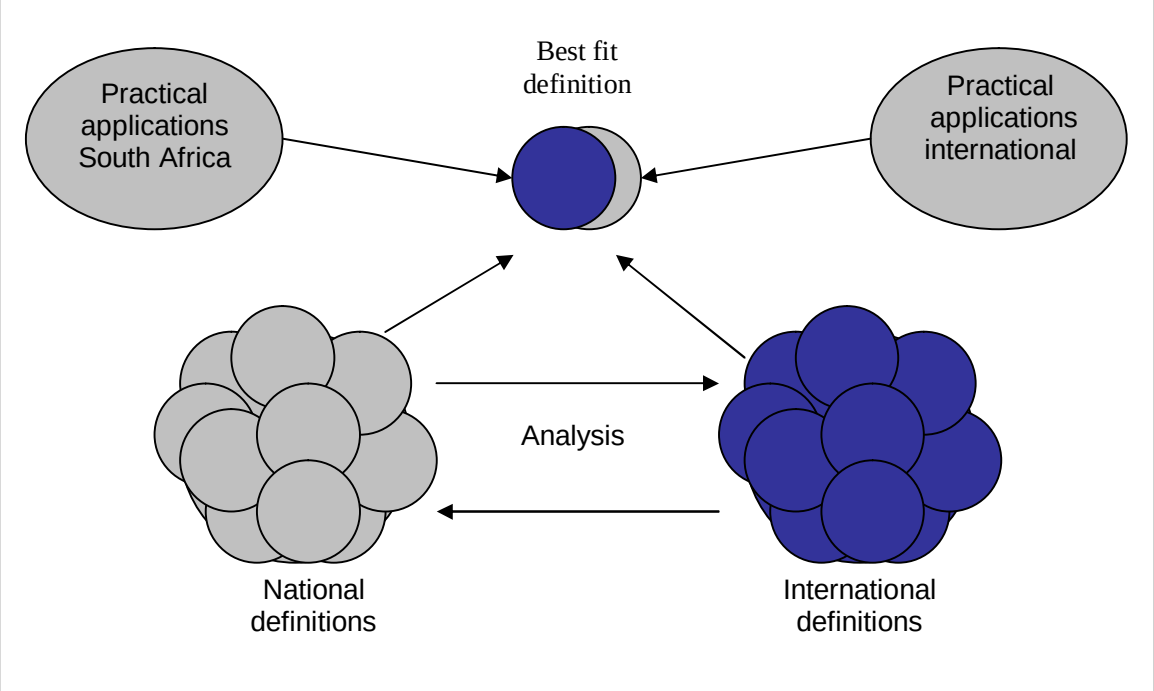

Figure 2.1 Graphical representation of the development of a so-called best-fit definition compiled by the writer

A definition for this study will be developed by considering the factors illustrated in Figure 2.1 and discussed already in this chapter.

2.2 Delimitation and scope of the study

Analysing and defining a small business in the South African context will constitute the bulk of the chapter. The definition will be used to clarify the scope and delimitation of the study. The description of the geographical area and industry sector will also form part of this chapter. Current small business definitions used in the South African and international context will be discussed.

The chapter provides insight into the different entities on the continuum from survivalist to medium-sized businesses. This will provide the reader with a better perspective of what constitutes a small business to clarify the delimitation and scope of the study. Clarifying what constitutes a small business will also assist in developing a better understanding of the field of study.

2.3 Geographical area

The study does not analyse the total South African small business industry in all economic sectors. It only focuses on the manufacturing industry in Gauteng[4] and North West as a sample. The model is tested against a sample of the total local manufacturing small business sector in these provinces. This sample has a total size of 45 manufacturing businesses.

[4] Most small (42%) and very small (50%) businesses are in Gauteng.

Figure 2.2 Map of South Africa

This map of South Africa shows that Gauteng is the smallest of the nine provinces geographically and that North West is located to the west of Gauteng.

KwaZulu-Natal has the largest population, with 9.4 million counted in the 2001 census. However, Gauteng is the most densely populated province, with some 8.8 million people (19.7%) occupying just 1.4% of the country's land area.

The most rural area is Northern Province. Gauteng, with both Johannesburg and Pretoria within its boundaries, is almost entirely urban. North West has 3.67 million people or 8.2% of the total population (Statistics South Africa (2), Census 2001). The province of North West constitutes 9.5% of South Africa's land area. The two provinces, Gauteng and North West, constitute two extremes in population density in South Africa.

2.4 Industry

This research focuses on the manufacturing industry. The reasons are that:

1. Small business, especially in manufacturing, acts as the breeding ground for innovation. The Bolton Committee (1971: 10) called the small business sector the seedbed for the industry of the future. This is supported by Aldonas (2003: 2), in his paper on the impact of manufacturing small businesses in the United States, and by Storey (1996: 24)[5].
2. Data from the manufacturing industry are more readily available to the researcher.
3. It is easier to measure its contribution based on physical output or the end product that is manufactured.
4. The manufacturing small and medium-sized enterprises industry is distinct in the literature.
5. Growth in the manufacturing industry is common to newly-industrialised countries and is associated with developing economies (Haslam, Neale, and Johal, 2000: 70).

This study specifically focused on the following sectors within the manufacturing industry[6]:

1. Motor.
2. Building.
3. General engineering providing engineering services especially to the mining and agriculture industries.
4. Furniture and funeral.
5. Food.

[5] The role of small business: see sub-section 4.3.3
[6] For a detailed description of the industries and the grouping of industries, see sub-section 6.12

2.5 Definitions

This section will discuss both local and international definitions for developed and developing countries. The data were then used to analyse and define a best-fit definition of a small business in the South African manufacturing industry. This analysis will form a critical part of the delimitation used for selecting small business data for the model.

2.5.1 Local definitions of small business

A generic international definition is not easy to find. Most definitions, or classifications, of small businesses are specific to a particular country (Hallberg: 2000: 1). This is true of both the measurement and the size of the measuring units.

Countries have widely different definitions of small and medium-sized enterprises. In India, for example, the criteria for determining small and medium-sized enterprise status is based on investment in the business, while in South Africa small and medium-sized enterprise eligibility depends on the number of employees and turnover.

It is important to understand the current method used to define small businesses in South Africa to enable us to understand and analyse data from local literature.

Older literature illustrates changes in definitions over time. In the Republic of South Africa President's Council Report[7] (1985: 3), for example, certain qualitative measures were used to define a small business. These measures were:

[7] The 1971 Bolton Report indicated that this is not a good measurement. See International comparisons.

1. ***Independent economic unit***: The business is owned and run independently with ownership residing in one person or a small group of persons.
2. ***Simple organisational structure***: It normally has an informal organisational structure, with numerous functions and responsibilities residing in one person.
3. ***Small influence on the market***: The business does not have a significant influence on the prices or the quality of goods offered.
4. ***Ownership identified with the entrepreneurial function***: Ownership is identified with the entrepreneurial function, partly supplying capital, managing the business and sharing in profits. In large businesses the functions of ownership and management are usually not shared, with businesses run by professional managers.

The reason why this definition was used is that there was no acceptable quantitative measure for defining a small business. The fact that *small* has a different meaning in different countries and that it is measured in different ways are supportive of this method of defining small and medium-sized enterprises.

The difference between medium–sized, small and informal businesses can be described as a grey area in South Africa according to the Republic of South Africa President's Council Report (1985: 5).

The South African Government has determined that small and medium-sized enterprise classification is important to understanding which types of policy interventions are most appropriate (Lucas, 1992: 3). These reasons for small and medium-sized enterprise classification have been identified:

1. Policy makers and service providers need to know which target groups should be assisted so that they can develop better policies and services for small businesses.
2. Small business owners need to know into which target group they fall so that they can determine the support measures for which they qualify.
3. Researchers need a common understanding of what small business is so that they can measure and compare performance in different regions and sectors and in other countries. For example, survivalist businesses are best served with interventions that complement the community development approach, whereas micro-enterprises need increased access to finance and information to help them to move into the small and medium-sized business league. Small and medium-sized businesses require an individualised package of technical assistance, training and credit sources.

The National Small Business Act[8], Chapter 1, (The Republic of South Africa National Small Business Act 102 of 1996: 2) provides the first national definition of small business. The Act describes a small business as a separate and distinct business entity. It cannot be part of a group of businesses. If it does have subsidiaries and branches, they must all be included in the measurement of its size. A small business should be managed by its owner or owners and the business can be a natural person, a sole proprietorship or a partnership. It can also be a legal person, such as a closed corporation or company.

The definition in the Act includes agricultural activities and the activities of professionals. It is essential to determine the criterion for distinguishing between self-employment, which is covered by the definition, and casual labour, which is not. Self-employment activities are performed for one's own account and risk. By applying this criterion, it becomes clear that economic activity based on an

[8] This Act is the best comparative definition of small businesses based on international definitions. See sub-section 2.8: International definitions

authoritative relationship, such as in domestic work and selling goods for someone else, does not qualify as self-employment and therefore does not qualify a person for small and medium-sized enterprise status.

The National Small Business Act (The Republic of South Africa National Small Business Act 102 of 1996:18) classifies small businesses into four categories: micro, which includes survivalist businesses, very small, small and medium-sized. The Act uses employment, turnover and assets criteria to classify small businesses. The business must comply with all three. This study only focuses on small businesses. The definitions in the sections which follow have been included to clarify and demarcate the upper and lower limits of the study.

2.5.2 Informal business sector

Informal businesses were excluded for the purposes of this study. They form the lower border of small business.

An informal business can be defined as an unrecorded, and frequently illegal, business activity. Illegality, as defined, excludes socially unacceptable and criminal activities (The Republic of South Africa President's Council report, 1985: 7).

This older definition is replaced by the more detailed National Small Business Act definitions that distinguish between businesses using different criteria. They reflect the change in focus by government to increase its support to small businesses. They redefine informal businesses, thereby enabling them to become part of the economic structure.[9]

The report of the National Manpower Commission (1983: 5) sees the informal sector as part of small business. It is difficult to compare the South African

[9] See chapter 2 sub-section 2.1.2

informal sector with international data, since most data are based on businesses that are registered entities operating according to the rules and regulations of the country. The study will exclude informal businesses such as street vendors, businesses not registered for tax and businesses with only one employee. These are businesses described as survivalist businesses[10] by the National Small Business Act.

It is almost impossible to determine the extent of the informal small business sector (subsequently referred to as the *informal sector*) in the Republic of South Africa, particularly in respect of determining the employment potential of this sector (Martins and Ligthelm, 1995: 4). This is mainly due to the fact that it is not clear as to what constitutes the informal sector.

Problems in defining the informal sector have already been discussed and the examples which follow indicate practical problems that are encountered in quantifying it:

1. Many people are only involved in the informal sector to supplement income from their usual occupations. A mechanic, for example, may repair motor cars of friends or acquaintances over week-ends for remuneration. This must be seen as an informal sector activity. It probably does not contribute to the provision of employment, although it may do so indirectly. One of the requirements that could therefore have been included in the definition of the informal sector is that people must be involved in the informal sector full-time or for the larger part of the day. This would mean that people earning the smaller part of their income through the informal sector are excluded.

[10] See chapter 2, sub-section 2.1.2

People who work part-time, such as street vendors who operate during peak hours only, might also be excluded. Such a narrow definition disregards the contribution of the informal sector to creating the means of existence even where it does not lead to the creation of conventional, measurable, full-time employment opportunities.

2. Informal sector activities are often undertaken to bridge a period of unemployment. The person concerned does not have to earn an adequate income from the informal sector to make a living, because he can rely on savings, unemployment insurance or other sources to do so. In such a case the informal sector does not offer a permanent means of living to the person concerned. The issue that is raised is whether this really identifies the informal small business as an *employment opportunity*.

Children are often involved in the informal sector. Many of them would not have been classified as economically active if it were not for the informal sector (in other words, they would not be workers or work seekers). Strictly speaking, they should not be taken into account when determining the potential of the informal sector to provide employment opportunities.

The extent to which illegal activities, such as prostitution or smuggling, should be included could also be questioned. If it is decided to include such illegal activities two problems in particular become apparent:

1. There is not always a clear distinction between legal and illegal activities. *Shebeens*, for example, were seen as totally illegal until recently. If, as a result of this, they are excluded from any assessment of the informal sector, the figures will be distorted (even more so if a sudden change in policy legalises many of the shebeens). The same is true for unlicensed taxis and street vendors.
2. A comparison with other countries would then be made difficult, because what is considered to be illegal differs from country to country. If provincial

and local authority ordinances are also taken into consideration, an activity which is illegal in one area may be legal in another.

A whole family often undertakes an informal sector activity, but the different members of the family are not always involved to the same degree. The wife can, for example, assist only during busy lunch hours. To say that the employment effect equals the number of persons in the family would be incorrect. It would also be incorrect to take only those working full-time into account. Many activities in the informal sector do not provide full-time work (as in the case of street vendors who sell their wares only during peak hours), but these activities still contribute materially to the means of existence of the people involved.

It is necessary to calculate the real cost of creating these informal ventures and the risk involved in the establishment of such ventures. The impact of these ventures on business in similar markets must also be established to calculate the real contribution to economic growth. It is necessary to determine if these small ventures contribute to the economy or only share a limited market. If the latter is the case, these ventures do not contribute to the economy by creating something additional or new.

2.5.3 Survivalist businesses

Survivalist businesses are businesses with no paid employees and minimal assets. These businesses generate income below the minimum income standard or the poverty line, and their main aim is to provide minimal subsistence to the unemployed and their families. Most entrepreneurs in this category are involved in hawking, vending, subsistence farming and so on.

In the National Small Business Act, the survivalist sector is considered part of the micro-enterprise sector. It is estimated that the survivalist sector constitutes 23.3% of all businesses in South Africa and provides approximately 3% of total

employment. This category has great potential for the absorption of unskilled labour. This has been confirmed by the correlation between the unemployment rate and the amount of self-employment in unregistered, mainly survivalist, businesses that prevail in informal settlements and in rural areas. The largest number of South Africa's survivalist businesses is in KwaZulu-Natal (23%), Gauteng (21%), the Eastern Cape (17%), and Northern Province (11%) (The Department of Trade and Industry, 1998: 2).

2.5.4 Micro-enterprises

Micro-enterprises have a turnover below the Value Added Tax registration limit (presently R300,000.00 *per annum*) and have fewer than five paid employees. These businesses tend to lack formality in terms of registration for tax purposes, labour legislation, business premises and accounting procedures. Examples of micro-enterprises are spaza shops, mini-taxis and household industries. Micro-enterprises, with no employees, constitute approximately 31% of all businesses and contribute an estimated 3.9% of total private-sector employment. Micro-enterprises with one to four employees make up 16.4% of all businesses and contribute about 6.8% of employment. The largest numbers of micro-enterprises are located in Gauteng (34%), KwaZulu-Natal (18%), the Western Cape (14%) and the Eastern Cape (10%). (The Department of Trade and industry's National Small Business Act, 1995, and Department of Trade and Industry, 1998: 2).

2.5.5 Very small businesses

Very small businesses generally employ fewer than ten paid employees, but in the mining, electricity and manufacturing and construction sectors they employ fewer than 20 people. They operate in the formal market and usually have access to modern technology. The smallest of these businesses comprise self-employed owners with no employees, such as artisans and professionals. Very small businesses make up an estimated 19.7% of all businesses recorded and account for 13.3% of employment. The largest concentrations of very small businesses

are found in Gauteng (42%), the Western Cape (16%) and KwaZulu-Natal (15%). (Department of Trade and Industry, 1998: 2).

2.5.6 Small businesses

Small businesses have fewer than 50 paid employees, are more established and have more complex business practices. Usually the owners do not manage the business directly, and have secondary coordinating mechanisms. Growth from a small to a medium-sized business requires an accumulation of resources as well as a set of appropriate incentives for business expansion. Small businesses constitute an estimated 7.6% of all businesses and contribute 19.9% of employment. Almost 50% of small businesses are found in Gauteng (46%). A further 16% and 12% are located in KwaZulu-Natal and the Western Cape respectively (Department of Trade and Industry, 1998: 2).

2.5.7 Medium-sized businesses

Medium-sized businesses are businesses with up to 100 paid employees, but this number rises to 200 in the mining, electricity and manufacturing sectors. Although usually still controlled by an owner/manager, the ownership and management structure is more complex. Often the decentralization of power to an additional management layer and a greater division of labour are the main differences between small and medium-sized businesses. A more complete separation of ownership and management is often the natural barrier between medium-sized and large businesses. Medium-sized businesses make up 1.4% of businesses recorded and account for around 13.8% of employment. They are concentrated in the metropolitan areas of Gauteng, KwaZulu-Natal and the Western Cape. In practice, the number of employees has become the most important criterion, whereas in micro-enterprises turnover is the most vital criterion. The turnover and asset criteria are flexible enough to take into account large differences across various sectors of the economy (Department of Trade and Industry, 1998: 2).

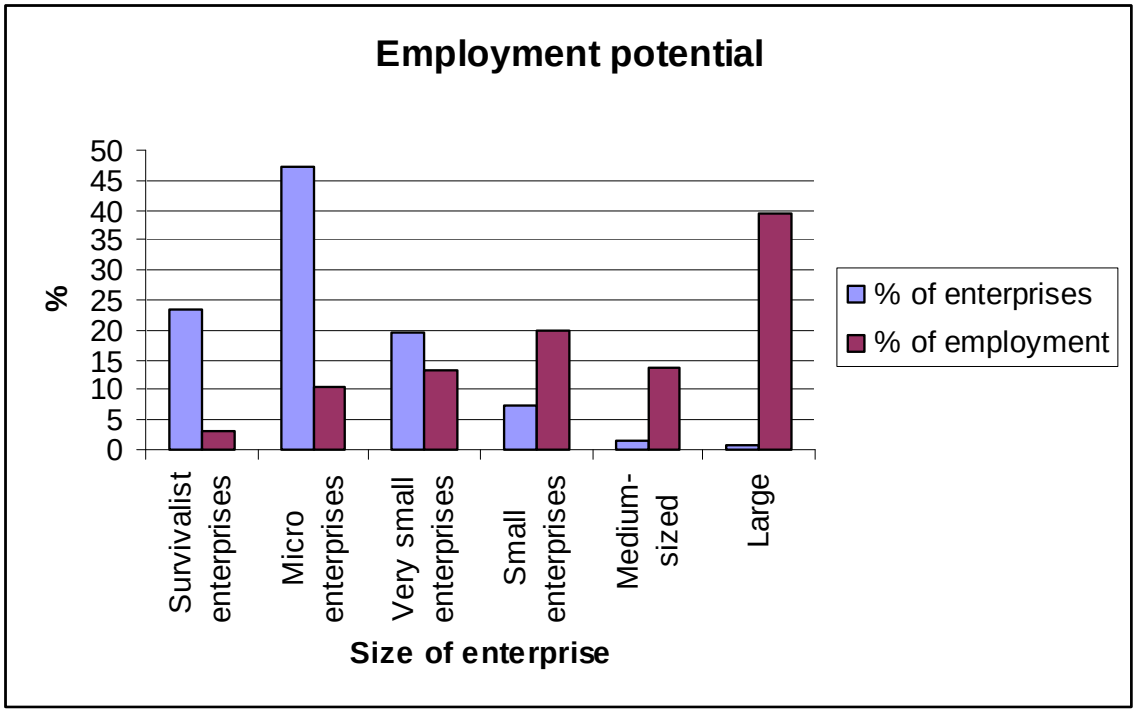

Figure 2.3 Employment potential of different-sized businesses

The employment potential of businesses is based on the data retrieved from the National Small Business Act and Department of Trade and Industry, (1998: 2). The writer compiled the graph from these data.

This graph is supported by data from Levy (1996: 1) who confirmed that 14166 businesses, employing fewer than 100 people, provide only 23.9% of employment whereas 3208 manufacturing businesses, employing 100 or more people, provide 76.1% of employment.

Compared to other developing nations such as Korea, Singapore and others, our manufacturing small businesses contribute far less to job creation. Out of 11 countries, the average of job creations for business employing five to 19 people was 11.9% compared to 5%. The section of the sample that is measured in this study of businesses employing 20 to 99 people showed a similar trend. In South

Africa: 18.9% are employed, compared to 18.5% in the rest of the world (Levy, 1996: 1).

This data show that the size of a business has a direct impact on the percentage contributed towards employment in South Africa. There is a definite difference between how much very small and small businesses contribute to job creation. The impact that small businesses have on job creation, compared to that of very small and micro businesses, supports government's drive to develop this sector.

Comparing the two methods of defining small business, it is clear that the latter is a quantitative method compared with the more qualitative method used in the Republic of South Africa President's Council Report. This again emphasises the differences in ways of defining small business.

2.6 Contract-grading as a measure of validating small business definitions

2.6.1 South Africa

Many developing countries in Africa have contractor-grading systems for contracts. Contractors are generally classified in terms of their resources, such as their financial capability, equipment, supervisory staff and previous experience (Special Sectoral Report No. 1, November 1997: 4). Monitors are appointed to verify contractor classifications and to reassess classifications from time to time. Contracts are packaged to suit contractors in a particular classification, usually in terms of complexity, monetary value and nature of the work. Typically, contractors may not tender for work above their contract status but may tender for work below their status. This grading system has proved useful in developing local industries (Public Procurement in the European Union, 1998: 6).

However, it has also worked as a trade barrier for foreign businesses as the system ensures that work, that the local industry is capable of undertaking, is packaged appropriately (Wittig, 2000 (2): 30).

In the context of determining small and medium-sized enterprise status, the question of registration can be approached in a number of ways and may be required for a number of reasons. One of them is to identify the small and medium-sized enterprise's field of operation (activity) in order to target and promote certain types of business effectively. In South Africa, registration is considered necessary for accreditation purposes and as a means of identifying activities (Special Sectoral Report No. 1, November 1997: 6):

1. Compiling a database and for the packaging of contracts.
2. Regulating the industry.
3. Ensuring "equitable" workloads to pre-qualified contractors.
4. Certifying the *bona fides* of small and medium-sized enterprises.

Proposals for registration in South Africa for public-sector procurement reform suggest that registration must be instituted as a means of:

1. Compiling a database for the packaging of contracts and identifying target groups.
2. Regulating participation in public-sector procurement.
3. Promoting good business practices and adhering to statutory regulations and requirements.
4. Censuring those who transgress codes of conduct, who fail to meet their tax, levy or service charge obligations, or who obtain work in fraudulent ways.

Non-registered suppliers, service providers and contractors should not be permitted to participate in public-sector procurement activities. The registration

must be subject to the observance of a code of conduct which should, *inter alia*, require signatories to undertake:

1. To tender only on projects which they are capable of executing, with the resources they are able to marshal, in accordance with the terms and conditions of contract.
2. To remunerate staff in accordance with relevant labour legislation.
3. To pay into the Unemployment Insurance Fund, workman's compensation, service charges, Value Added Tax, income tax and other appropriate taxes.
4. To adhere to safety and health regulations as far as their workers are concerned.

(Special Sectoral Report No. 1, November 1997: 8).

South Africa promulgates proposed public policy in advance of legislation in Green Papers and White Papers. This is similar to the approach used in the United Kingdom.[11] Creating an enabling environment for reconstruction, growth and development in the registration and categorization of contractors and businesses will enable:

1. The operation of a preference scheme or approved public-sector tender list which would reduce industry and public-sector costs associated with the tender process.
2. Performance monitoring to facilitate the promotion of improved contractors and to ensure compliance where standards are violated.
3. Targeting of resources to emerging businesses which are demonstrating progress and the withdrawal of support from those which have graduated or have failed to progress.

[11] A Green Paper is earlier in time, less firm and designed to bring tentative policy into public discussion. A White Paper, on the other hand, states relatively firm policy from which a government will not deviate lightly and is used eventually to draft an act.

It is clear that contract-grading is not a good way of defining, or supporting definitions of, the manufacturing industry. It does, however, highlight the fact that countries adapt definitions according to local needs and the environment and not for purely scientific reasons. In this section, it is clear that government adapts definitions to protect and optimise its tendering processes. International best practices, or comparative definitions, are neither guidelines nor necessities for government when defining small business.

2.6.2 United States

In the United States a well-developed programme of assistance to small and minority business entities has been in existence since the 1950s. The principal programmes are designed to assist small business concerns, regardless of whether they are owned and controlled by persons in historically disadvantaged categories (Wittig, 2000 (1): 40).

The United States Government has, for many years, required procuring entities to set procurements aside for exclusive competition between small businesses. The Government maintains a number of programmes designed to assist small businesses that are owned and controlled by persons that fall within categories that have been characterized by historical discrimination or prejudice (Wittig, 2000 (1): 20).

The United States uses its small and medium-sized enterprise definitions to support government objectives in procurement procedures, as does South Africa. Definitions are driven by government goals and objectives.

2.6.3 India

In India the major government procurement strategy is based around cottage industries. The term *cottage industry* is used to refer to the production of traditional goods in villages by very small units.

The government of India supports the growth of Small Scale Industries as a matter of policy. This has been an important and permanent feature of the Government's long-standing industrial policy (Wittig (1), 2000: 45). There has always been an emphasis on the establishment of new small scale industries, particularly in industrially backward areas, and a concern for their viability and continued growth. From time to time, the Government has initiated assistance programmes to achieve its broad objectives. (Wittig (1), 2000: 45).

National Small Industries Corporation (India) and the Director of Industries have been entrusted with the responsibility of certifying an industrial unit as an Small Scale Industry unit (Wittig, 2000 (1): 45). In other words, a small-scale unit has to be registered with the National Small Industries Corporation (India) or the Director of Industries of the states concerned in order to be eligible for the benefits available to Small Scale Industry units. This registration is an essential eligibility criterion for participation in the Government's public buying programme.

The Indian government has found that the cottage industry, by its very nature and tradition, offers employment benefits in the rural areas, and generally assists the economically and socially disadvantaged to supplement income. (Wittig (1), 2000: 45). Its other objectives are skills improvement through training, transfer of technology, promotion of self-reliance, building a strong rural community base, and rural industrialization.

India uses its small and medium-sized enterprise definitions to support government objectives in procurement procedures and to guide the laws that

govern industry, as does South Africa. Definitions are driven by government goals and objectives to support specifically the cottage industry, which can be compared to our survivalist industries[12].

2.6.4 Europe

The European Community's procurement directives were promulgated to liberalise its internal market. The rationale underlying the directives, and the principles embodied in them, are based on trade liberalisation. They are not meant to serve as, or to substitute for, domestic procurement laws in member states. They are intended to open public procurement markets within the member states that have traditionally been closed and that remain resistant to trade liberalization (Wittig (1), 2000: 49). The directives have been interpreted as allowing only a small role to policies intended to assist small and medium-sized enterprises[13] in the European Community. Available evidence tends to show that the benefits of trade liberalisation within the Community far outweigh national policies favouring domestic businesses.

The current Community approach tends to rely on improving access, for small and medium-sized enterprises, to public procurement through such initiatives as training and other non-interventionist approaches. This is indicated in the European Union report (Public Procurement).

The European Commission, however, does not appear to rule out the possibility of preferential measures for small and medium-sized enterprises for procurements below the threshold of application as set out in the directives. For acceptance by the Commission, such programmes are likely to require clear definitions of qualifying small and medium-sized enterprises, compatibility among national regimes and strict conformity with European Community treaty

[12] See sub-section 2.5.2
[13] See table 2.2

requirements on transparency, equality of treatment and non-discrimination. However, they cover only the countries that accede to it (Wittig (1), 2000: 49).

Procurement and procurement policy can be summarised by highlighting that procurement policy is there to:

1. Develop local small and medium-sized enterprises.
2. Protect them against international businesses.
3. Support political motivations to promote disadvantaged communities and countries.
4. Target and support specific growth areas.

Unlike South Africa, the European Union uses its small and medium-sized enterprise definitions to support regional integration objectives in procurement procedures. Definitions are driven by regional goals and objectives. It is clear that this is driving integration at a regional and not at a national level.

2.7 International definitions

2.7.1 Background

There is no single and uniformly acceptable definition of a small business. This is because a small business in, say, the petrochemical industry is likely to have much higher levels of capitalization, sales and possibly employment, than a small business in the car repair trade (Storey, 1996: 25). Definitions, therefore, which relate to objective measures of size, such as the number of employees, sales turnover, profitability, net worth and so on, when examined, mean that in some sectors all businesses may be regarded as small, while in other sectors there may be no small businesses.

2.8 Analysis of definitions

The Bolton Committee in (1971: 1) attempted to overcome this problem by formulating an *economic* and a *statistical* definition (Storey, 1996: 20).

The *economic* definition regarded businesses as being small if they satisfied these criteria:

1. They had a relatively small share of their market place.
2. They were managed by owners, or part-owners, in a personalised way, and not through formalised management structures.
3. One or two persons make all the critical management decisions, such as those about finance, accounting, personnel, purchasing, processing or servicing, marketing, and selling, without the aid of internal specialists with specific knowledge in only one or two functional areas.
4. They were independent, in the sense of not forming part of a large business.

The *statistical* definition emphasised:

1. The size of the small business sector, its contribution to aggregates such as gross domestic product, employment, exports, innovation and so on.
2. The extent to which the small business sector has changed its economic contribution over time.
3. That comparisons could be made between the contributions of small businesses in one country with those of other nations.

In 1971 the Bolton Committee (1971: 20) defined a manufacturing small business as a one with fewer than 200 employees (Storey, 1996: 21). Not using turnover is supported by comparing the Strainrite Companies located in Auburn, Maine, with a local South African manufacturing business.

The United States business employed 85 people in Maine and another 40 people throughout the United States, and had approximately R60 million in sales. These included sales to China, Japan, the United Kingdom and Mexico (Aldonas, 2003: 3).

The South African business that was used in the research, with approximately 100 employees, only had 25% of the turnover of the United States business. This phenomenon is apparent even among the local businesses listed in Appendix 3. It is clear that it will be difficult to use turnover as a measure.

There are criticisms about the Bolton Committee's *economic* definition, according to Storey (1996: 20) and Stanworth, Westrip, Watkins, and Lewis. 1982 (1982: 14). These are listed:

1. The first criticism is that the work of Atkinson and Meager 1994 (in Storey 1996: 20) demonstrates that managerial appointments, and not simply those of supervisors and foremen, are made when a business reached a size of between ten and 20. At that size the owners do not make all managerial decisions. This differs from the Bolton definition of businesses of more than 200 employees that are owner-managed.
2. The second criticism is about the concept of *perfect competition* reflected in the Bolton definition. According to Bolton, a small business is regulated by its environment. Up to the turn of the century, small businesses usually operated in a niche market, where the environment does not regulate them.

There are also problems with the *statistical* definition:

1. The first is that there is no single definition or criterion of smallness. Different definitions use the number of employees, turnover, ownership and assets.

2. The second is that three different upper limits of turnover are identified for the different sectors and two different upper limits of employees are identified. This complicates definitions over time and between countries
3. The third criticism, based on monetary units, is that they make comparisons over time very difficult, since appropriate index numbers have to be constructed to take account of price changes. They also make international comparisons more difficult, because of currency value fluctuations.
4. Fourthly, there are problems with employee-based criteria in comparing small businesses over time. As Dunne and Hughes (1989: 2) point out, output per head in constant prices varies according to business size.
5. The fifth criticism is that it treats the small business sector as homogeneous

Another way of defining a small business is provided by Wynarczyk *et al* in Storey (1996: 21). They argue that there are three central areas in which small businesses are different to large businesses:

1. ***Uncertainty***. Three dimensions of uncertainty can be identified. The first is associated with being a price-taker. The second source of uncertainty for small businesses is their limited customer- and product–base. The third relates to the much greater diversity of the objectives of the owners of small businesses, compared to those of large businesses.
2. ***Innovation***. Rothwell (1986: 27) showed that the early development of the semi-conductor industry in California stemmed from the establishment of small businesses which were able to grow extremely rapidly. Innovation is also the ability of small businesses to provide something marginally different, in terms of products or services, which distinguish them from the more standardized products or services provided by large businesses.
3. ***Evolution and change***. Small businesses that become large undergo a number of stage changes which influence the role and style of

> management and the structure of the organization. The key point is that the structure and style of management of a small business is more likely to change as the business moves from one stage to another than is the case for a large business (Scott and Bruce 1987: 46).

To overcome a number of these problems, following the lead of the European Commission, the term *small and medium enterprise* has been coined. The small and medium-sized enterprise sector itself is disaggregated into three components:

1. Micro-enterprises are those with one to nine employees.
2. Small businesses are those with ten to 99 employees.
3. Medium-sized enterprises are those with 100 to 499 employees.

Sengenberger, Loveman and Piore (1990) in Ehlers (2000: 47) did a comprehensive review on an international comparison between small businesses in France, Germany, Italy, Japan, the United States and the United Kingdom. The report showed that there is an increase in the share of total employment in small businesses that are defined as those who employ fewer than 100 employees. In Australia, as stated on the Australian Bureau of Statistics web page, 1996, a manufacturing small business will also employ fewer than 100 people.

This excludes the agricultural, hunting, forestry and fishing industries, which employ fewer than 500 people in Europe. Special definitions also exist for craft traders. The problem with these European Community definitions is that they are too *all-embracing* for smaller countries such as Greece, Ireland, Spain and Portugal, where nearly all the businesses fall within the definition of a small and medium-sized enterprise. This will also be the case for a large percentage of businesses in South Africa.

Because of all the problems associated with definitions it will be necessary to tailor or adjust the definition used in this research according to current research done in South Africa and the specific area that will be researched. Storey (1996: 22), concludes in his analysis of the definition of a small business that the best current definition is that used by the European Community, but that each researcher most likely will use his or her own definition of small business.

It is important to note that countries do not use the same definitions and that a small business in one country may be a big business in another. The main driver for having a definition is to assist government to structure its policies (Belisle, 1997: 14).

There are nevertheless three parameters that are generally accepted, either singly or in combination, in defining small and medium-sized enterprises in most countries. These are:

1. The number of workers employed. This is the most widely used criterion.
2. The level of capital investment or assets.
3. The volume of production or business turnover, sometimes measured in average annual receipts over a predetermined period of time.

In many countries, medium-scale industry is not defined and is understood to include those that fall between small and large industries.

2.8.1 International comparisons

In the United Kingdom, 95% of all businesses have fewer than 100 employees (Storey, 1996: 28). In the United Kingdom, the Department of Trade and Industry (2005) states, on its web site, that the new thresholds (above) for small and medium-sized businesses employing fewer than 50 people will apply to annual

accounts in respect of financial years ending on or after 30 January 2004 (Department of Trade and Industry, 2005).

Table 2.1 Number of businesses and size of businesses by country

European Community businesses by member states, 1993, adapted by the writer to reflect on definitions in the South African context.

Source: ENSR (1993: 17)

Country	Number of enterprises (x 1000)	Number of enterprises per 1000 Inhabitants	Average business Size (people employed)	Employment share 0-9 (%)	Employment share 0-499 (%)
Belgium	530	53	5	28	69
Denmark	180	35	9	22	76
France	2040	36	7	28	67
Germany (FRG only)	2160	35	9	17	62
Greece	670	67	3	59	91
Ireland	130	36	6	34	83
Italy	3170	55	4	48	81
Luxembourg	20	43	9	23	74
Netherlands	420	28	10	28	72
Portugal	640	62	4	36	80
Spain	2020	52	4	36	83
United Kingdom	2630	46	8	26	65
South Africa	800	16			
South Africa (incl. micro)	2800 to 3800	56 to 76			
Total European Community	14600	45	6	30	70

If the number of small businesses, by 1000, people is analysed, it is clear that the more developed countries, such as France, Germany, Denmark, Ireland and the Netherlands have a lower average number of small businesses than do Greece, Italy, Spain and Portugal. France, Germany, Denmark, Ireland and the Netherlands have the largest business size, while Greece, Italy, Portugal and Spain have smaller businesses. The wealthier countries have larger business sizes measured by number of people employed than the less wealthy countries such as Portugal, Spain and Greece.

Table 2.2 Proportion of employment by sector and size

Source: European Community data taken from ENSR (1993:14)

Portion of employment by sector and size				
	Less than 100 %	100-499 %	More than 500 %	Total %
All sectors				
United States of America	37	14	49	100
United Kingdom	45	18	35	100
European Community	55	16	29	100
Manufacturing				
United States of America	20	15	65	100
United Kingdom	24	15	61	100
European Community	42	20	38	100

The highest portion of employment in the United States of America, in all sectors as well as in manufacturing, is in large businesses. The major difference between the European Community and the United States of America is not in medium-sized businesses but in small businesses. The European Community has a lot more small businesses that employ fewer than 100 people. The same results are displayed in the comparison between European Community and United States of America manufacturing. A comparison between United Kingdom and United States of America results show that the two countries are similar.

A comparison of the data between United States of America, the United Kingdom, the European Community and the individual countries in the European Community triggers the question of how reliable comparisons between regions based on a uniform definition can be. It would be suggested that data should first be normalized against the economic strength of a region. It might be argued that small and medium-sized enterprises, which are based on local niche markets to

give them their competitive advantage, are very dependent on the local market and economy. It is therefore acceptable that a business in Spain will serve a smaller niche market than a similar business in the United States of America or the United Kingdom.

Accordingly, in the South African context, reference is usually made to small, medium-sized and micro-enterprises and not to small and medium-sized enterprises. In view of the focus of this work, the references will be to small and medium-sized enterprises, although South African programmes are more accurately geared to small, medium-sized and micro enterprises.

Industries in India are classified into the following categories, according to size: large-scale industries, medium-scale industries, small-scale industries, and the tiny sector. There are no formal legal definitions for large-scale and medium-scale units. A general consensus on definitions has, however, emerged in usage. A unit with a total investment exceeding R150 million is considered to be large-scale, and a unit whose total investment in plant and machinery does not exceed R4.5 million is small-scale. Medium-scale units have investments falling between those two extremes. The definition of investment does not cover money spent on buying land and erecting buildings and workshops, nor does it include working capital (Wittig, 2000: 46).

In Hungary, the definitions of size categories are based on government recommendations and are currently used primarily for official statistical purposes (Wittig 2000 (2): 47). The definitions correspond to those employed to collect statistics in the European Union. The European Union and the Hungarian definitions differ in the magnitude of the thresholds used, with the Hungarian thresholds set at about one-half those of the European Union.

The categories of businesses are:

1. Micro-enterprises, with fewer than ten employees.
2. Small businesses, with between ten and 49 employees, and a turnover of Forint (Ft) 700 million or a maximum balance sheet of Ft 500 million.
3. Medium-sized businesses, with between 50 and 249 employees and a turnover of Ft 4,000 million or a maximum balance sheet of Ft 2,700 million.

To be considered a small and medium-sized enterprise, the maximum number of workers is 29 in the Lao People's Democratic Republic, 75 in Malaysia, 100 in Brunei Darussalam, Indonesia, Myanmar, Singapore and Viet Nam, but 200 in the Philippines and Thailand. In countries that distinguish between *small* and *medium-sized*, the maximum number of workers in small businesses ranges from ten in Brunei and the Lao People's Democratic Republic, 50 in Myanmar, Thailand and Viet Nam and to 100 in the Philippines (Wittig (1), 2000: 48).

The data show the variations that occur even among countries in the same region, some of which are at similar stages of development. For example, a business with 80 workers is not a small and medium-sized enterprise in Malaysia but is one in the Philippines. Similar variations exist with regard to the criteria of capital and turnover.

2.8.2 Conclusion

Based on local and international definitions and procurement legislation, Table 2.4 was constructed to highlight different criteria that are used in different countries and regions. The table highlights the similarities and common trends in definitions.

Table 2.4 Small business definition summary

A high-level summary of local and international definitions referring to small businesses developed from the research in this chapter.

Criteria	South Africa President's Council	South Africa National Small Business Act	SA Procurement	United States Procurement	India Procurement	Europe Procurement	Bolton Committee	Hungarian	Wynarczky	Asia
Independent economic unit	Yes	Yes		Yes	Yes		Yes			
Simple organisational structure	Yes				Yes					
Small influence on market	Yes			Yes			Yes			
Own risk or account		Yes								
Managed by owner or small group	Yes	Yes	Yes	Yes			Yes			
Employees		1 - 50		Less than 100		Less 100 or 0 - 499	200 or lees	10-49	10 – 99	29-200
Registered entities - legal requirements			Yes							
Different considerations per industries (i.e. market share, industry, growth trends etc.)			Yes	Yes		Yes	Yes			
Financial criterion – turn over			Yes	Yes				Yes		
Financial criterion – balance sheet			Yes		< US$ 750 000			Yes		
Supervisory staff			Yes							
Previous experience			Yes	Yes						

Criteria	South Africa President's Council	South Africa National Small Business Act	SA Procurement	United States Procurement	India Procurement	Europe Procurement	Bolton Committee	Hungarian	Wynarczky	Asia
No direct affiliation to large enterprises				Yes						
Price taker									Yes	
Limited customer and product base									Yes	
Diversity of objective from owner									Yes	
Innovation									Yes	
SME procurement			Yes	Yes	Yes	Yes				

Table 2.4 clearly shows that the number of employees is a very strong quantitative measure used to define a small business. For this study the definition used by the National Small Business Act (more than ten employees and fewer than 50) will be used for all industries except construction, mining and manufacturing. It is important to mention that the figure doubles[14] in the definition of small businesses in construction, manufacturing and mining. If we apply this rule to small businesses, South Africa becomes comparable to Europe, Asia and the United States of America, considering that these use 100 employees as the maximum cut-off. Similar to Hungry adapting the European method of measure to its own economy, South Africa has to adapt its measurement.

For this study, *small business* will be defined as businesses in the manufacturing industry employing between 20 and 100 people. Businesses in the manufacturing industry, employing less than 20 people will be defined as *very small businesses.* The model will compare *very small businesses* with small businesses to highlight differences in capital generation.

[14] See sub-section 2.1.4: Very small enterprises

There is a definite change, between very small and small businesses, to creating employment (Figure 2.3). This change in employment potential supports the decision to focus more on small businesses and less on very small business, using the definition in the National Small Business Act. During the analysis of the data businesses between 0 and 132 employees will be evaluated to understand the differences between these entities.

European Union and United States of America data highlight the differences in sizes of small businesses in the different regions. This phenomenon also exists between industries. To avoid normalising data between industries, the manufacturing sector will be selected. Data need to be normalised to enable effective comparisons between countries. It is not the intention of this study to compare South African data with international data, but only to compare trends.

It clear that a *small business* must be an independent economic unit managed by an individual or a small group. Although financial criteria, such as turnover and assets, play important roles, they will not be used as part of the criteria as there are no clear definitions. It is also important to note that the sector, as well as the stage of economic development, plays an important role in determining size.

Evaluation of *small business* definitions in this chapter has shown that they clarify the role of these definitions.

It is not essential for countries to provide uniform and international definitions. It can be argued that these small businesses only compete within the boundaries of a particular country and that it is not necessary to define *small business* uniformly and internationally.

The role of these definitions is to support legislation to help and protect small businesses. With the globalisation and disappearance of borders, these

definitions will need to be revisited, firstly in integrated regions such as the South African Development Community and the BENELUX countries and lastly in larger trading blocks such as Europe. One such example is the development of a definition in the European context as described in sub-section 2.6.4.

Chapter 3: Development of a Model

3.1 Introduction

This chapter aims to introduce the parameters that were used in the development of the proposed model and to support each by describing their principles and mechanisms from the original literature.

Small businesses must contribute to fundamental socio-economic issues, such as jobs and economic stability, to be successful economic tools. This is supported by Naude and Krugell (2003: 68), who refer to small businesses as tools used by policy makers to drive economic growth and to provide jobs and economic stability. *Development* is about improving the quality of people's lives and improving their abilities to shape their futures. This usually calls for higher *per capita* income (the International Bank for Reconstruction and Development/the World Bank 2000: xxiii). In South Africa, government is committed to a growth path of high and sustainable economic development via increased investment, enhanced productivity and the creation of countrywide employment opportunities. One of the important methods of achieving these goals is through the development of small, medium and micro-enterprises (Ministry of Trade and Industry, 1994: 5).

A slowdown in world growth over the past number of quarters influenced advanced countries. It was a real source of hardship to many developing countries and a real setback to the fight against world poverty (Schoeman, 2002: 2). These developments underscore the need for an integrated concept for answering critical questions about globalisation and the difficulties of African countries specifically to share in the concomitant generation of wealth. Success in the fight against poverty is the key to stability and peace in the 21st century and nowhere are the battle lines clearer than in Africa (Schoeman, 2002: 3).

A theoretical model, based on information available in the literature, can be developed to determine the impact of small and medium-sized businesses on the macro economy. Each of the parameters necessary to develop the model requires analysis before inclusion. Changes in one part of the economy cause structural changes to the whole of it. These modify the patterns of demand and distribution. A question that should be answered is whether small and medium-sized enterprises modify patterns of demand and distribution or merely shift these patterns. A shift in these patterns will affect the distribution of wealth, with its accompanying advantages and disadvantages.

To be able to build a model to determine the impact of small businesses on the macro economy it is essential to:

1. Understand the economic environment and the parameters that need to be analysed as measures of economic contribution. These will form essential parts of the model.
2. Understand and clarify the parameters that will impact directly on small business development.

3.2 The economic perspective

This study does not intend to redefine macro economic theory and principles, but rather to state these theories and arguments based on the work of Baumol and Blinder (1988), Fourie (1997: 225) as well as Thirlwall (1999). These theories and principles will be used to develop the macro-economic framework of the model. Development economics, specifically capital generation within development economics, and the theory of development economics, played an integral role in a South African doctoral thesis by Toomey (1998: 1) on small business growth through inter-firm linkages. He dedicated the first chapter of his thesis to explain the theory of development economics.

According to the International Bank for Reconstruction and Development/the World Bank (2000: 2), the maintenance of demand is no longer the only problem to be solved. The control of demand is just as important. Small business should contribute to improve standards of living in both rich and poor countries.

The control of demand and improvements in the standards of living led to the study of economic growth. Economic growth is defined as the *annual rate of increase in the real gross domestic product*[15] (preferred in South Africa) or the *rate of increase in the real gross national product*[16] (used in many other countries) Fourie, (1997: 11 and 212)

The link between the business level at which the study is conducted and the macro economic level is supported by economic theory. Macro economics concentrates on the behaviour of entire economies. It concentrates on economic aggregates rather than on single businesses (Baumol and Blinder, 1988: 75). The difference between macro- and micro-economics can be seen as a difference in focus (Doornbusch and Fischer, 1992: 5). Single businesses need to be investigated in order to understand the effect of small and medium-sized enterprises on these aggregates.

---

[15] *Gross Domestic Product* is the sum of all the money values of all final goods and services produced by the economy during a specific period of time, usually one year within the geographical boundaries of a country (Baumol and Blinder 1988: 121). The application factors of production in this case are the property of all residents.

[16] *Gross National Product* is the sum of all the money values of all final goods and services produced by the economy during a specific period of time, usually one year within the geographical boundaries of a country (Baumol and Blinder 1988: 78). The application factors of production in this case are only the property of permanent residents.

It is important to reflect economic growth in constant prices (real data). It will therefore be necessary to normalise the data with inflation for the period measured. Economic growth is only achieved when there is an increase in the real potential (full employment) income. Naturally, growth comes into its own only when potential is fully utilized. Okuns' rule, as explained by Doornbusch and Fischer (1992: 327), states that, for every 1% decrease in unemployment, the gross domestic product will increase by 2.5%. Lastly, there should be an increase in gross domestic product per head of the population.

3.3 Four factors of growth

There are four groups or factors which are generally held to be instrumental in the determination of the capacity level of the real gross domestic product, or gross national product, and which decide the opportunities for further growth (Mohr and Fourie, 2002: 682) and (Thirlwall, 1999: 105).

3.3.1 Size and quality of the labour force

The size of the labour force depends on the composition of the population, especially according to age groups. Important here are education and training, the presence of so-called work ethics and the state of health of the population. Education and experience are the two most important parameters influencing quality of labour (Thirlwall, 1999: 109).

The effect of the Auto Immune Deficiency Syndrome[17] and the level of education will be two important issues in understanding the South African labour force. The size of the labour force in a specific economy can only be manipulated by manipulating the growth rate of the workforce and importing labour, as is the case in Europe, or by using a large labour force such as is available in China. It is clear

[17] See sub-section 4.4

that manipulating the workforce creates a string of social impacts. To change the *quality* of the workforce one needs capital to *train* the workforce.

3.3.2 Quantity and quality of capital

Future growth will depend on whether fresh capital can be created out of savings or obtained from investors or institutions. The question here will be whether small and medium-sized enterprises can generate their own capital or contribute to an extent that government can generate capital. In undeveloped countries there is a low level of capital accumulation (Thirlwall, 1999: 109). It is not easy for poor societies to save since they do not generate enough capital.

3.3.3 Technology

Improved technology was responsible for economic growth over the past century. Technology is an undisputed driver of competitiveness (Badrinath and Wignaraja, 2004: 2). The tremendous leaps in production during the industrial revolution, and the changes that computer technology brought, support this statement. Changes in technology need an investment in research and increased spending on development. This is supported by massive capital injections. Economic dualism may influence the acceptance of technology to provide the necessary competitiveness. The capital/labour output ratio should be used to make the decision rather than should emotion (Thirlwall, 1999: 176 and 163).

3.3.4 The availability of natural resources

Rich natural resources assist countries to develop economically. The availability of gold in the central regions of South Africa was the main driving force behind the development of the region. These factors are separately addressed in the literature as influences on the success of small business.

Adequately skilled human capital plays an important role in the success of a business (Goedhuys and Sleuwaegen 2000: 141, and the International Bank for Reconstruction and Development/the World Bank 2000: xxv). There is growing evidence that the main reason for Africa's slow growth and lack of industrialisation has been the absence of private sector investments, particularly in the manufacturing sector (Jenkins and Thomas, 1999: 2 - 11). Surveys of more than 820 businesses across Africa showed that the average rate of investment was around 11% in the relatively larger businesses (Soderbom and Teal, 2001 (1): 7). The lack off technical expertise in a globally competitive economy significantly raises the entry level for small businesses (Audretsch, 1998: 21). Small businesses are continuously exposed to more global competition (Green, 2003: 1).

The availability of natural resources plays an important role in many African countries. The influence of gold on the South African industry and diamonds on Botswana is clear (Olivier 1994: 12). Kappel (2001: 10) refers to the sins of African countries exporting these resources without adding value. The locality to markets can also be seen as a natural resource. High logistic cost is one of the hampering factors in the South African economy (Automotive Supplier Park Annual Report 2003: 2).

It can be concluded that, to achieve economic stability, an economy needs jobs that are supported by an increase in gross domestic product output by job and an increase in income *per capita*. It is also important to create growth through the four factors supporting growth. It is clear that the four factors of growth are difficult, or impossible, to manipulate, specifically when referring to the size of the workforce and the availability of natural resources. Secondly, an economy needs capital to increase the quality of labour, the availability of capital or the level of technology.

It must be clarified that growth can occur without development. Development in this study specifically refers to capital generation. It must be stated that development or capital generation cannot occur without growth. It is therefore important to acknowledge that the four factors of growth will have a direct impact on development via capital generation. It is also important to acknowledge that capital generation can influence some of these growth factors to enhance growth and possibly development.

The model will be measuring the creation of capital as a basis to support economic growth and as an important factor influencing growth (Mohr and Fourie: 2002: 692) and (Thirlwall, 1999: 29).

3.4 Growth versus development

Economic *growth* is the process of increasing gross domestic product in developed countries. The term economic *development* is used in less developed countries. It is a process that leads to an increase in real potential output per head. Economic development implies a basic change in the whole society and economic set-up. The discussion on economic development and specifically capital generation is based on the work by Van Den Bogaerde and Fourie, (1992), Thirlwall, (1999) and Mohr and Fourie, (2002). Economic development will be the basis for the research on the impact of small business on the South African economy. Economic development will be measured by measuring capital generation on the micro or company level and the accrual of company level capital generation on the macro level.

The World Bank also supports the theory of economic *development* as a way to evaluate the success of a country's economic policy when compared to economic *growth*. In assessing development, the Bank clearly highlights the different effects associated with growth in gross domestic product and differentiates between high and poor quality growth. Some processes and policies generate growth in gross

domestic product along with the growth of human and natural assets. These directly affect the welfare of people beyond their productive roles (the International Bank for Reconstruction and Development/the World Bank 2000: 2).

The developing nations successfully managed to achieve a growth rate of 5% during the decade of development after the World War II. This was initiated by the United Nations and was based on the success of the developed nations. The second decade of development did not reach its 6% target. This, combined with the fact that economic growth did not alleviate poverty, inequality and growing joblessness, triggered the acknowledgement that economic *growth* does not necessarily stimulate economic *development* (Mohr and Fourie: 2002: 692) and (Thirlwall, 1999: 29).

Although South African society consists of developed and developing components, the main focus of the development of small businesses in South Africa is to assist the economically disadvantaged communities. It is agreed that this sector offers Blacks, Coloureds and Asians in particular the opportunity to become entrepreneurs. This statement is supported by the National Manpower Commission's report (1983: 24). More recently, the Department of Trade and Industry (1994 and 1995) stated that it is a tool to address the legacy of apartheid-based disempowerment of black business. It will only be successful if the process supports capital and human accumulation (Thirlwall, 1999: 45).

3.5 Population and the labour force

The region's population plays an important part when one analyses economic growth. In countries like India and Brazil, the gross domestic product is very high, but the income per head is very low and unequally distributed in comparison to European countries (Thirlwall, 1999: 55).

Adam Smith (1723 - 1790), (in Thirlwall 1999: 209), optimistically regarded the population as the basis of production rather than consumption. He published his findings in his book *An inquiry into the Nature and Cause of the Wealth of Nations* in 1776, and it is usually considered to be the founder of economics. Smiths' *production function* shows the relation between gross domestic product (Y) and employment (N). Y rises as N increases and Q_1 (output) rises at an increased rate as N grows. If Y/N is an indication of productivity, then productivity at $A_2>A_1$ increases because $A_2B_2/OA_2>A_1B_1/OA_1$. Growth would be halted when natural resources are exhausted.

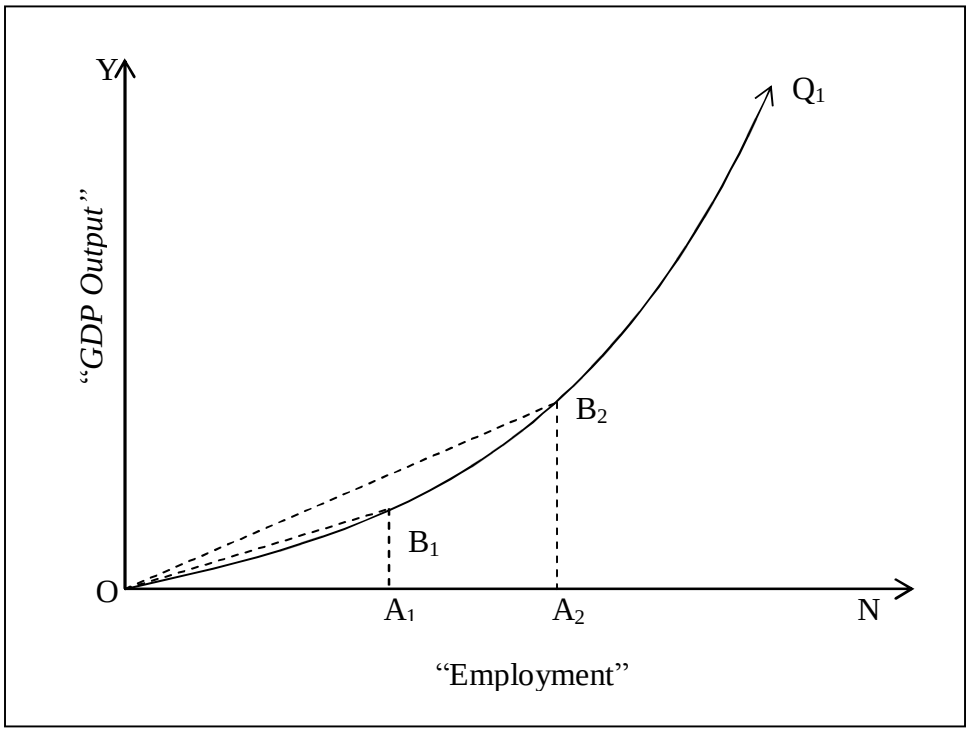

Figure 3.1 Adam Smith production function

An example of the Smith *production function*, where output increases at an increased rate.

N increased on the assumption that there would be a larger market if the population grew. This larger market would enable more production specialization. This in turn would increase productivity as more people are employed.

Ricardo (1772 - 1823) in Van Den Bogaerde and Fourie, (1992) was concerned with the *law of diminishing returns*. Output could be increased, but only at a decreasing rate, until a maximum is reached. The curve Q2 rises with increases in N, but at an increasingly slower rate. Average output decreases, as is shown by the fact that $A_2B_2/OA_2<A_1B_1/OA_1$. Y reaches a maximum at B_3. A combination of the two production functions is shown in Figure 3.2.

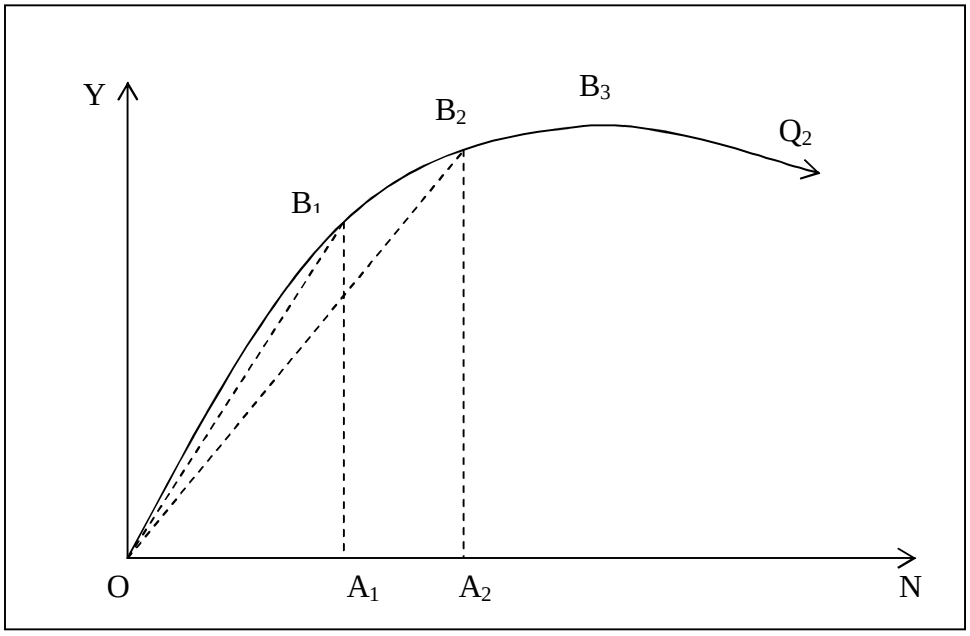

Figure 3.2 Typical production function

According to this production function, output increases at a falling rate and reaches a definite maximum (B_3).

Malthus (1766 - 1835) in Van Den Bogaerde and Fourie, (1992) added his own *law of population* to the *law of diminishing returns*. According to Malthus, the production of food would increase in arithmetic series whereas the increase in population would be a geometric series. The result is that population volume would always catch up and exceed food production potential.

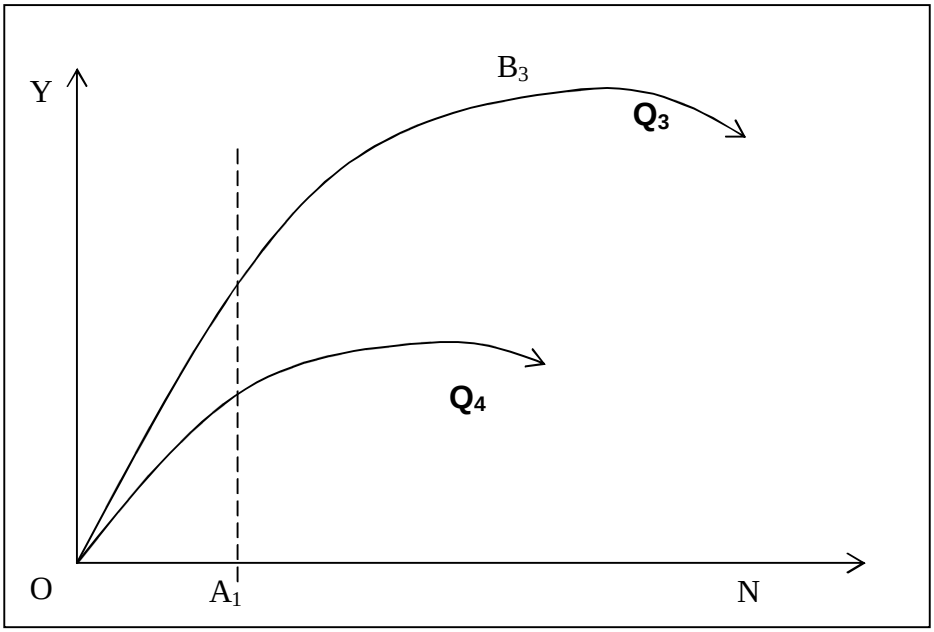

Figure 3.3 Production function

Production function Q_3 combines the characteristics of Q_1 and Q_2 in the previous diagrams. The production function Q_3 shows an increasing slope until B_3, where maximum output is reached. The result of this is that there are strict limits to economic output.

Since Napoleonic times economic development was only interrupted by the Depression and two world wars. Malthus' theories and his conclusions were ignored for many years. Since the seventies, they became much more prominent. The reason he was thought wrong for so many years can be found on both sides

of the Malthus theory. These are the *change in production* and the *change in population*.

The Industrial Revolution led to an enormous increase in the application of innovation to the economic process. The factors in economic growth that we mentioned were all favourably affected:

1. ***Technology*** made vast strides and resulted in increased production.
2. ***Increased output*** led to greater savings and thus to sufficient capital growth.
3. ***Alternative raw materials*** were discovered and technology made natural resources more accessible and available.
4. ***Greater output*** made more funds available for training labour.
5. ***Increased population*** meant an increase in labour and a growing market.

The result is that not only the population can grow exponentially, as Maltus had claimed. Comparing Q_3 with Q_4 at A_1 in the above figures indicates that maximal production levels were occurring at much higher levels of employment.

3.6 The change in population

Nevertheless, even this enormous growth in gross domestic product would have had to yield to continued exponential growth on the part of population. Malthus, in effect, grossly underestimated the possibilities of raising gross domestic product.

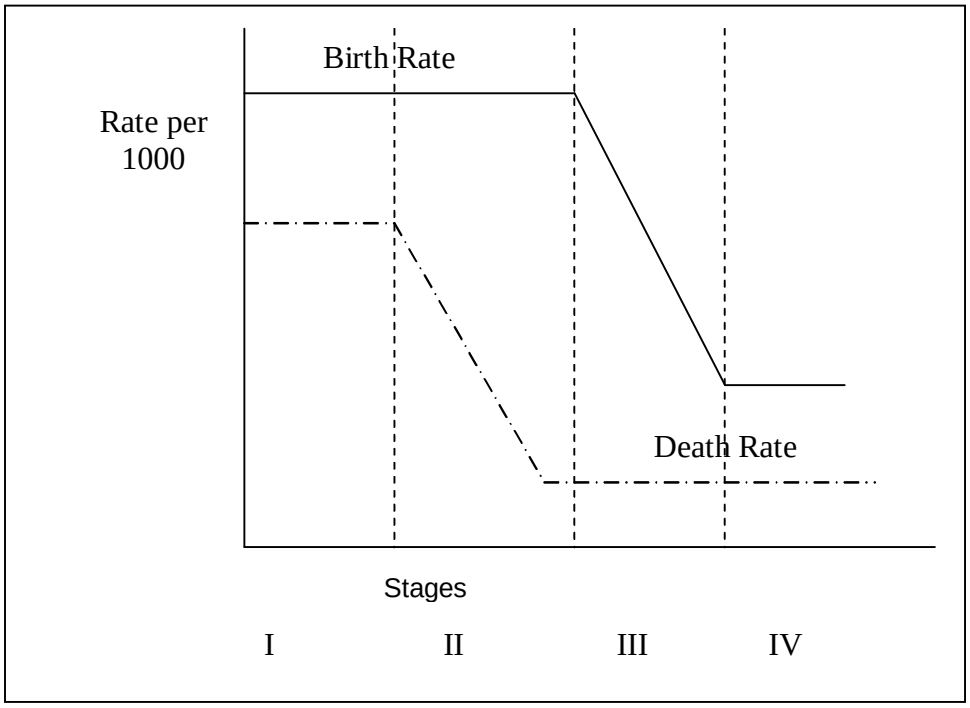

Figure 3.4 The four stages of population growth

For many hundreds and even thousands of years the population changed very slowly. In fact, starvation and misery were the lot of the majority of people and this can be called stage I in the *growth of population*. This stage I, as a long-term phenomenon, was the rule until well into the 17th and 18th centuries.

In the 18th and the beginning of the 19th centuries, when Malthus made his calculations, Europe and especially the American colonies (from 1776 the United States) moved into stage II.

Thereafter a new phenomenon made its appearance. Apparently, with higher average incomes and increasing urbanisation and education, there was a significant drop in the birth rate. In the figure it is shown to be stage III. The rate of increase in the population thus became smaller and smaller until, in stage IV, the population changes became comparable to what they used to be in stage I.

There is no doubt that this drop in the population increase saved the day for established countries.

South Africa has a mix between stage II, III and IV in its population because of its different cultures and developmental history.

3.7 Capital formation, technology and employment

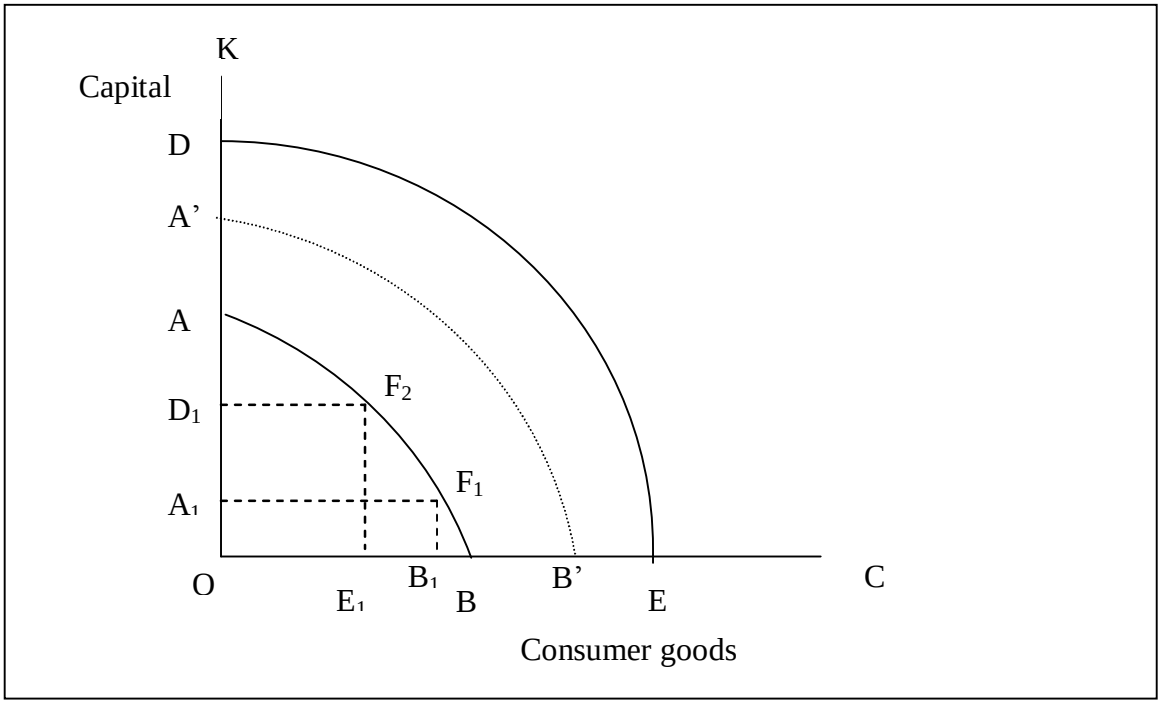

Figure 3.5 Production possibilities curve

The production possibilities curve shows how much of two goods can be produced with the full employment of resources. Economic growth is represented here by the shift of the curve from AB to A'B' or DE. There is a trade-off between growth and consumption, for the more that is invested, or the less that is consumed, the more growth can be achieved.

The *production possibilities* curves, AB and DE, are shown in Figure 3.5. Both curves show combinations of capital goods (K) and consumer goods (C), which can be produced in a certain economy when all factors of production, in other words, all labour and all capital are being used in production. Each curve shows that a number of choices are possible between quantities of C and K goods. The shape of the curves illustrates the working of the *law of diminishing returns*. This says that, the more of one type of goods that are already being produced, the more of the other goods must be sacrificed to produce an extra unit of the first. Economic growth would be illustrated by the shift from AB to DE, showing that greater quantities of C and K can be produced (on DE) than before (on AB). This type of diagram is also used to indicate that, in the process of economic growth, the concept of the trade-off between consumption and investment is again met.

The production possibilities curve is supported by the Cobb-Douglas function. This functional form of production functions is widely used to represent the relationship of an output to inputs. It was proposed by Knut Wicksell, and tested against statistical evidence by Paul Douglas and Charles Cobb (Paul Douglas and Charles Cobb, 1928: 139-165).

For production, the function is $Y = AL^{\alpha}K^{\beta}$

Where:

- Y = output
- L = labour input
- K = capital input
- A, α and β are constants determined by technology.

If $\alpha + \beta = 1$, the production function has constant returns to scale (if L and K are increased by 20%, Y increases by 20%). If $\alpha + \beta < 1$, returns to scale are decreasing, and if $\alpha + \beta > 1$ returns to scale are increasing. Assuming perfect competition, α and β can be shown to be labour and capital's share of output.

3.8 The trade-off between consumption and investment

Suppose that, in Figure 3.5, AB is the production possibilities curve of an economy at a certain time. F_1 and F_2 are two of the many possible combinations of consumption and investment. At F_1 consumption amounts to OB_1 and the production of capital goods is OA_1. This net investment means an increase in the stock of capital goods and this should lead to an increase in production possibilities (economic growth). This is represented by a movement from AB to A'B'.

The choice at F_2 involves the production of OE_1 consumer goods and (in comparison with F_1) the far greater amount of investment goods (OD_1). Since more is invested, the result would be that potential output in the economy concerned rises quicker than at the previous choice F_1. A low level of consumption, that is, a low standard of living, is traded off for a high level of growth. This sacrifice leads to the attainment of a high level of development at a faster rate than before (DE). Nevertheless, it is very difficult to make this type of sacrifice if the level of output (the production frontier) is very much to the left to begin with, that is, in poor countries.

In order to get an indication of how large the increase in investment must be to attain a certain capacity level, we use the concept of the *capital output ratio*. This ratio measures the amount of capital needed per unit of gross domestic product. The *smaller* this ratio is, the *greater* is the amount produced per unit of capital.

3.9 The capital production function

The meaning of all of this is explained in Figure 3.6. In this diagram OQ_1 and OQ_2 are production functions showing the change in gross domestic product, that is, in Y, related to changes in K. These functions are similar to those in Figures 3.2, 3.3 and 3.4 except that they refer to capital rather than labour as the variable factor.

Furthermore, the capital output ratio is supposed to be constant, that is, the functions are straight lines.

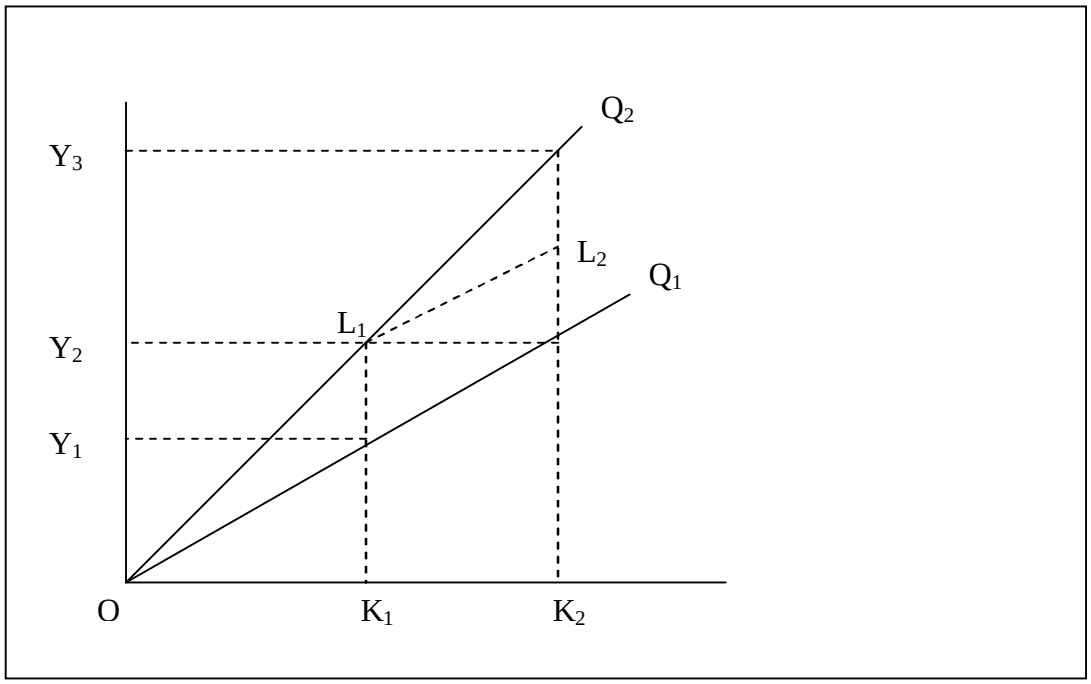

Figure 3.6 The capital production function

According to this function, economic growth can be achieved either by increasing capital (∆K) or by lowering the capital output ratio. The latter is called *disembodied growth* (cf. OQ_2).

This is quite acceptable in the short term. If the production function is OQ_1 then potential output is Y_1 when the amount of capital is OK_1. An increase in capital of ∆K, that is, from OK_1 to OK_2, raises potential output by LY_1, which stretches from OY_1 to OY_2. The change in potential output (LY_1) conforms with the change to a higher production possibilities curve. If ∆K were greater, the change in potential output would naturally be greater as well, and in Figure 3.5 this would have meant that the production frontier would be situated more to the right. If the capital-output ratio were less, then more could be produced with each level of

capital. This is shown by OQ_2, which is steeper than OQ_1. New capital formation of ΔK now leads to a significantly higher increase in potential output, that is, ΔY_2 compared with ΔY_1.

The two aspects of economic growth, from the point of view of capital formation, are well illustrated in Figure 3.6. An increase in potential gross domestic product can be brought about in two ways:

1. By increasing the amount of capital available, that is, the change from OY_1 to OY_2 via ΔK**.**
2. By a decrease in the capital-output ratio, that is, an increase in the slope of the production function as shown by OQ_1 and OQ_2 (with unchanged OK_1), a decrease in the capital-output ratio also raises potential gross domestic product from OY_1 to OY_2. This is the result of an improvement in technology or *disembodied growth* and, more specifically, of capital-saving technology. This means that less capital is needed for the same level of output. Note also the rise in Y from Y_1 to Y_3 when investment is combined with improved technology. This is the type of progress that kept the Malthusian ghost at bay on the output side.

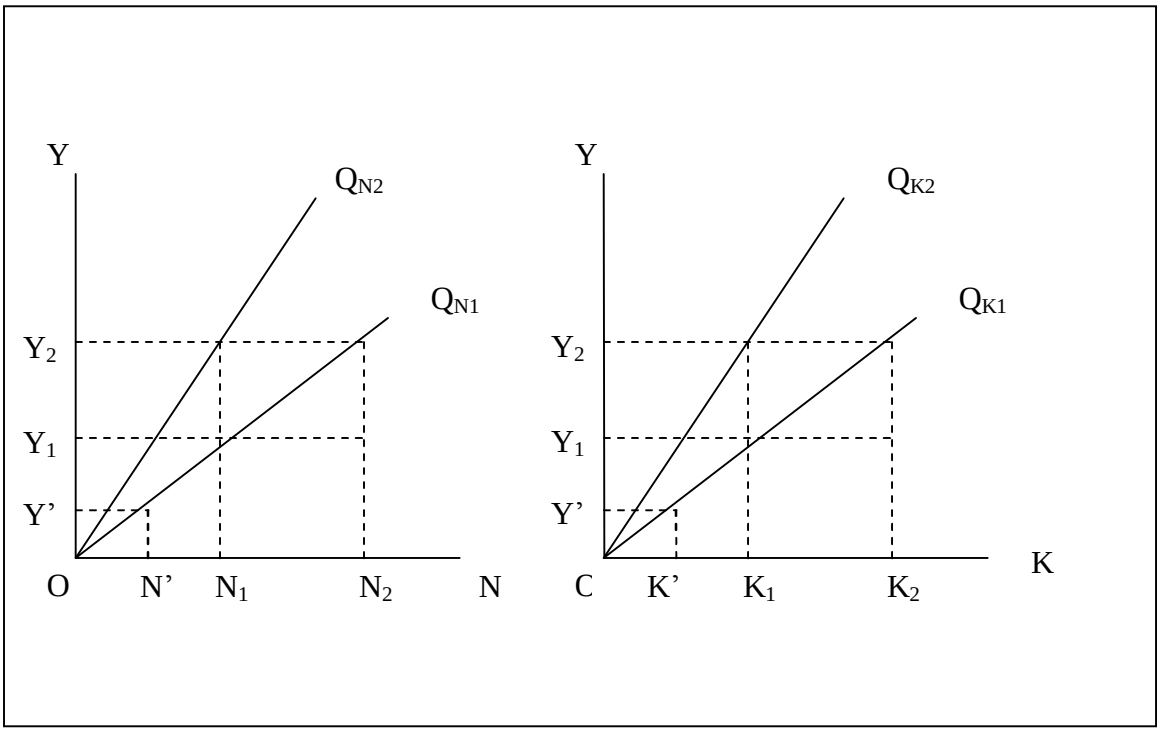

Figure 3.7 Combination of the capital function with the labour production function.

These two diagrams show how capital and labour are combined in the production of gross domestic product. They illustrate the problems of:

1. *Shortage of labour* in industrialised countries.
2. *Shortage of capital* in less developed countries.

3.10 The labour production function

Capital must be combined with *labour* for production to take place. The capital production function, as shown in Figure 3.6, shows how much capital is needed for each level of gross domestic product. In the same way, the *labour production function* would indicate how much labour is needed for these values of gross domestic product, or Y, at the same time. How this works is shown in Figure 3.7.

As far as the labour production function is concerned, the only differences between figures 3.1, 3.2, and 3.3 are that OQ_{N1} and OQ_{N2} are now straight lines.

Figure 3.7 shows that, in order to produce gross domestic product at the level Y', one needs N' units of labour and simultaneously K' of capital if OQ_{N1} is the *labour* and the OQ_{k1} the *capital* production function. In just the same way one needs N_1 of labour and K_1 of capital to produce Y_1, and again N_2 and K_2 to produce Y_2. If a country's available labour amounts to N_1 and available capital is K_1, then there is full employment of both labour and capital if (macro) demand amounts to Y_1[18].

Economic growth takes place in industrialised or fully developed (and prosperous) nations. This means, on the one hand, that it is relatively easy to save and invest and, on the other, that the population, and therefore the size of the labour force, are relatively stable. We assume that we start with N_1 labour and K_1 capital. In the course of time, N_1 will remain approximately at this level but capital will increase, say to K_2. However, on its own, this does no good. According to OQ_{K1}, the potential level of gross domestic product will rise from Y_1 toY_2, but this would necessitate more labour, to be precise N_2, and this is not available. In developed countries the growth process therefore requires an increase in labour productivity or in the installation of labour-saving devices. This can be done because the amount of capital per head (K_2/N_1) has increased from K_1/N_1. The result would be illustrated by OQ_{N2}, showing that with N_1 labour and K_2 capital, Y_2 can now be produced. The production process is more capital-intensive.

The problem in *less developed countries* is almost the exact opposite. Here the labour force will tend to increase, such as from N_1 to N_3. Figure 3.7 shows that this cannot lead to an increase in output because of the limitation imposed by capital, which is still at K_1. There seem to be two solutions to this problem. The

[18] Okuns' rule, as explained by Doornbusch and Fischer, (1992:327) states that for every 1% decrease in unemployment the Gross Domestic Product will increase by 2.5%.

first, and most obvious, is to expand the amount of capital available from K_1 to K_2, which is associated with a level of output Y_2. This is supported by Mohr and Fourie (2002: 694). According to Naude and Krugell (2003: 64), Africa's crises is due to low investments, particularly in manufacturing. The difficulty may be that *per capita* Y is low so that saving is difficult and may be too slow to keep pace with increases in population. A reason for the low rate of investment is that the low demand for African-manufactured goods is due to a small domestic market and a lack of exports (Naude and Krugell 2003: 64). Soderbom and Teal (2001 (1): 20) say that Africa's poor performance is due to its inability to export its products. The model will test if companies can generate capital contrary to the above statements. Therefore, if a small business can generate enough capital to sustain its own growth, it will increase the amount of capital that is available, and needed, in Figure 3.7. Future studies need to address the issue of growth that is faster than population increase. The South African population growth, based on 2002 estimates, is 0.02%. This is illustrated in Table 3.1.

The World Bank's assessment of *development*, done as recently as 2000, struggled to measure *development* and used gross domestic product *growth* and *human and environmental progress* (the International Bank for Reconstruction and Development/the World Bank 2000: 3).

Table 3.1 Statistics relevant to the South African population based on *The World Fact Book, 2002*

Population:	43,647,658 *Note:* South Africa took a census in October 1996 that showed a population of 40,583,611 (after an official adjustment for a 6.8% under-enumeration based on a post-enumeration survey); estimates for this country explicitly take into account the effects of excess mortality due to the Auto Immune Deficiency Syndrome; this can result in lower life expectancy, higher infant mortality and death rates, lower

	population and growth rates, and changes in the distribution of population by age and sex than would otherwise be expected (July 2002 est.).
Age structure:	*0-14 years:* 31.6% (male 6,943,761; female 6,849,745) *15-64 years:* 63.4% (male 13,377,011; female 14,300,850) *65 years and over:* 5% (male 816,222; female 1,360,069) (2002 est.)
Population growth rate:	0.02% (2002 est.)
Birth rate:	20.63 births/1,000 population (2002 est.)
Death rate:	18.86 deaths/1,000 population (2002 est.)
Net migration rate:	-1.56 migrant(s)/1,000 population (2002 est.)
Sex ratio:	*at birth:* 1.02 male(s)/female *under 15 years:* 1.01 male(s)/female *15-64 years:* 0.94 male(s)/female *65 years and over:* 0.6 male(s)/female *total population:* 0.94 male(s)/female (2002 est.)
Infant mortality rate:	61.78 deaths/1,000 live births (2002 est.)
Life expectancy at birth:	*total population:* 45.43 years *female:* 45.68 years (2002 est.) *male:* 45.19 years
Total fertility rate:	2.38 children born/woman (2002 est.)
HIV/AIDS - adult prevalence rate:	19.94% (2000 est.)
HIV/AIDS - people living with HIV/AIDS:	5.2 million (2000 est.)
HIV/AIDS - deaths:	300,000 (2000 est.)

The second solution is to change technology in the direction indicated by OQ_{K2}. This change would mean that relatively less capital is used per unit produced (K_1/Y_2 instead of K_1/Y_1). In other words, the process is less capital-intensive and therefore relatively more labour-intensive. The trouble here may be that the development is completely opposed to that taking place in countries where all the inventions and innovations come from the highly-industrialised countries.

Soderbom and Teal (2001 (2): 14) showed that large businesses are more labour-productive, capital-intensive and have more skilled workers, thereby making them more competitive.

3.11 Economic measurement model parameters

Based on previous literature analyses of economic development, the following parameters except gross domestic product must be measured in the proposed model to determine the impact of small and medium-sized businesses in Gauteng.

3.11.1 Job creation

The first aspect to be analysed is the increase in full potential of employment. It is difficult to determine whether all the jobs created in a small business are new ones and are not merely shifts in employment. Other aspects are the secondary effects of additional jobs created as spin-offs.

For this study the employment growth and initiation of jobs are analysed in isolation without considering the potential impact on other industries, both positive and negative. The rapid population growth and environmental deterioration that have characterised African countries can also be related to the failure to stimulate economic development (Mengisteab, 1996: 9, and Thirlwall, 1999: 203 - 205).

3.11.2 Gross domestic product

Growth in gross domestic product will not be analysed in this study, since it does not necessarily reflect economic development if it is not supported by high-quality growth strategies (the International Bank for Reconstruction and Development/the World Bank 2000: 2). The direct impact of a business's operations on gross domestic product can be measured by calculating the business's total turnover. This is not as important in the context of economic development as it is in the measure of economic growth.

3.11.3 Capital generation

Based on the work of Fourie, and Baumol and Blinder in sub-section 3.4 to 3.10 it is evident that for developing nations to stimulate their own economic growth they have to increase capital or change technology. The later also requires capital. These two solutions are illustrated in Figure 3.7. It is therefore important to measure parameters on a company level that generate capital. The most important parameters that will be measured are the parameters necessary to determine if a business can generate additional capital for growth[19] and create additional capital within the environment that it operates for growth. We do not analyse the impact of disembodied growth through technology or the increase in productivity in the study. The four parameters measured form part of net working capital (current assets (point 4 below), less current liabilities (point 1 to 3 below)) (Westerfield, 1988: 3). Assets (current assets and fixed assets) refer to items impacting directly on the company's development potential, where as tax, owners and employees income refer to capital generated influencing the external environment. Current liabilities such as insurance, rental, telephone cost etc. will not be considered for the study although it also plays a role in capital generation. From a financial point of view, it is important for, a firm to generate more cash or increase current assets and fixed assets. To enable a firm to increase assets

[19] See Figure 3.7

requires an increase in liabilities or productivity (Westerfield, 1988: 5). The parameters that will be used to determine if a business add to capital growth are:

1. ***Contribution to tax***. If a business generates taxes it contributes to government's ability to stimulate the economy and therefore growth.
2. ***Contribution to owner's or shareholder's incomes***. An increase in their incomes can either be reinvested in the business for growth or it can be used to increase the spending or buying power of the population.
3. ***Contribution to employee's income*** (*total cost to business including training*). An increase in the income of employees, especially that of low-income employees, will decrease their reliance on government for assistance on pensions and medical expenses and will increase their spending power.
4. ***Contribution to business growth in assets and "capital"***. An increase in retained earnings will lower the business's risk to market changes, increase their capability to obtain investment, increase their capacity to expand, improve their products, and invest in technology and so on.

The data were obtained from different manufacturing businesses' balance sheets and income statements as well as from questionnaires that required input from the businesses' financial records. This will be discussed in more detail in Chapter 5, under *Research Methodology*.

The model used for determining growth via capital generation is:

$\mathbf{C_{y1} < C_n}$

$C_{y1} = t_{y1}+o_{y1}+e_{y1}+a_{y1}$

$C_n < ((ti_{y2}+oi_{y2}+ei_{y2}+ai_{y2})+ (ti_{yn}+oi_{yn}+ei_{yn}+ai_{yn}))/n$

- C = Capital contribution from tax, owners income ,employees income and assets
- t = tax contribution
- o = owners income contribution

- e = employees income contribution
- a = asset contribution
- *i* = deflated by inflation factor
- *y = year*
- *n= number of years*

Due to the nature of the data (ti_{yn}+ai_{yn}) *will be separated from* (oi_{yn}+ei_{yn}). This is necessary because owners' income and employees' income are normalised to employee level to ignore the effect of employment growth on capital generation per employee. The data will therefore not include contribution for the group, but an average per individual in the group. Such data cannot be added to asset growth, since it is not representative of the total company employees and owners' income growth.

As explained, the four parameters measured form part of net working capital (Westerfield, 1988: 3) and a growth in the networking capital will indicate a contribution to capital either directly within the company indicated by asset growth or impacting on the environment indicated in a growth in tax contribution, owners and employees income.

Owners income and employees income is also separated since it measure additional growth in capital available for employees and owners, whereas capital growth in assets and taxes measures company growth or capital that can be invested in national or regional assets to support growth.

3.12 Conclusion

Economic development is an important tool to measure the contribution of small business in developing countries. Most small business studies utilise the macro-economic parameters of *job creation* and *gross domestic product contribution* as

measurements. This is also supported by findings in Chapter 4. Very few even consider the effect of *capital generation* as a measurement tool.

It is concluded that a small business will *contribute* to the economy although it might not add to its *development*:

1. It employs people and is able to increase the business's employment.
2. It contributes to gross domestic product.
3. It contributes to capital formation and not capital generation.

The first two parameters are used as measures by most first-world countries to determine economic growth. The real contribution of small businesses in developing counties to capital generation must be measured to understand its contribution to economic development.

The effectiveness of this tool must be questioned in South Africa if these businesses do not have the capacity to grow and contribute to economic development. As indicated in economic theory, these businesses must have the capability to develop in order to increase their contribution to gross domestic product and employment. The only way that businesses can do this is by generating capital to reinvest for growth or to invest in technology that will give them economic advantage, increase the skill of the labour force to increase quality and output, and increase the spending power of employees. It is the concept of *increasing returns* or, more precisely, *non-diminishing returns* to capital that lies at the heart of the new endogenous growth theory (Thirlwall, 1999: 83).

This analysis cannot be done in isolation. To analyse small businesses one must have an understanding of employment, products, markets, pricing, cost, sales, competition and finance. Small businesses constitute the bulk of businesses in all economies in the world. They also make a major contribution to private sector

output and employment, and that appears to be increasing over time. (Storey, 1996: 18).

It is important to conclude this chapter by restating that, though job creation takes a burden away from government to support jobless people and therefore provides more capital that can be spent to develop a country, it does not necessarily improve the potential of these people to improve themselves. It may merely help them to survive. It is also important to highlight that an increase in gross domestic product does not necessarily mean an increase in the capital available within a business to pay taxes or to increase assets for growth, though it will most probably improve a country's trade balance.

Chapter 4: Analysis of the Small Business Environment

4.1 Introduction

This chapter will focus on providing perspectives on the different parameters in the model to support the research findings and to provide necessary background information to support the conclusions and recommendations. It provides information from the literature which researches the parameters necessary to evaluate the model, developed in Chapter 3, and the conclusions, based on the data analysed according to the model, given in Chapter 6.

Although most of the literature refers to either small, medium and micro (informal) enterprises or small and medium enterprises, the research will focus only on small enterprises or small businesses as defined in Chapter 2.

The chapter starts by explaining the importance of economic *development* compared to economic *growth* and the impact of economic development through capital generation. This is followed by reporting trends in the small business manufacturing industry with specific focus on the development of small businesses, government support, the role of small business, and risk associated with small businesses. It will also report on industry applications and the logic applied to develop the model. An understanding of the small business environment is critical in interpreting the results of the proposed model which are discussed in the conclusion to Chapter 7.

This is followed by a section on the small business environment and a general economic overview to place the data in perspective.

This chapter also explains certain important economic indicators such as job creation, the gross domestic product and consumer price index to understand the

parameters that were used in developing the model and to enable the researcher to draw parallels with other measuring tools.

The chapter continues by reflecting on both positive and negative factors influencing the success of small business. Awareness of these factors enables the reader to understand environmental factors that influence the various parameters of capital generation used in the model.

4.2 The importance of economic development compared to economic growth

This section emphases the role of the proposed model in measuring economic *development* by referring to practical problems regarding the measurement of economic growth as a tool to analyse poverty reduction. Economic *growth* has been positively associated with poverty reduction. Examples from the literature are the early assessments of economic growth done by the World Bank to project poverty reduction due to economic growth. The projected growth rate for the developing world was estimated at 3.2% *per capita* for a specific year. This would have reduced the number of poor people by 300 million at a 4% annual rate of decline (the International Bank for Reconstruction and Development/the World Bank 2000: xxiv).

Economic *growth* can be defined as the process of increasing the gross domestic product in developed countries. In less developed countries the term economic *development* is used. It is a process that leads to an increase in real potential[20] output per head (Mohr and Fourie, 2002: 684).

The actual *per capita* growth, excluding Central Asia and Eastern Europe, was closer to 3.5%, with the number of poor people unchanged, and the incidence of

[20] Potential output is the maximum level of GNP that the economy would produce if its labour and other resources were fully employed (Baumol and Blinder, 1988: 99)

poverty down by 2% *per annum* (the International Bank for Reconstruction and Development/the World Bank 2000: xxiii). This shows that economic growth does not deliver the envisaged results and the reasons for this must be understood. The economic theory used to develop the model used in this research is supported by the World Bank as a potentially better method of evaluating the success of poverty reduction and development (the International Bank for Reconstruction and Development/the World Bank 2000: xxiv). The findings of the World Bank on economic growth are also supported by Rutashobya and Olomi, (1999: 53).

4.2.1 The impact of capital generation on economic development

The most important parameters that are measured in the model[21] are those that are necessary to determine if a business can generate additional capital for development. This study, and the model, do not analyse the impact of disembodied development through technology or the increase in productivity. The parameters that are used to determine if a business adds to capital growth are discussed in sub-sections 4.2.1.1 to 4.2.1.3.

4.2.1.1 Tax contribution

If a business generates taxes it contributes to a government's ability to stimulate the economy, to reduce poverty, to implement social programmes, and so on. This stimulates growth, directly or indirectly. It also helps government to provide educational and health support to a country. Access to education and health services contributes to economic development (the International Bank for Reconstruction and Development/the World Bank 2000: 81). Tax can be used as a financing mechanism from domestic resources. This can help, firstly, to maintain the economy at full employment so that the savings capacity of the

[21] See Figure 3.7

country is not impaired. Secondly, it raises the marginal propensity to save (involuntary savings) without discouraging work effort (Thirlwall, 1999: 347).

4.2.1.2 Owners and Employees income

An increase in the income of owners or shareholders can either be reinvested in the business for growth or it can increase the spending or buying power of the owners, or shareholders. An increase in the income of employees will decrease their reliance on government for assistance in pensions and medical assistance and will increase their spending power. It will also provide them with opportunities to increase their own and their families' human capital potential. Investing in people will help to protect the environment (the International Bank for Reconstruction and Development/the World Bank 2000: 50). Increased income will stimulate spending and will improve general living standards and conditions. An illustration of this is Brazil, where the infant mortality rate is 12 per 1000 in the poorest areas and two per 1000 in the richest (the International Bank for Reconstruction and Development/the World Bank 2000: 61). Higher income also leads to better trained people, who increase the income of the small business (Jones, 2004: 97).

There are other factors which are not always taken into account. These are also based on individual income and influence economic development. These factors are:

1. Nutrition and health.
2. Population growth.
3. Improvement in social structure.

Based on World Bank data (Thrilwall, 1999: 60), a better distribution in the poverty-weighted growth rate showed an increase in individual income above

Gross National Product. This means that countries, where the people have more equal individual incomes, show better economic growth.

4.2.1.3 Asset growth

Different types of assets can be distinguished. Assets in this study is defined as current assets and fixed assets (Westerfield, 1988: 3).

The first is capital (current assets) that needs to be invested to develop the business or to be used as security for market fluctuations. Investment in technology and equipment assets will provide businesses with the necessary competitive edge and it is therefore important that businesses invest in technology and equipment (the International Bank for Reconstruction and Development/the World Bank 2000: 41, and Thirlwall, 1999: 97). The accumulation of technology assets is crucial for the ability of small and medium-sized manufacturing businesses to make significant contributions to local industrial development (Pietrobelli and Sverrisson, 2004: 50).

Human resource assets development, or human and natural capital development, is an additional asset that needs to be invested in. It has been found that physical capital accumulation alone cannot sustain growth, and that investment in human capital is also needed (the International Bank for Reconstruction and Development/the World Bank 2000: 42).

The importance of environmental management as a natural asset in Africa is highlighted by the effect of overpopulation on the environment, the negative effect of environmental damage on the rural population, and the impact on income derived from agricultural activity (Mengisteab, 1996: 9, and Thirlwall, 1999: 268).

4.3 Trends in the small business manufacturing industry

To interpret the findings in Chapter 7 it is important to understand trends in the small business industry and the factors that influence these trends. It is not only economic factors, such as macro-economic growth and a change in world markets, which stimulate small business development (Storey, 1996: 121, and Pietrobelli and Sverrisson, 2004: 162).

4.3.1 Number of small businesses

Historic and recent data are used to illustrate changes.

European, and specifically United Kingdom, data show that there was a decline in the proportion of small manufacturing businesses, to total manufacturing businesses, from 38.4% in the 1920s to 19% in the 1960s. The proportion of small manufacturing businesses to total manufacturing businesses increased again to 31.8% in 1990. A similar trend was seen in the number of self-employed individuals in the United Kingdom. Similar trends were identified in other European countries during later studies (Storey 1996: 24).

The increase in self-employment in the United Kingdom in the 1980s can be attributed to increasing unemployment, lowering of the unemployment benefit by the government, and government schemes such as the Enterprise Allowance (Storey 1996: 25).

The latest world trend is that, with each passing year, the economies of the world are more closely linked. Capital moves quickly and seeks the highest return, the cheapest operating cost and the fewest restrictions. Similarly, only those businesses that can offer higher value-added products and services to an expanding and international client base, and can deliver them quickly, will succeed.

This trend has diminished the importance of size and has provided an advantage to smaller entrepreneurial businesses (Jetro, 1999: 3). Their flexible structure allows them to develop more quickly, to adapt to new technologies, and to create and enter new market niches and business models. Larger and more established businesses are generally less likely to reward innovation or to experiment with risky, new ventures than are smaller, entrepreneurially-oriented businesses. They are also less likely to promote new ideas, technologies and business methods that may lead to economic growth in the 21st century (Jetro, 1999: 3). Hallberg (2000: 2), has stated that small businesses play an extremely important role in developing countries, such as Ecuador and Bangladesh. Both of these have 99% of businesses that employ fewer than 100 employees.

In South Africa, a number of factors have all contributed to the growing importance of the small business sector as a solution to unemployment. (The Republic of South Africa. Gauteng Budget Vote 3, 2004: 3). These are:

1. Rationalisation in the corporate world.
2. The arrival of new entrants to the labour market.
3. Policies that favour capital-intensive methods of production.
4. Competition from cheap imports.
5. Low economic growth.
6. The lack of a big business culture of training and staff development.

Similar trends can be seen when comparing the United Kingdom, Europe and South Africa, showing that small business is important in eradicating unemployment during specific stages in the development cycle of the economy. The incorporation of South Africa in the international market will certainly support small business development as has been shown by Jetro's observations.

The historical data seems to show that the numbers of small businesses in the industry shift over time, depending on the stability of the economy. It seems that more stable economic phases benefit larger businesses while small businesses are supported by unstable economic conditions when conventional ways of doing things are challenged. Although they might not be able to grow at the same rate as large businesses, small businesses have the capability to finance and secure the necessary expertise to compete in the export market (Rankin, 2002: 11). Small businesses do have the capability to identify new niche areas for growth, but often lack the skill base to do so and do not have efficient investment power to realise these opportunities. The question that needs to be answered is whether small businesses would like to grow. According to Rothwell (1980: 21), some businesses do not want to grow. Intervention by government will also try to prevent large businesses from failure due to the massive impact these failures have on regions. The uneconomic venture of Mosgas in Mosselbaai is an example of government intervention.

The weaknesses in both big and small businesses can be neutralized by ensuring that small business works in close relationships with big business. These businesses must be independent enough to take risk without jeopardizing the main business. In Japan, the percentage contribution of small, medium-sized and micro enterprises has stayed constant, mainly because of the economic system whereby large corporations support small businesses in a symbiotic relationship.

It can be concluded that changes in the environment will trigger the development of small businesses as alternative sources of income. These can be opportunity (entrepreneurial) or necessity (self–employment) driven. The conditions stimulating the growth of small business in South Africa are positive and reflect on historical and current conditions. There are many other factors that impact on the growth of small businesses. These are motivation, government interventions, the business environment, and so on.

4.3.2 Government's commitment and policy

According to the government White Paper on Small Business Development, the Department of Trade and Industry has committed itself to helping small businesses together with non-governmental organisations. It will co-ordinate support to small business through training, the mobilization of funds for small business incubators and hives and through strengthening small businesses as contenders in public sector contracts (Republic of South Africa Department of Trade and Industry, 1994: 2).

This was supported in the Gauteng 2004/05 The Republic of South Africa. Gauteng Budget Vote 3 (2004: 3) focusing on Black Economic Empowerment, small, medium-sized and micro enterprise development and skills training. National agencies, the Gauteng Manufacturing Advisory Centre and Blue Catalyst will support this commitment to small and medium-sized enterprises. The Republic of South Africa. Gauteng Budget Vote 3 (2004/5: 4) also identifies small and medium-sized enterprises as key to economic growth.

The National Federal Chamber of Commerce and Industries called on the Government to exempt small businesses from the implementation of the Basic Conditions of Employment Bill (The Star, 1997). It was in the interest of the economy and its growth that these businesses are strongly supported and exempted from the Bill that would have placed additional stresses on survivalist businesses (The Star, 1997). Support of small, medium and micro enterprises is a central feature of the government's strategy to promote economic development in South Africa, particularly in view of the decline in employment in the formal sector of the economy in 1994 (Streek, 2001: 1). The statement made by Streek must be read in conjunction with the reasons for small business development and growth (sub-section 4.3.1).

Aldonas, in his paper on *Small Business Manufacturing in a Global Market*, highlighted the awareness of the United States of America of the vital role that small and medium-sized enterprises play in the world economy and that they are committed to working for themselves. They are engines of growth and innovation, foster competition and promote the spirit of entrepreneurship. The 23 million small businesses in the United States create the majority of new private-sector jobs and generate over half of the nation's gross domestic product. Small businesses hold an increasingly large stake in overseas markets, thanks to trade (Aldonas, 2003: 1).

The Administration of the United States of America has been actively and aggressively pursuing trade issues on behalf of small business in the World Trade Organisation, and assists these small businesses to sell their products through the negotiation of free trade agreements. On the import side, the Department of Commerce is also actively and aggressively pursuing strong enforcement of trade laws, and will do everything it can to ensure that domestic industries obtain effective relief from unfair trade practices. No matter the size of the business, the Department offers a wide variety of technical assistance to United States of America producers that wish to pursue actions under the country's unfair trade laws. These statements support the research done in defining small business: size is used to protect markets and avoid competition in local markets[22]. It is important to note that the United States of America has the largest and most competitive manufacturing industry in the world and that such an active small business environment supports it (Aldonas, 2003: 2). Trade depends on its ability to grow exports and to substitute imports in order to increase the trade balance and local capital generation (Thirlwall, 1999: 462).

According to Rothwell and Zegveld, (1983: 19) and Aldonas (2003: 1), small businesses are neither supported nor not supported traditionally because of their efficiency and effectiveness to direct economic growth and development, but

[22] Chapter 2, 2.6

because of other cultural reasons. In the United States of America small business supports the concept of a free market economy, in the United Kingdom small business ensures that a large portion of the economy stays active and in Japan it enables large corporations to outsource non-core activities at cheaper rates. It is believed in Europe that small business contributes to innovation and job creation, while in South Africa it distributes wealth and creates jobs.

It is clear that governments support small businesses as sources of job creation and as ways of protecting local markets and stimulating innovation. They add value to small business development that is not directly measured by the model. The South African government makes use of many direct interventions compared to the United States of America, which prefers indirect trade measures. The direct methods will incur large amounts of direct cost to finance the interventions. According to an internet based article from the Financial Mail (Paton, 2004: 1) government is keen to look into *regulatory impact analysis*, a constant assessment of the impact of laws and regulations on small business. This is a change of focus that is more in line with international practice. Compliance costs affect small business disproportionately. The article says that, in businesses with sales of less than R1m, compliance costs 8.3% of turnover (Paton, 2004: 1).

4.3.3 Role of small business

The most important influences that small business has on the economy are related to technological changes, demography, unemployment and the role of government policies (Storey 1996: 113). The Bolton Committee research of the 1960s called the small business sector the seedbed for the industry of the future. This is supported by Servon (1999: 53), who described economic development as a means to improve the economic health of a region.

The main problem in economic reporting is illustrated in the data released by the Government which follows. In a discussion paper on the application of the

Government's Growth, Employment and Redistribution strategy in the Western Cape, the province's Economic Affairs Ministry says that small business has been identified as an engine of employment and income equalization. It also states that it has been estimated that there are 800,000 small, medium-sized and micro-enterprises in addition to the two to three million people carrying out different self-employment *survival activities*, such as hawking or subsistence farming. Small and micro businesses contributed between 20% and 25% of the Western Cape's gross regional product, big business between 40% and 50% and micro and informal businesses between 5% and 10% (Cape Argus, 1997 (2): 1). Based on the data, small and medium-sized enterprises clearly play an important role in contributing to gross domestic product and in providing jobs.

These data are common in government reports. The problem is that the data do not take into account the failure rate of the businesses or the ability of the businesses to create wealth. In short, the impact of small business operations cannot be measured although the gross domestic product and job creation data seem impressive.

The question to be answered by the proposed model is whether business contributes to economic *development* and not only to *growth*. In the example given it does not necessarily mean that the businesses are profitable, that they contribute to improving the living standards of their owners or employees, or that they contribute more to the economy than do larger businesses. This is only one of numerous examples and, as is indicated in sub-section 4.2, *growth* objectives do not necessarily support *development* objectives.

4.3.4 Small business impact on employment

Growth in employment is not linked to the profitability of a business (Storey, 1996: 113). Only understanding *current trends* in small business will help to understand *drivers* that support change in small business employment creation:

> *Historically the share of small firms in the total economic activity has declined drastically in the twentieth century in developed countries. Whilst it remains true that of all independent enterprises the vast majority are small (94 per cent of enterprises in UK manufacturing employ 200 persons or less) their share in employment and output has fallen. In 1935 these small manufacturing firms accounted for 38 per cent of employment, by 1968 their share had fallen to 19 per cent and the number of such firms had fallen even faster, from 136,000 to 58,000 over the period 1935 to 1968. The share of small firms in employment has also declined in most other sectors of the economy and particularly rapidly in retailing. The decline in the economic weight of small firms has been reflected by a major shift in the proportion of the working population that earns its income from profits as distinct from wages or salaries. In 1911, according to the censuses of population, 25.5 per cent of the labour force consisted of employers and the self-employed. By the early 1970s this proportion had fallen to around 7.5 per cent (Bannock 1981: 2). Although the source used is very old the data would not have changed.*
>
> *The decline in the number of small business in developed countries can also be linked to the growing number of giant companies and the role that the state started to play as a contributor to the GDP.*

The current thinking about small business development is that there is positive growth due to competitive markets and needs for flexibility and innovation (Jetro, 1999: 3). The United States of America is a leader in this booming small and medium-sized enterprise market. The instability of small businesses in developed and developing countries reduces the effect of job creation. Hallberg (2000: 4)

states that the *net* job creation (gross job *creation* minus gross job *destruction*) of small manufacturing businesses did not create more jobs.

These historically dramatic changes are not confined to Britain but seem to be common to all advanced countries. In the 1960s it was government policy to stimulate mergers. The main aim of this was to be more competitive.

In a recent study in Australia, McMahon (2001b: 289) measured the employment growth of small businesses over 15 years in 871 businesses. The results of his study are given in table 4.1.

Table 4.1 The results of a study on small business employment growth in the manufacturing industry in Australia
Source: McMahon (2001b: 289)

	Average number of people employed		
	16.9	**64.7**	**123.6**
Employment growth rate	-0.2%	2.4%	6.6%
Percentage of population	70%	25%	5%

McMahon (2001b) also established that the businesses with low employee growth were privately owned and managed with the main driver owners' incomes. They showed a 2.4% growth in employees and a 10% growth in sales. The businesses with a high employee growth were entrepreneurial in nature and showed a 6.6% growth in employees and a 10% growth in sales.

These trends in employment may help to analyse the state of small business development in the current economic cycle. A growing number of people employed in big business, with a reduction in the number of people employed in

smaller businesses, reflect an upswing in the economic cycle. Growth in small businesses is rare and most small businesses level off after employing fewer than half a dozen people (Rutashobya and Olomi, 1999: 173).

The model must be analysed taking into account the different trends supporting development in small business. An understanding of factors influencing employment and growth will enable better model interpretation.

4.4 Environmental data

4.4.1 Impact of the Auto Immune Deficiency Syndrome

The statistics on the Auto Immune Deficiency Syndrome in this chapter were retrieved from an internet publication by the Automotive Industry Development Centre and the *AIDS Facts in Brief* internet site of the Department of Health 2002). According to these two publications the National Human Immune Deficiency Virus infection rate at antenatal clinics was 24.5% in 2002 and approximately 4.2 million South Africans were already infected. By 2010 the Auto Immune Deficiency Syndrome will have killed 5.6 million South Africans and by 2010 six million people, and 18% of the workforce, will be infected. This will reduce life expectancy by approximately 14 years. The Auto Immune Deficiency Syndrome will double the child mortality rate by 2010. By 2010, there will be 700000 Auto Immune Deficiency Syndrome orphans in South Africa. Anecdotal evidence suggests that patients with related illnesses occupy around half of the acute paediatric and adult medical beds in South Africa. There are about 1500 new infections every day. Given our fertility rate, the Auto Immune Deficiency Syndrome will not overcome the momentum of population growth. However, population growth rates are projected to drop by 71%, as a result of the Auto Immune Deficiency Syndrome, by 2010.

This will impact on the amount of capital generated by a business because of the large number of absentees, the costs of supporting sick staff and the costs of training new staff to fill the gaps caused by deaths. The Auto Immune Deficiency Syndrome will have a massive impact on the work force. This impact will be escalated in small businesses where the skills of each employee, and the efficiency of the labour force to ensure competitiveness, are critical. Small businesses do not have the capability or capacity to finance such an impact to the same extent as do large businesses.

Table 4.2 Human Immune Deficiency Virus (HIV) infection rates for the North West and Gauteng provinces from 1998 to 2000

Province	**HIV rates 2000 (%)**	**HIV rates 1999 (%)**	**HIV rates 1998 (%)**
Gauteng	29,3	23,8	22,5
North West	22,9	23,0	21,3
National	**24,5**	**22,4**	**22,98**

In Gauteng and North West, the two provinces where this study was conducted, the data showed an alarming increase in Gauteng and a stabilisation of the infection rate in North West.

Table 4.3 Age breakdown of Human Immune Deficiency Virus (HIV) infection rates

Age group	HIV rates 2000 (%)	HIV rates 1999 (%)	HIV rates 1998 (%)
Under 20	16,1	16,5	21,0
20-24	29,1	25,6	26,1
25-29	30,6	26,4	26,9
30-34	23,3	21,7	19,1
35-39	15,8	16,2	13,4
40-44	10,2	12	10,5
45-49	13,1	7,5	10,2

The highest percentage of infection occurs in the currently economically active portion of the community and in the workforce of the future. Based on the life expectancy of Auto Immune Deficiency Syndrome victims, and the section of the community that it will affect, it can be said that they will have negative effects on the costs associated with productivity and absenteeism and on the costs of replacing skilled workers and supporting sick staff.

Some of the businesses analysed will be directly influenced by the Auto Immune Deficiency Syndrome pandemic and growth figures obtained from these businesses must be analysed, in future studies, in conjunction with Auto Immune Deficiency Syndrome-related deaths. Concerns regarding the impact of the Auto Immune Deficiency Syndrome were mentioned during the interviews, although questions on its impact were not included in the questionnaire. The furniture sector which focuses on coffin making has been dramatically influenced by higher mortality figures. This sector will be separately acknowledged in the study because of the impact of the Auto Immune Deficiency Syndrome on it.

In developing economies the Auto Immune Deficiency Syndrome will have a dual impact:

1. The first is that it will increase the strain on the country's resources. Medical care will have to be provided. Families affected by the inability of bread winners to earn, or by their deaths, will have to be looked after. Less capital can be invested in economic growth.
2. Secondly, a loss of skills gained through experience and training will influence the abilities of businesses, and especially small businesses, to compete. Capital is wasted by maintaining skills bases only.

4.4.2 Political and economic environment

An article by Loxton (1997: 1), published on the web page of the Department of Trade and Industry, states that it could take between ten and 15 years for the government's strategy, to promote small and medium-sized enterprises, to start paying off in tangible terms. The government's focus on gross domestic product and job creation, as measures of small business development, is already failing. Paton (2004: 1) stated that later data reflect the failure of the policy of the Department of Trade and Industry and indicates changes by government intended to rectify the policy.

Loxton (1997: 1) said experience in Europe and Asia had shown that developing small, medium-sized and micro enterprises was no quick or easy task and the fact that South Africa had to overcome numerous structural problems had not made the task easier.

In South Africa there are four government institutions that address all the issues necessary to support small businesses. These include the Centre for Small Business Promotion, Khula Enterprise Finance Limited, Ntsika Enterprise Promotion Agency and the National Small Business Council. These agencies and

the policy supporting these agencies are not effective and they will be replaced by a new agency called Seda (Paton, 2004: 1).

In South Africa small businesses are strongly supported by government. Between 1995 and 1997, 40% of public works contracts were awarded to small and Black Economic Empowerment businesses. This amounts to 359 of a total of 744 contracts worth R182 million (Volschenke, 1997: 1). The availability of capital and the presence of entrepreneurs, along with favourable social and political conditions, are necessary before commercialisation, rapid business development and diffusion can occur on a sufficiently large scale (Rothwell and Zegveld, 1983: 79, and Rutashobya and Olomi, 1999: 19).

4.4.3 Export environment

In the manufacturing sector 71% of all South African businesses export an average of 18% of their output. (Rankin, 2002: 1). The study by Rankin (2002: 1) also showed that more than a quarter export only to the South African Development Community (55% of total volume). Other major markets include the rest of Africa, Western Europe, Asia and North America (45% of total volume). It was also interesting to note that exporters have higher productivity and labour costs. The increased salaries associated with exports contribute positively to increases in the incomes of employees, whereas increased productivity will contribute to better margins and profitability for the businesses.

Businesses with foreign ownership had higher output, probably because of technology transfer. Large businesses, compared to small and medium-sized enterprises, are more likely to export, suggesting that fixed cost may be important, with the large businesses more likely to export outside the South

African Development Community.[23] The importance of technology, as a method to develop a country, is mentioned in various instances by Thirlwall, (1999: 176).

Liberalised trade is essential to the future of small businesses and to all they employ. Statistics from the United States tell the story. Between 1992 and 2001 small and medium-sized enterprises that export soared from 108,026 to 230,736. Small and medium-sized enterprises accounted for nearly 98% of the 1992 to 2001 growth in exporters. By 2001 manufacturing businesses made up approximately one third of small and medium-sized enterprise exports (33% in 2001), and generated 40% of total small and medium-sized enterprise exports. Aldonas also established that exports play an important role in small and medium-sized enterprise growth. (Aldonas, 2003: 3, and Koven, 2003: 15).

The best example of contribution to the economy in South Africa is in exports. This is not hampered by local resources and does not impact negatively on the existing business infrastructure as long as the businesses do not compete against each other in a limited market.

It is becoming increasingly imperative to be internationally competitive in order to function effectively, even in domestic markets. In a dynamic environment marked by fast technological changes, achieving and retaining a competitive edge are both necessities and challenges. Building up the competitive edge of exporting businesses, particularly in small and medium-sized enterprises, and improving their operational efficiency, can pay rich dividends in the long run, at the national level (Belisle, 1997: 8). South Africa shows a considerable shortfall in trade policy interventions and focuses more on direct support interventions. This is contrary to international trends.

[23] See sub-section 4.3: Small businesses are not more efficient or effective than are larger businesses.

It can be concluded that exports play an important role in creating additional income, increase stability for businesses, created additional sources of income for a country and increase the income of individuals. It therefore contributes to a country's small business capability to generate capital.

4.5 The effect of globalisations small businesses

Of the many impacts of globalisation, two are of particular interest to small businesses. The first is that globalisation has led to an increase in the pace of growth in world trade. Today it exceeds $6 trillion. According to the World Trade Organization, world trade is likely to rise in the future. The second is that world trade has firmly established competitiveness as the reigning factor in the global market place, at the level of both nations and businesses (Belisle 1997: 9). Japan is drawing on the example of the United States to promote a thriving small business sector that can become a major source of new employment, technological innovation and development (Jetro, 1999: 1).

The questions which now face small businesses, particularly those in developing and transitional economies, are whether they will be able to face up to the challenges of this competition and how best they can take full advantage of the increased trading opportunities. Traits such as flexibility, adaptability, inventiveness and innovativeness, which are inherent to small and medium-sized businesses, go a long way towards helping them to play their roles in any economy[24]. However, despite their having these desired qualities, small businesses need to be nurtured and backed by a conducive export environment and strong support mechanisms if they are to realize their full potential (Belisle 1997: 11).

[24] See sub-section 4.8

4.6 Risk associated with small businesses

Support for small businesses is a central feature of the government's strategy to promote economic development, but it is expensive. Streek (2001: 8), reported that the South African economic sector has lost more than R68 million in the past four years as a result of the failure of 117 of the 246 small businesses receiving government assistance. These loses can be reduced by focusing on secondary regulatory interventions instead of direct interventions.

A total of 40 251 small businesses, involving capital of R39.5 million, failed in 2000. The disappointing results in the businesses could be attributed to factors that generally affect them (Streek, 2001: 8).

In an article on the National Productivity Institute's website, it is said that improvements in small and medium-sized business operations, and in methods of operating, would improve the profits of small, medium-sized and micro businesses, with a resultant increase in organisational competitiveness (Dladla, 2005: 1).

According to Streek (2001: 7), the reasons for the failure of small businesses are:

1. A lack of market focus.
2. An inability to maintain a profitable position in the market.
3. Expansion into the domestic market by big business.
4. An unfamiliarity with established business practices.
5. Failure to conduct business in a professional manner.
6. Lack of financial and managerial expertise in business management.
7. A concentration of entrepreneurs in service and retail businesses.
8. High crime rates that forced entrepreneurs to reduce the number of trading hours.

"In South Africa, this is compounded by lack of entrepreneurial culture as well as lack of technical and management skills" (Streek, 2001: 6).

Because of the risk involved in financing small business, Khula was established. They provided 234 090 loans to small, medium-sized and micro enterprises and non-governmental organisations between 1997 and 2000. In 2001, these included 85 269 and 152 237 credit guarantees had been supplied by banks and retail financial institutions. For every R1 Khula grants, the banks provide R4 in loans to entrepreneurs. The total capital employed to assist small, medium-sized and micro enterprises is R1 142.3 million. It must be asked if this form of high risk financing is not increasing the number of failures.

Most entrepreneurs get involved in business purely for survivalist purposes and there is a lack of research, by retail finance institutions, into appropriate products for the small, medium-sized and micro enterprise market (Servon, 1999: 52). This study will add to the tools that can be used by businesses to justify their policies. It is clear that, if the risks are not managed properly, they can be very costly for government to support small business development.

4.7 Areas of weakness

It is important to acknowledge that there are various obstacles impacting on the development of small businesses, without even considering developing these businesses to contribute to capital generation. Only considering a few of these obstacles will provide an understanding of the challenges that face small businesses to contribute to macro-economic development.

Even the impact of a single person plays an important role in the success of a small business. This is emphasised in the study done by the Stratos Group (1990: 24). The different factors that serve as constraints to small businesses are:

1. ***Finance restrictions***. These cover the restricted availability of capital from normal commercial sources, slow payment under public procurement contracts and barriers to entry into the procurement market because the performance bond and guarantee requirements are onerous for small and medium-sized enterprises. During the period of high interest (1998 to 1999), there was an increase in the number of liquidations of small businesses (to nearly 15%) and a 55% increase in voluntary liquidations (Streek, 2001: 11). This is an indication of the inability of small businesses to withstand changes in the environment. If a business can generate enough capital it can finance larger percentages of projects allowing them to increase project sizes or to lower the exposure of their financiers.
2. ***Bond requirements***, such as under-performance guarantees, are difficult to obtain.
3. ***Access to information and procurement opportunities***. Information is costly. Small and medium-sized enterprises generally face a number of hurdles, such as the high costs of preparing tenders, in obtaining access to markets. The problem of information (and knowledge) is so critical that it is the subject of a World Bank report.
4. ***Barriers to human capital development***. Small and medium-sized enterprises face considerable impediments to accessing skills and skilled labour markets (World Bank, World Bank Development Report: *Knowledge or Development*, 1998: 8).
5. ***Productivity***. An increase in productivity will increase growth. The question that should be addressed is whether small businesses are more productive than their larger counterparts. Various factors will influence the productivity of small businesses. Its capacity to invest in technology has a very big influence. The decline in the growth of productivity in the United States can be linked directly to a shortfall in investment businesses (Baumol and Blinder 1988: 853). A weakness of small businesses is that output, or added value by employee, decreases as the size of the

business, measured by number of its employees, decreases (Burns and Dewhurst 1986: 195).

4.7.1 Government regulations

Any government regulations that increase the cost of production will decrease the competitiveness of the country and will decrease the amount of capital available for investment in reconstruction, development and new technology. Small businesses are particularly disadvantaged by government regulations. These regulations are burdensome and costly. It is expensive for small businesses to comply with them and the businesses might not have the technical or legal expertise necessary.

Growth problems are economic and sociological. The proportion of capital necessary to respond to opportunities increases in smaller businesses. Its ability to respond is lower because of the increased difficulty of smaller businesses to obtain funds. One of the problems identified in the South African tendering process is that of small businesses obtaining capital. Only five out of 300 tenderers, that were assisted by the Job Creation Centre created by the Department of Trade and Industry, were successful in getting government tenders in 1998 (Streek, 2001: 4).

4.8 Competitive advantages of small and medium-sized businesses

Understanding the competitiveness of small business will provide an understanding of the advantages of developing small businesses to support economic development.

Measuring the importance of small and medium-sized enterprises, through their output and employment, cannot capture their true national significance (Rothwell and Zegveld, 1983: 9). This is supported by Rutashobya and Olomi (1999: 60), who listed many other factors such as stability, skills development and empowerment. In some countries they play important roles in political stability and in regional employment stability. They meet consumer needs in relatively small market niches and they are a source of specialist suppliers to major manufacturing corporations. They form crucial parts of the overall and national industrial infrastructures. They operate in areas where economies of scale are not especially important. Their capital intensity is low, their skill intensity high and demand for them is highly specific and variable. They play important roles in national economic development.

Small and medium-sized enterprises have an advantage in that they service small niche markets. They are dynamic, entrepreneurially managed and have much faster turn-around times.

It is important to acknowledge that any new market, which is created in a closed economy with limited resources, will impact on the business of existing markets. Small businesses can provide highly-specialised products and small businesses which partner with large corporations can grow and prosper.

There is an opportunity for South African small businesses to become symbiotic partners with large international businesses in providing cost-efficient and low-

volume production. South Africa is a world leader in this area of production because of our small market. Other areas of competitiveness important in today's economy are:

1. Flexibility, as it is important to adjust to competition and changing markets.
2. Innovation, as it is a catalyst for growth.
3. Lower labour and overhead costs.

4.9 The effects of globalisation

Since the 1990s we have witnessed an irreversible trend towards globalisation. This is especially true in the integration of productive processes, the lowering, or removal, of institutional barriers to international trade, the flow of capital and the rapid technological advances in information dissemination and communication.

Globalisation has also blurred the lines between domestic and international trade. The protective tariff and non-tariff walls, which segregated domestic markets from international markets, are slowly coming down. These walls gave businesses in developing countries the option either to seek the protection of national policies to safeguard their domestic markets or to accept the challenge of facing competition in the international arena. The gradual lowering of these walls, accompanied by other liberalisation measures, has taken the decision on whether to go global, or not, out of the hands of businesses.

4.10 Economic and general overview of South Africa

According to the 2002 *World Facts Book*, published by the Central Intelligence Agency, South Africa is a middle-income, developing country with an abundant supply of resources, well-developed financial, legal, communications, energy, and transport sectors, a stock exchange that ranks among the ten largest in the world, and a modern infrastructure supporting an efficient distribution of goods to

major urban centres throughout the region. However, growth has not been strong enough to cut into high unemployment[25]. There are also daunting economic problems, especially the problems of poverty and the lack of economic empowerment among previous disadvantaged groups. Other problems are crime, corruption, and the Auto Immune Deficiency Syndrome.

At the start of 2000 President Mbeki vowed to promote economic growth and foreign investment, to reduce poverty by relaxing restrictive labour laws, to step up the pace of privatisation and to cut unneeded governmental spending. The economy slowed in 2001, largely because of the slowing of the international economy. South Africa's 40 million inhabitants are divided between more than 2000 local authorities. Approximately 60% of the population lives in urban areas and 40% live in rural villages or on farms.

It can be concluded that South Africa does have a strong economic base and an infrastructure to support growth, but that certain factors, such as crime, are slowing the process. It is also clear that government sees small and medium-sized enterprise development as a definite tool to assist in reducing unemployment.

4.11 Economic indicators

This section provides an overview of the basic economic terms encountered during the research. It is important to have an understanding of these parameters to:

1. Draw parallels between growth and development.
2. Compare small business performance to the general performance of the economy.

[25] This is not applicable to Gauteng. According to Stats SA, unemployment decreased from 30.8% to 28.2% in the 12 months ending in September 2003.

3. Understand the differences between terms to interpreter data and conclusions from earlier studies

4.11.1 Gross domestic product

Economic growth is measured in terms of the increase in the size of a nation's economy. A broad measure of the size of an economy is its output. The most widely used measure of economic output is the *Gross Domestic Product* (Quick MBA, 2004).

Gross Domestic Product is generally defined as the market value of the goods and services produced by a country.

There are three different ways of calculating gross domestic product:

1. The *expenditure approach* calculates the final spending on goods and services.
2. The *product approach* calculates the market value of goods and services produced.
3. The *income approach* sums the income received by all producers in the country.

These three approaches are equivalent, with each yielding the same result. It is not too important to know which calculation method was used. It is also not stated in most of the data which method was used.

4.11.2 Turnover generated by small and medium-sized enterprises and their impact on job creation

Based on an internet report, Mail and Guardian (2003: 1), the economy has grown on average by 2.7% over the past decade. At this rate unemployment will remain pegged at 29%.

However, unemployment will be halved if 5% growth can be achieved. If the economy grows at 6%, South Africa will increase its *per capita* gross domestic product (in purchasing power terms) from R48 600 in 2003 to R103 200 by 2020. To achieve this, however, perceptions of risk have to be altered to increase investment from 15% of gross domestic product to more than 25%. This will also have to include improving the ratio of foreign direct investment to the gross domestic product from its current level of only 1% (Mail and Guardian, 2003: 1).

Similar statements have been made internationally and studies by the World Bank have shown that there is no direct relationship between poverty reduction, job creation and *growth* in the gross domestic product, but that there is one with *development*, poverty reduction and job creation.

4.11.3 Inflation data

Table 4.4 Inflation data based on the consumer price index, as published by Statistics South Africa, 2005

1999/0	2000/1	2001/2	2002/3	2003/4	Average
6.9%	7.8%	6.6%	9.3%	6.8%	7.4%
1.069	1.078	1.066	1.093	1.068	1.0748

The difference between the growth in the consumer price index, excluding interest rates on mortgage bonds, as shown in Table 4.4, and that reflected by the *World Facts Book*, must be highlighted The *World Facts Book* states the 2001/2 inflation as 5.8% (The World Facts Book, 2002). The reason for highlighting the difference is that such differences occur both between sources and between departments, thereby making it difficult to interpret data from different countries and data from different institutions in a country. Very little data are provided to establish the reason for the differences that may be due to sampling techniques, sampling periods and the statistical techniques used. The data will only be stated in this chapter and used to contribute to the analysis and conclusions in Chapter 7.

Jacobs (1999: 1) stated that macro-economic stability is important for growth. He refers especially to inflation and the negative effect it has on competitiveness. Changes in the exchange rate between 2000 and 2004 also made it difficult for businesses to plan and compete internationally.

4.11.4 Employment data

The employment data will be used to compare the contribution of small businesses analysed in the study, to the overall contribution of the manufacturing industry. The data will only be stated in this chapter and used to contribute to the analysis and conclusions in Chapter 7.

The latest data to confirm the unemployment rate in South Africa are the October 2001 census and the Labour Force Survey of September 2001. According to the deputy director-general of Statistics South Africa, Dr Ross Hirschowitz, the latter is more accurate and will be used as a reference in the research (News24.com, 2004: 1).

It is important to note that a large proportion of the population is economically inactive, placing a burden on development. Some 33.7% of South Africans were employed in October 2001, according to census results (News24.com, 2004: 1). The higher the number of people employed the lower the strain on government spending on welfare. Lower spending on welfare enables higher spending on development.

The number of jobs is increasing, but not quickly enough to keep pace with population growth. Unemployment was rising among young people without experience, but dropping in older people. With regard to the distribution of jobs among industries, 12.6% of workers were employed in the manufacturing industry (Census, 2001: 61).

The unemployment rates in the provinces, according to Census 2001, were:

1. North West 43.8%.
2. Gauteng 36.4%.

In North West, 8.3% of people were employed in the manufacturing industry in 1996. In 2001, 9.7% were employed in the industry. This resulted in a 1.4% growth compared to other industries and a growth in the number of people employed from 55 119 people (1996) to 69 328 in 2001. This resulted in a growth of 25% over the five-year period (Statistics South Africa, Census 2001 (2): 62).

In Gauteng, 14.9% of people were employed in the manufacturing industry in 1996. In 2001, 15.3% were employed in the industry. This resulted in a 0.4% growth compared to other industries and a growth in the number of people employed from 327 588 people (1996) to 399 270 in 2001. This resulted in a growth of 21.6% over the five-year period (Statistics South Africa, Census 2001 (1): 66).

4.11.5 Quantifiability of the employment potential

The small business sector is generally considered important from the viewpoint of its potential for the creation of employment opportunities. It is maintained that this sector is traditionally labour-intensive. In the United States 70% of all new jobs are created by small business (Perry, Steagall, Woods, 1995: 86). The competitiveness of labour-intensive businesses must be questioned and a balance must be established (Thirlwall, 1999: 163).

Creating jobs contributes to the macro-economic development of a country. The question that should be asked is whether labour-intensive operations, as one of the drivers of economic development, are competitive in a technologically advanced and industrial society (Thirlwall, 1999: 163). It could be argued that starting a non-competitive but labour-intensive business will only cost the country. It will be a cost to the country since it will require capital to stimulate non-competitive industries. The only way that labour-intensive industries could compete with technologically-advanced industries is by exploiting labour. Exploiting labour can be seen as a social cost, contributing negatively to the capital generation of employees.

Rutashobya and Olomi (1999: 121) state that, according to available indications, the cost of creating employment in small businesses would appear to be less than in the case of large businesses and it is maintained that small businesses are relatively easier to establish in smaller towns and rural areas. This also promotes the decentralisation of economical activities, thereby stimulating economic development in these areas.

It is important to realise that the largest contribution of small, medium-sized and micro enterprise is to new job creation. The informal sector, or second economy, has become the high growth area for many African countries (Rutashobya and Olomi, 1999: 2). In America up to 50% of new jobs generated is directly attributed

to entrepreneurs. Grudgin, Brunskill and Fothergill (1997: 7) raised the important question of whether new businesses generate new jobs, or whether they simply take jobs away from existing businesses.

Chapter 5: Research Methodology

5.1 Introduction

This chapter covers the individual phases of the research chronologically. It focuses on selecting the survey instrument and the type of interview. This is followed by a more detailed explanation on preparing the questionnaire and of the sampling method used. Lastly, the chapter focuses on the methodology used to analyse the data and an explanation of the model calculations.

5.2 The population

The population analysed was manufacturing small businesses, based on the definitions in Chapter 2. The target population was manufacturing small businesses in Gauteng and North West based on the accessibility of these businesses to the researcher and the high level of economic activity in the areas. These businesses provided the largest and accessible sample with a database of approximately 200 businesses.

5.3 Time period

Businesses, that have been established or were operational during the period 1999/00 to 2003/4, were analysed. The dates are after the 1994 elections as this was the period when the legislative playing fields were levelled for all entrepreneurs operating small businesses in South Africa. This study only included businesses that were still active. The main reason why a period of five years has been selected is that businesses must keep a full set of financial information for at least five years for tax purposes and data over longer periods of time will be difficult to obtain. Data which span a few years are necessary to establish growth trends.

5.4 Research design

The main hypotheses to be tested were:

1. Whether manufacturing small businesses in South Africa (Gauteng and North West) contribute to capital generation and, therefore, economic development.
2. Whether these businesses contribute to job creation.

This was done through the development of a small business model using financial principles.

The research was sub-divided into the following main areas:

1. Defining the small business manufacturing environment.
2. Developing a model to measure contributions to economic development.
3. Understanding the small business environment that impacts on development.
4. Designing the research methodology.
5. The data gathering and findings.
6. Analysis and conclusions.

Other sub-questions that were answered as a result of the development of the model were:

1. How does job creation in small business compare to job creation in general manufacturing industries?
2. How does capital generation in small business compare to capital generation in general manufacturing industries?

3. What is the impact of business failure on the contributions of small businesses?
4. What size and age of small businesses perform best in capital generation?
5. Which industries are most suited for small businesses to generate capital?
6. How can government utilise the result of this study to improve policy about small business development?
7. What other factors affect capital generation?
8. What is the effectiveness of using capital generation, compared to using the contribution of gross domestic product, in a developing economy?

The research followed an *ex post facto* design using variables found in the sphere of research which impacts on the model. This is a causal study which considers the impact of different internal and external variables on the model.

The study not only provided a cross-sectional snapshot of the factors currently influencing small business development. It also analysed job-creation trends about the contribution of small business development to the economy.

The literature that was considered relevant developing the model can be divided into these main areas:

1. Economic theory relating to the understanding of macro-economics and economic development.
2. South African statistical data and other primary data sources.
3. Regulations and regulatory definitions guiding small business development.
4. Internationally-developed models and literature.
5. Articles on the impact of small business development, both locally and internationally.
6. Books and journals on small business development.

There is very little in South African literature about the impact of small business on the economy and to capital contribution specifically. This statement is supported by small, medium-sized and micro enterprise research done in South Africa, and published by Bbenkle and Mukuka, (2000: 1). Many subjects were addressed such as black empowerment, credit and finance, information technology, mining, policy issues, training, and so on. However, there was very little about development although mention was made of development strategies. As in many other literature sources, *development* and *growth* get confused. Development without growth is hardly conceivable, but growth is possible without development (Thirlwall, 1999: 29).

5.5 The survey and initial limitations

Initially 200 questionnaires were faxed and posted to businesses from data bases obtained from the Automotive Industry Development Centre, the National Manufacturing Advisory Centre and the Gauteng Manufacturing Advisory Centre. Data that was promised by various other organisations, such as banks and development organisations, could not be provided because of client confidentiality. Client confidentiality was not an issue when the scoping of the research was being decided. The fact that the provision of data by institutions was not initially seen as an issue changed the planning and cost dramatically when, after three months, no data were made available.

The issue of confidentiality to obtain client information from banks and development organisations could not be resolved by using confidentiality agreements. When proposals were made to depersonalise[26] the data, these institutions still refused to share the data. The client confidentiality argument can therefore not be the only reason for not contributing to the research. Except for client confidentiality, the reasons which follow must also be highlighted:

[26] Replacing the name of the company or organisation with a number or letter only for reference purposes.

1. Small business data from financial institutions will expose their risk profiles.
2. Data from financial institutions will expose their attitudes towards small business.
3. Data from financial institutions will highlight their exposure to the sector.

Data available from an Anglo Gold small business development database was too old to use. Data available from business development agencies were either unavailable or non-existent when requested, although these organisations did state that similar data were available. The data that were available did not cover all the parameters necessary and would be insufficient. This resulted in a drive to obtain data through interviews based on questionnaires. The problems experienced with the questionnaires and interviews are listed:

1. Using second- and third-year students with accounting and/or economic backgrounds to obtain data did not succeed even when appointments were made for them.
2. Using people to post and fax over 200 questionnaires provided only limited success.
3. Businesses promised to complete questionnaires but did not deliver on their promises.

The only really successful way of obtaining information directly was through visiting businesses on appointment or by telephoning personally.

During the research, the Gauteng Manufacturing Advisory Centre requested that its database not be used for any additional research because of a complaint from a business to the Gauteng Manufacturing Advisory Centre that its information had been released. It must also be mentioned that the Gauteng Manufacturing Advisory Centre database was very outdated and unreliable and the problems which follow had to be overcome:

1. Businesses were not aware that they were on the database or that they formed part of the Gauteng Manufacturing Advisory Centre programme. Businesses were also irritated because their names were used in a list of industries that were supported by the Gauteng Manufacturing Advisory Centre.
2. Data were outdated and many businesses no longer existed, had moved premises, or had changed contact details.
3. Data such as addresses, contact persons and telephone numbers were not accurate.
4. Many of the businesses were only at the conceptual phase and were not even operational.

It is possible that lack of support was the result of fears about exposing internal inefficiencies in the businesses or about unsubstantiated claims of the businesses' real influence.

The Automotive Industry Development Centre had the most up-to-date database and many of its businesses replied.

Internet and telephone directories were used to identify respondents and referrals by successful interviewees were also successful.

5.6 Data analysis

The data analysis was based on data obtained in interviews from manufacturing small businesses in Gauteng and North West. The interviews were based on the questionnaire in Appendix 2. The data were analysed to determine whether small business contributed towards capital generation by determining:

1. Contribution to taxes.
2. Contribution to assets.

3. Contribution to owners' incomes.
4. Contribution to employees' incomes.

The qualitative data were used to analyse capital contribution in various regions, industries, and in different businesses according to age and size. All the small businesses for this study formed part of the formal businesses environment. The cut-off size was determined according to the definition developed in Chapter 2. Qualitative data from the literature were used to interpret the model's results.

5.7 Objective of the questionnaire

The objective of the questionnaire was to obtain data to analyse and interpret capital generation as a measurement of the contributions of small and medium-sized enterprises to economic development.

Based on development economic theory[27], a business will contribute to economic development if it can generate capital. Capital generation is measured through the items as listed in sub-section 5.6, points one to four.

The questionnaire was structured to cover three main sections:

1. ***An administrative section***. This was intended to obtain the respondents' data, to determine whether they needed summaries as feedback to the research, a confidentiality agreement, and to determine whether they could be referred to as contributors.
2. ***The status of respondents***. This was intended to determine whether the respondents could be included in the sample: the number of people employed, whether they operated in the manufacturing industry and in

[27] See Figure 3.7: Combination of capital production function with labour production function

what sector, and whether they operated in North West or Gauteng provinces were factors.

3. ***Period and contributions data***. The last part of the questionnaire was intended to obtain data for a period covering the operations of the respondents during the previous five years in order to analyse their:

I. Contributions to growth in taxes.
II. Contributions to growth in employees' incomes.
III. Contributions to growth in owners' incomes.
IV. Contributions to the growth of business assets.

5.8 Type of interview

A fully-structured interview format was chosen. Some of the questions were designed with pre-coded responses. The last section of the questionnaire was designed to accommodate financial data. The interviews were conducted in person to ensure the best results.

Responses from the entrepreneurs differed, from very detailed financial data responses, to rounded figures based on financial data with a high degree of accuracy. The impact of the rounding of data is not dramatic, since trends were analysed, but must be acknowledged. The effect of these rounded data figures were considered when the data were analysed.

The process of obtaining data for the research was very complex. Data were mostly obtained during personal interviews based on a *relationship of trust* with the interviewer.

5.9 Confidentiality and non-disclosure agreements

Confidentiality and non-disclosure agreements were made because the data was sensitive. Initially the respondents were very reluctant to provide the financial data necessary for the study.

Different reasons can be provided for this initial resistance. These are based on feedback from the businesses:

1. The researcher used inexperienced interviewers to obtain the data.
2. Suspicion that data were being collected for the Receiver of Revenue or for labour organisations.
3. Suspicion that the data were being collected for competitors or for new entrants to the market.
4. Owners and managers of the businesses that were not doing well felt embarrassed about providing the data.

A standard confidentiality agreement, obtained from BMW South Africa, was used. The agreement was altered to reflect the nature of the research and is included in Appendix 1.

5.10 The questionnaire

The questionnaire reflected all the variables that formed part of the research question. It took between 30 minutes and one hour to complete the questionnaire. It consisted of eight questions with sub-sets of questions. Most of the time was spent on identifying and securing willing respondents, with a success rate of one in three. Travelling between interviews was also time-consuming.

The questionnaire gave a summary of the research objective, contact details of the researcher and the study leader on the first page, followed by the questions.

5.11 Analysis methodology

This section focuses on the methodology used to analyse the data. It will focus firstly on the data characteristics, secondly on the mathematical analysis and thirdly on the different interrelationships and types of analysis.

5.12 Objectivity of the data

During the collection of the data various observations were made by the researcher that must be listed as they might impact on the quality of the data. It must be noted that a large percentage of the entrepreneurs who agreed to interviews had tertiary education, but this was not quantified during the research. The quality and accuracy of the financial data might differ because the skills of the entrepreneurs, in providing the data, differed. In many cases, the entrepreneurs or managers only provided verbal data over the telephone or from their financial statements without actually revealing the data. It must be noted that the data could have been altered to hide issues of tax or remuneration.

In general, the entrepreneurs were extremely suspicious. Their suspicions were based mainly on tax and labour issues. These suspicions were followed by concerns of industrial espionage by new market entrants and competitors or that customers would obtain the data for price negotiations.

It also seemed that businesses that were doing exceptionally well, or were struggling, did not want to provide their data.

5.13 Interpretation of data

Available data were collected for the previous five years. However, if a business was younger than five years old the last available data were collected and if a

business's first financial year did not extend over 12 months the data were ignored.

All data were *deflated* with the consumer price index, excluding interest rates on mortgage bonds, inflation data obtained from Statistics South Africa (Statistics South Africa, 2004). The statistical data extend over a 12-month period from January to December and they did not always coincide with the financial years of the businesses. The effect of the lag or lead on the data should however be minimised over the period analysed.

5.14 Preparation of data for analysis

The data were divided into three fields for the purpose of analysis:

1. The raw data were captured, by business, for the five-year period if it were available. The data covered the four main areas of analysis which were contributions to assets, owners' incomes, employees' incomes and to tax income. The data also covered the ages of the entities, the numbers of owners and employers, and the industries, provinces and areas of operation.
2. The raw data were normalised or deflated to a base, or reference, year by using the inflation-rate data from Statistics South Africa for the five-year period, if the data were available. The data covered the four main areas of analysis which were contributions to assets, owners' incomes, employees' incomes and to tax income.
3. The raw data were used to establish growth trends, in order to simulate the capital generated, if the businesses grew at the same rate as increases in the consumer price index, excluding interest rates on mortgage bonds. The data were collected for the five-year period if they were available. The data covered the four main areas of analysis which

were contributions to assets, owners' incomes, employees' incomes and to tax income.

The data were reworked into three groups:

1. ***The raw data***. These data were used as reference points to calculate the trend data and the normalised data. Comparisons between actual, or raw, data and inflation-based growth and trend data were necessary to determine whether growth occurred. If the actual or raw data were larger than the inflation-based growth and trend data the businesses were contributing *positively*. If the actual or raw data were smaller or equal to the inflation-based growth and trend data, the businesses had smaller or no growth.
2. ***The growth and trend data*** were used to make the comparisons explained in *raw data* above.
3. ***The normalised or deflated data*** were used to compare different parameters from the same base line, such as in trying to determine whether businesses were able to increase their contributions to asset growth, in real terms, compared to job creation.

The consumer price index, as published by Statistics South Africa, was used to calculate a baseline for measurement. This index was used to calculate a trend for growth as well as to normalise the data.

Since the aim of the study was to calculate capital growth, it made sense to compare businesses' capital contributions, measured by growth in assets, tax contributions, employees' and owners' incomes, in relation to consumer-related inflation and not to production-related inflation:

1. If businesses increased their assets, in relation to consumer-related inflation, they would be in better positions to borrow capital and/or have

more capital available to purchase assets based on a consumer price index-related increased cost.

2. If businesses increased their tax contributions, in relation to consumer-related inflation, government would have more capital available.
3. If businesses increased their owners' and employees' incomes, in relation to consumer-related inflation, the owners and employees would be in better positions to improve their standards of living and purchasing power to purchase assets, or any other services, based on a consumer price index-related increased cost. (If owners' and employees' incomes were seen as production-related costs the *Production Price Index* would have been used.

5.15 Calculation methodology and testing of logic

The examples used were calculated from actual data. The asset-growth data from the sample data were used to highlight the effects and the logic of the calculations.

5.15.1 The raw data

The raw data were based on annual figures for total assets, owners' and employees' incomes, and after-profit tax contributions in Rands:

1. Owners' incomes, which included all salaries and benefits paid to the owners of businesses, including shares, dividends and taxes.
2. Employees' incomes, which included all the salaries and benefits paid to the employees of a business including shares if they were issued to employees. They also included employment-related taxes paid by the business.

3. Assets, which included all the physical assets such as capital, machines and stock.
4. Taxes paid, which included only after-profit taxes. They did not include taxes on salaries or unemployment benefits. These are included in the total cost of employment. They did, however, include regional service levies and taxes on land.

5.15.2 Calculating trend data

The calculation was simplified to highlight clearly the logic of the calculation. The consumer price index[28] inflation rate, as published by Statistics South Africa, is used in the calculation in Table 5.1.

The example which follows is used as a basis for calculating trend data:

Table 5.1 The consumer price index from the 1999/2000 tax year to the 2004/2005 tax year

Year	1999/0	2000/1	2001/2	2002/3	2003/4	2004/5
Consumer price index, excluding interest rates on mortgage bonds	1.069	1.078	1.066	1.093	1.068	1.045*

**Estimate*

A value of 1.069 in the Table 5.1 represents an inflation rate of 6.9%. The 2004/2005 inflation rate was based on an estimate for that year, since no official data were available when the data were analysed. The final published rate by

[28] Consumer price index excluding interest rates on mortgage bonds

Statistics South Africa was 4.3%. This would have increased the positive returns of small businesses.

Data from the first year (1999/0) were seen as the base data. Thus, if a business had assets worth R100.00 in the 1st year it would need to increase the asset value by 7.8%, or R107.80, in the 2nd year (2000/1) to even out the effect of inflation. This effect is illustrated in Table 5.2. This is applicable to all the parameters tested.

Table 5.2 Calculating a trend for growth, required to equalise inflation pressure

Year	1999/0	2000/1	2001/2	2002/3	2003/4	2004/5
Growth trend	100.00	107.80	114.91	125.60	134.14	140.18

Based on the results in Table 5.2, a business's assets, tax contributions, employees' and/or owners' incomes need to be equal to R140.18 in 2004/5 if they were R100 in 1999/0.

5.15.3 Calculating averages

It was necessary to calculate averages to counter the effects of additional employees or owners entering the business before a trend could be calculated, or the data could be normalised.

If a business employed ten people in the first year, and paid R1000 per person, the total salary bill would be R10 000 per month, or R120 000 per year. If the business showed an increase in its total annual salary bill to R150 000 per year, but it increased the number of people employed to 16, the average employee

income would have reduced to R781.25. This example does not include the effect of inflation.

The concern was to see whether people were in better positions when compared to inflation. Thus the calculation was used to compute the average owners' and employees' incomes. Increases in the contributions of the business to salaries and owners' incomes were not calculated.

5.15.4 Calculating percentages

Percentages were used to simplify the data and to highlight changes in the data. They were used to highlight the effect of actual data compared to inflation-based trend data.

Table 5.3 Actual data from business financial statements

Year	1999/0	2000/1	2001/2	2002/3	2003/4	2004/5
Actual data	100	200	300	130	130	130

Table 5.4 shows that the business grew its income by R100 per year for the first three years and then reduced its income by R170, in the year 2002/3, to R130. If these actual results are compared to Table 5.2 they can be expressed in percentage growth achieved compared to inflation-based trends (Table 5.4).

Table 5.4 Growth expressed in percentages

Year	1999/0	2000/1	2001/2	2002/3	2003/4	2004/5
Actual growth	0%	86%	161%	3.50%	-3.09%	-7.26%

Year one, as the base year, showed that there was no growth because the actual data were the same as the achieved data. In the 2nd year (2000/1), excluding the

effect of inflation, the business would have grown by 100%, from R100 to R200. If the effect of inflation is included, it managed a growth of 86%. The drop in income in 2002/3 can be clearly seen with an under-achievement in the next years.

5.15.5 Normalised or deflated data

Data was normalised or deflated to cancel the effects of inflation and to enable the analysis of the data on an equal basis. The process of normalising data is illustrated in Table 5.5

Table 5.5 The effect of normalising the actual raw data

Year	1999/0	2000/1	2001/2	2002/3	2003/4	2004/5
Actual data	100.00	107.80	114.91	125.60	134.14	140.18
Normalised or deflated data	100.00	100.00	100.00	100.00	100.00	100.00

If a business grew its capital income, as illustrated in Table 5.5, it can be stated that the business managed to grow from R100 in the 1st year to R140.18 in the last year. If the effect of inflation, on the value of the investment, is taken into account it can be seen that the business did not grow at all. Normalised or deflated data was used to determine whether a business grew its capital compared to inflation.

As a conclusion, the calculations are summarised in Table 5.6.

Table 5.6 A summary of all calculation parameters showing an example that had a growth equal to the consumer price index

Year	1999/0	2000/1	2001/2	2002/3	2003/4	2004/5
Consumer price index, excluding interest rates on mortgage bonds	1.069	1.078	1.066	1.093	1.068	1.045*
Actual data	100.00	107.80	114.91	125.60	134.14	140.18
Normalised or deflated data	100.00	100.00	100.00	100.00	100.00	100.00
Trend data	100.00	107.80	114.91	125.60	134.14	140.18
Growth %	0%	0%	0%	0%	0%	0%

The actual data and the trend data, by business, are available in Appendices 3 to 6.

Chapter 6: Findings

6.1 Introduction

This chapter covers the analysis of the data collected from the sample of 45 small businesses in the manufacturing sector. The data were not used to draw conclusions regarding the impact of small and medium-sized businesses on the industry but to confirm the functionality of the model that was developed and to indicate typical results from the model. It will require a larger sample to be able to draw really meaningful conclusions and to make accurate inferences regarding the contributions of small and medium-sized industries to capital generation.

This chapter consists of two major sections. It starts by describing the method of analysis, the selection of measuring instruments and the grouping of these instruments. This is followed by a detailed analysis of all the parameters in the model.

6.2 The method of analysis

6.2.1 Sample data

The sample data were collected over a six-month period. The data show financial information from businesses for a five-year period starting in the 1998/1999 tax year and ending in the 2003/2004 tax year. Not all of the businesses were five years old at the time the data were collected. This meant that some data fields were missing for the years when the businesses were not operational. It is important to acknowledge this and not to interpret these missing data fields as zero value entries. Zero entries would result in the incorrect calculation of averages for individual businesses and for the different groups of businesses in

the different samples. The total sample consisted of 45 small businesses classified as manufacturing businesses.

Because of the sensitivity of the data the businesses are not referred to by name, but as businesses numbered 1 to 45. The researcher had to sign non-disclosure agreements about how the data would be used in the research. The questionnaires and the names of the businesses are available to verify the authenticity of the research but may not to be published.

6.2.2 Measurement parameters

Based on the design of the model, there are four groups of factors that contribute to capital generation. These are:

1. Contributions to tax growth.
2. Contributions to growth in employee income.
3. Contributions to growth in owner income.
4. Contributions to growth in assets[29].

The data for these four factors were normalised or deflated by using the consumer price index for the five-year period. It was necessary to normalise the data to have a single basis of comparison to work from. The normalised or deflated data were used for analysis within each of the data sets. The process of analysis was detailed in Chapter 5.

The contributions to capital generation were evaluated and compared to the number of people employed in each business, the province and area where each business is located, the age of each business and the type of manufacturing industry each business is engaged in as independent variables.

[29] The four factors contributing to capital generation are discussed in Chapter 3 as part of the development of the model and in Chapter 5 during the interpretation and calculation of the data.

Table 6.1 Evaluation variables (independent variables) used to investigate the growth criteria (dependent variables)

		Group 1	Group 2	Group 3	Group 4	Group 5
1	**Number of people employed**	1 to 10	11 to 19	20 to 40	40 to 123	
2	**Province where business is located**	North West	Gauteng			
3	**Area where business is located**	Rosslyn and Silverton	Brits and GaRankuwa	Rustenburg	Johannesburg and Vereniging	
4	**Business age in years**	1 to 5	6 to 10	11 to 35		
5	**Manufacturing sector**	Motor	Building	Mining, Agricultural and General equipment	Furniture and Funeral	Food

The five evaluation criteria that were used to establish whether the different groupings of businesses had an impact on the results, based on the four factors measured to determine capital contributions, are shown in Table 6.1.

As was explained in Chapter 3, an economy needs jobs that are supported by an increase in gross domestic product output per job (per head) and an increase in *per capita* income to achieve economic stability. It is also important to create growth through the four factors that support it. It is clear that the four factors of growth are difficult to manipulate, particularly when the size of the workforce and the availability of natural resources are considered. The second two factors, namely the quantity and quality of capital and technology, can be manipulated if an economy has the capital to increase the quality of labour through training, has

the capital to expand the economy or the level of technological competitiveness through research, and the capital to purchase new technologies[30].

The model measured the creation of capital as the most important factor influencing economic development. This development was measured by using readily available financial data to calculate the contribution of capital generation. The detailed calculation of the contribution is explained in Chapter 5. In essence, the model calculates the capital growth rate of a business. If this growth rate is positive, taking into account the effect of inflation, the business does contribute. The converse is also true.

The data were used in a comparative study in order to test the model. The complete data sheets are shown in Appendices 3 to 6.

The main research hypotheses were:

1. H_{10}: Small businesses do not generate additional capital ($H_{10} \geq 0$).
2. H_{1a}: Small businesses generate additional capital ($H_{1a} > 0$).

The H_{10} and H_{1a} hypotheses have the sub–hypotheses which follow:

i. H_{20}: Small businesses do not generate additional income for their employees ($H_{20} \geq 0$).
ii. H_{2a}: Small businesses generate additional income for their employees ($H_{2a} > 0$).
iii. H_{30}: Small businesses do not generate additional income for government (tax) ($H_{30} \geq 0$).
iv. H_{3a}: Small businesses generate additional income for government (tax) ($H_{3a} > 0$).

[30] See sub-section 3.3

v. H_{40}: Small businesses do not generate additional income for their owners ($H_{40} \geq 0$).
vi. H_{4a}: Small businesses generate additional income for their owners ($H_{4a} > 0$).
vii. H_{50}: Small businesses do not generate additional income for investment in assets (capital and goods) ($H_{50} \geq 0$).
viii. H_{5a}: Small businesses generate additional income for investment in assets (capital and goods) ($H_{5a} > 0$).

These eight sub-hypotheses are followed by the final two hypotheses regarding job creation by small businesses:

1. H_{60}: Small businesses do not contribute to job creation ($H_{60} \geq 0$).
2. H_{6a}: Small businesses contribute to job creation ($H_{6a} > 0$).

6.3 Statistical analyses of data

Various statistical analyses were conducted on the sample with the assistance of the department of Statistics at the University of Pretoria. The complete results of the statistical analyses are reported in Appendix 8. The net results of the analyses are that the data does not show significant trends. There are many factors that contribute to the reasons why the data did not show significant trends. Some of these factors are:

1. A company that is capital-intensive will utilise considerably more assets than a company that is not capital-intensive. This is illustrated by an example from the data. Business (12) employed seven people on average over the period with assets in the second year measured at R1 900 000. Business (20), on the other hand, employed an average of 4.75 people with assets in the second year measured at R2 000. Although both

businesses are classified as small, with similar numbers of people working for them, their assets cannot be compared directly.

2. Different industries have different salary scales and levels of specialisation. These demand different packages.
3. Different industries differ in profitability.
4. A young business may have a lot of seed funding, making it larger than an older and well-established business.

Many other reasons can be listed for the large variances in the sample contributing to the fact that the data are less significant.

Only the two largest factors, age and size of the businesses, were analysed statistically. Smaller factors, such as industry focus or location of the businesses, were not tested. The results of the *F–test* on the factors were not significant and fell outside the 95% confidence interval for most of the factors tested. The analyses indicate that many other factors, other than the ages or sizes of businesses, influence their contributions to capital generation.

Three factors fell inside or just outside the confidence levels confirming that small portions of the data were statistically significant.

Table 6.2 Statistical significance of the data used to test the model

Dependent variable	**Independent Variable**	**Independent Variable**	**Pr > /t/**
Owners' incomes	Large businesses	6 to 10 years	0.0601
Employees' incomes	Large businesses	6 to 10 years	0.0447
Tax income	Large businesses	6 to 10 years	0.0324

The analysis showed that the ages and the sizes of businesses, or a combination of sizes and ages, do not have a statistically significant impact on the growth in

owners' incomes, in employees' incomes, in tax income or in assets. Although not statistically supported, the model does show a trend, as is illustrated in this chapter. The literature made no references to statistical analyses of similar sets of economic data. An example is the study done by Snodgrass and Biggs (1996: 53) on *per capita* gross domestic product for different business sizes in 34 countries. The Snodgrass and Biggs study made no reference to the statistical significance of the data.

6.4 The data

The first analysis was to determine whether a business employed more, the same number, or fewer personnel, how these affect, or compare with, the capital generation of a business when the four parameters in the model are considered. In both cases (job and asset creation) the starting numbers of people and assets in year one were compared with the final numbers of assets and people in year five to determine positive or negative growth. Table 6.3 compares the inflation-normalised or deflated data for asset growth (comparing assets at the starting date to assets at the ending date) with personnel growth, by business (comparing personnel numbers at the starting date to personnel numbers at the ending date).

This first section of the analysis only determined how many of the businesses in the sample contributed to the different aspects of growth. This method is typical of many research projects studied as part of this research. It will not provide information on the net contribution of the sector if the gross contributions of businesses that increased and the gross contributions of businesses that shrunk their contributions are considered. This important conclusion can only be drawn at the end of the chapter.

Table 6.3 compares asset growth with the numbers of people employed for all businesses, for businesses that employed fewer than 20 people at the start, and for businesses that employed 20 or more people at the start.

Table 6.3 Deflated asset growth data compared with number of people employed

Asset and personnel growth				
Total Sample	**Personnel increase**	**Personnel same**	**Personnel decrease**	**Total**
Asset increase (frequency)	16	7	1	**24**
Asset increase (percentages)	35.56%	15.56%	2.22%	**53.33%**
Asset decrease (frequency)	10	4	7	**21**
Asset decrease (percentages)	22.22%	8.89%	15.56%	**46.67%**
Personnel growth (total)	**26**	**11**	**8**	**45**
Personnel growth (percentages)	**57.78%**	**24.44%**	**17.78%**	**100%**

Asset and personnel growth				
< 20 employees	**Personnel increase**	**Personnel same**	**Personnel decrease**	**Total**
Asset increase (frequency)	10	5	1	**16**
Asset increase (percentages)	35.71%	17.86%	3.57%	**57.14%**
Asset decrease (frequency)	8	2	2	**12**
Asset decrease (percentages)	28.57%	7.14%	7.14%	**42.86%**

Asset and personnel growth				
< *20 employees*	**Personnel increase**	**Personnel same**	**Personnel decrease**	**Total**
Personnel growth (total)	**18**	**7**	**3**	**28**
Personnel growth (percentages)	**64.29%**	**25.00%**	**10.71%**	**100%**

Asset and personnel growth				
≥ *20 employees*	**Personnel increase**	**Personnel same**	**Personnel decrease**	**Total**
Asset increase (frequency)	6	2	0	**8**
Asset increase (percentages)	35.29%	11.76%	0.00%	**47.06%**
Asset decrease (frequency)	2	2	5	**9**
Asset decrease (percentages)	11.76%	11.76%	29.41%	**52.94%**
Personnel growth (total)	**8**	**4**	**5**	**17**
Personnel growth (percentages)	**47.06%**	**23.53%**	**29.41%**	**100%**

Of the 45 businesses analysed, 24 of the businesses increased their total assets and 21 decreased them. The data also shows that 26 increased the number of people employed, 11 stayed the same and 8 decreased their numbers. Businesses employing fewer than 20 people generally performed better in asset generation and in employment growth.

Table 6.4 compares the inflation-normalised data for the growth in owners' incomes with growth in personnel, by business, for all of the businesses. These businesses were divided into businesses that employed fewer than 20 people when they started and businesses that employed 20 or more people when they started.

Table 6.4 Deflated owners' income data compared with the number of people employed

Owners' incomes and personnel growth				
Total sample	**Personnel increase**	**Personnel same**	**Personnel decrease**	**Total**
Owners' income increase (frequency)	18	8	3	**29**
Owners' income increase (percentages)	40.00%	17.78%	6.67%	**64.44%**
Owners' income decrease (frequency)	8	3	5	**16**
Owners' income decrease (percentages)	17.78%	6.67%	11.11%	**35.56%**
Personnel growth (total)	**26**	**11**	**8**	**45**
Personnel growth (percentages)	**57.78%**	**24.44%**	**17.78%**	**100%**

Owners' incomes and personnel growth				
< 20 employees	**Personnel increase**	**Personnel same**	**Personnel decrease**	**Total**
Owners' income increase (frequency)	13	5	1	**19**
Owners' income increase (percentages)	46.43%	17.86%	3.57%	**67.86%**
Owners' income decrease (frequency)	5	2	2	**9**
Owners' income decrease (percentages)	17.86%	7.14%	7.14%	**32.14%**
Personnel growth (total)	**18**	**7**	**3**	**28**
Personnel growth (percentages)	**64.29%**	**25.00%**	**10.71%**	**100%**

Owners' incomes and personnel growth				
≥ *20 employees*	**Personnel increase**	**Personnel same**	**Personnel decrease**	**Total**
Owners' income increase (frequency)	5	3	2	**10**
Owners' income increase (percentages)	29.41%	17.65%	11.76%	**58.82%**
Owners' income decrease (frequency)	3	1	3	**7**
Owners' income	17.65%	5.88%	17.65%	**41.18%**

Owners' incomes and personnel growth				
≥ *20 employees*	**Personnel increase**	**Personnel same**	**Personnel decrease**	**Total**
decrease (percentages)				
Personnel growth (total)	**8**	**4**	**5**	**17**
Personnel growth (percentages)	**47.06%**	**23.53%**	**29.41%**	**100%**

Of the 45 businesses analysed, 26 increased the numbers of people employed, 11 stayed the same and eight decreased their numbers. The data also showed that 29 of the businesses increased their owners' incomes and only 16 decreased their owners' incomes. Generally, businesses that employed fewer than 20 people performed better in owners' income generation and in job creation than did the larger businesses.

Table 6.5 compares the inflation-normalised data for employee income growth with personnel growth, by business. These businesses were divided into businesses that employed fewer than 20 people at the start and businesses that employed 20 or more people at the start.

Table 6.5 Deflated employee income data compared with the number of people employed for all businesses

Employee income and personnel growth				
Total sample	**Personnel increase**	**Personnel same**	**Personnel decrease**	**Total**
Employee income increase (frequency)	14	7	4	**25**
Employee income	31.11%	15.56%	8.89%	**55.56%**

Employee income and personnel growth				
Total sample	**Personnel increase**	**Personnel same**	**Personnel decrease**	**Total**
increase (percentages)				
Employee income decrease (frequency)	12	4	4	**20**
Employee income decrease (percentages)	26.67%	8.89%	8.89%	**44.44%**
Personnel growth (total)	**26**	**11**	**8**	**45**
Personnel growth (percentages)	**57.78%**	**24.44%**	**17.78%**	**100%**

Employee income and personnel growth				
< 20 employees	**Personnel increase**	**Personnel same**	**Personnel decrease**	**Total**
Employee income increase (frequency)	9	4	1	**14**
Employee income increase (percentages)	32.14%	14.29%	3.57%	**50.00%**
Employee income decrease (frequency)	9	4	1	**14**
Employee income decrease (percentages)	32.14%	14.29%	3.57%	**50.00%**
Personnel growth	**18**	**7**	**3**	**28**

Employee income and personnel growth				
< 20 employees	**Personnel increase**	**Personnel same**	**Personnel decrease**	**Total**
(total)				
Personnel growth (percentages)	**64.29%**	**25.00%**	**10.71%**	**100%**

Employee income and personnel growth				
≥ *20 employees*	**Personnel increase**	**Personnel same**	**Personnel decrease**	**Total**
Employee income increase (frequency)	5	3	3	**11**
Employee income increase (percentages)	29.41%	17.65%	17.65%	**64.71%**
Employee income decrease (frequency)	3	1	2	**6**
Employee income decrease (percentages)	17.65%	5.88%	11.76%	**35.29%**
Personnel growth (total)	**8**	**4**	**5**	**17**
Personnel growth (percentages)	**47.06%**	**23.53%**	**29.41%**	**100%**

Of the 45 businesses analysed, 26 increased the numbers of people employed, 11 stayed the same and 8 decreased their numbers. The data also shows that 25 of the businesses increased their employees' incomes and 20 decreased them. Larger businesses, which employed more than 20 people, generally did better than did the smaller businesses in contributing to employees' incomes.

Table 6.6 compares the inflation-normalised data for tax income growth with personnel growth, by business. These businesses were divided into businesses that employed fewer than 20 people at the start and businesses that employed 20 or more people at the start.

Table 6.6 Deflated tax income data compared with the number of people employed for all businesses

Tax income and personnel growth				
Total sample	**Personnel increase**	**Personnel same**	**Personnel decrease**	**Total**
Tax income increase (frequency)	22	8	5	**35**
Tax income increase (percentages)	51.11%	20.00%	11.11%	**77.78%**
Tax income decrease (frequency)	4	3	3	**10**
Tax income decrease (percentages)	8.89%	6.67%	6.67%	**22.22%**
Personnel growth (total)	**26**	**11**	**8**	**45**
Personnel growth (percentages)	**57.78%**	**24.44%**	**17.78%**	**100%**

Tax income and personnel growth				
<20 employees	**Personnel increase**	**Personnel same**	**Personnel decrease**	**Total**
Tax income increase (frequency)	16	4	1	**21**
Tax income increase (percentages)	57.14%	14.29%	3.57%	**75.00%**
Tax income decrease (frequency)	2	3	2	**7**
Tax income decrease (percentages)	7.14%	10.71%	7.14%	**25.00%**
Personnel growth (total)	**18**	**7**	**3**	**28**
Personnel growth (percentages)	**64.29%**	**25.00%**	**10.71%**	**100%**

Tax income and personnel growth				
≥ *20 employees*	**Personnel increase**	**Personnel same**	**Personnel decrease**	**Total**
Tax income increase (frequency)	6	4	4	**14**
Tax income increase (percentages)	35.29%	23.53%	23.53%	**82.35%**
Tax income decrease (frequency)	2	0	1	**3**
Tax income decrease (percentages)	11.76%	0.00%	5.88%	**17.65%**
Personnel growth (total)	**8**	**4**	**5**	**17**

Tax income and personnel growth				
≥ *20 employees*	**Personnel increase**	**Personnel same**	**Personnel decrease**	**Total**
Personnel growth (percentages)	**47.06%**	**23.53%**	**29.41%**	**100%**

Of the 45 businesses analysed, 26 increased the number of people employed, 11 stayed the same and 8 decreased their numbers. The data also showed that 35 of the businesses increased their tax contributions and only ten decreased them. Generally, larger businesses, which employed more than 20 people, performed better than did the smaller businesses.

6.5 Summary of employment effects

The data showed that 57.8% of the businesses increased personnel. The balance either stayed the same (24.4%) or decreased personnel (17.78%). This growth in employment is compared with the four growth parameters of the model, summarised in Table 6.7.

Table 6.7 Summary of the four capital growth parameters

	Personnel growth	**Asset growth**	**Owners' incomes**	**Employees' incomes**	**Tax income**
Total Sample	57.8% (+)	53.33% (+)	64.44% (+)	55.56% (+)	77.78% (+)
< 20 employees	64.29% (+)	57.14% (+)	67.86% (+)	50% (+)	75% (+)
≥ 20 employees	47.06% (+)	47.06% (+)	58.82% (+)	64.71% (+)	82.35% (+)

Table 6.7 shows that smaller businesses grew their employment faster than did the larger businesses. It is also clear that the small businesses outperformed the large businesses in asset growth and in generating owners' incomes. The converse is true when employees' incomes and tax income for the same sample are compared.

In the total sample the number of businesses which increased owners' incomes and tax income exceeded the number of businesses which increased personnel growth. The number of businesses which increased asset growth and employees' incomes did not lag far behind the number of businesses which increased personnel growth.

If the sample is split into businesses which employed 20 or more people and into businesses which employed fewer than 20, there was a greater number of larger businesses that increased employees' incomes and tax income than there were smaller businesses.

If the sample is split into businesses which employed 20 or more people and into businesses which employed fewer than 20, there was a greater number of smaller businesses that increased personnel growth, asset growth and owners' incomes than there were larger companies.

A growth or decline in job creation does not reflect on a business's capability to increase or decrease capital generation. Businesses, in this small sample, performed better in capital generation than they did in job creation. The validity of this data, however, needs to be confirmed in a larger sample.

It would be interesting to determine why there are differences between businesses employing different numbers of people in the different capital generation parameters.

6.6 Comparing the capital generating parameters

Table 6.8 compares the inflation-normalised-data for asset growth with the inflation-normalized data for owners' incomes.

Table 6.8 Deflated asset growth data compared with normalized owners' income data

Asset and owners' income growth			
Total Sample	**Larger owners' incomes**	**Smaller owners' incomes**	**Total**
Asset increase (frequency)	20	4	**24**
Asset increase (percentages)	44.44%	8.89%	**53.33%**
Asset decrease (frequency)	9	12	**21**
Asset decrease (percentages)	20.00%	26.67%	**46.67%**
Owners' income growth (total)	**29**	**16**	**45**
Owners' income growth (percentages)	**64.44%**	**35.56%**	**100%**

Of the 45 businesses analysed, 24 businesses increased total assets and 29 increased owners' incomes. In 21 of the businesses total assets decreased and 15 of the businesses reflected a decrease in owners' incomes. Of these, 12 decreased assets and owners' incomes over the period.

Table 6.9 compares the inflation-normalised data for asset growth with the inflation-normalized data for employee's incomes.

Table 6.9 Deflated asset growth data compared with normalised employee income data

Asset and employees' income growth			
Total Sample	**Larger employees' incomes**	**Smaller employees' incomes**	**Total**
Asset increase (frequency)	14	10	**24**
Asset increase (percentages)	31.11%	22.22%	**53.33%**
Asset decrease (frequency)	11	10	**21**
Asset decrease (percentages)	24.44%	22.22%	**46.67%**
Employees' income growth (total)	**25**	**20**	**45**
Employees' income growth (percentages)	**55.56%**	**44.44%**	**100%**

Of the 45 businesses analysed, 24 businesses increased total assets and 25 of the businesses increased their employees' incomes. In 21 of the businesses, total assets decreased and in 20 businesses the incomes of employees decreased. Of all these businesses ten decreased employees' incomes and assets simultaneously.

Table 6.10 compares inflation-normalised data for asset growth with inflation-deflated tax income data.

Table 6.10 Deflated asset growth data compared with deflated tax income data

Asset and tax income growth			
Total Sample	**Larger tax income**	**Smaller tax income**	**Total**
Asset increase (frequency)	19	5	**24**
Asset increase (percentages)	42.22%	11.11%	**53.33%**
Asset decrease (frequency)	16	5	**21**
Asset decrease (percentages)	11.11%	4.44%	**46.67%**
Tax income growth (total)	**35**	**10**	**45**
Tax income growth (percentages)	**77.78%**	**22.22%**	**100%**

Of the 45 businesses analysed, 24 of the businesses increased the total assets and 35 increased their tax contributions. In 21 of the businesses total assets decreased and in ten of the businesses the tax income decreased. Five businesses decreased both their assets and tax contribution simultaneously.

Table 6.11 compares the inflation-normalised data for owner income growth with inflation-normalised data for employee income growth.

Table 6.11 Deflated owner income data compared with deflated employee income data

Owner and employee income growth			
Total Sample	**Larger employees' incomes**	**Smaller employees' incomes**	**Total**
Owner income increase (frequency)	18	11	**29**
Owner income increase (percentages)	40.00%	24.44%	**64.44%**
Owner income decrease (frequency)	7	9	**16**
Owner income decrease (percentages)	15.56%	20.00%	**35.56%**
Employee income growth (total)	**25**	**20**	**45**
Employee income growth (percentages)	**55.56%**	**44.44%**	**100%**

Of the 45 businesses analysed, 29 businesses increased owners' incomes and 25 the businesses increased employees' incomes. In 16 of the businesses owner income decreased and in 20 employee income decreased. Only nine businesses decreased owners' and employees' incomes simultaneously.

Table 6.12 compares the inflation-normalised data for owner income growth data with inflation-normalised tax contribution growth data.

Table 6.12 Deflated owner income data compared with deflated tax contribution data

Owner and tax income growth			
Total Sample	**Larger tax income**	**Smaller tax income**	**Total**
Owner income increase (frequency)	25	4	**29**
Owner income increase (percentages)	55.56%	8.89%	**64.44%**
Owner income decrease (frequency)	10	6	**16**
Owner income decrease (percentages)	22.22%	13.33%	**35.56%**
Tax income growth (total)	**35**	**10**	**45**
Tax income growth (percentages)	**77.78%**	**22.22%**	**100%**

Of the 45 businesses analysed, 29 businesses increased total owner income and 35 businesses increased tax contribution. At 16 businesses, the total owner income decreased and tax contribution decreased in ten businesses. In six of the businesses the tax contribution and owner income decreased.

Table 6.13 compares the inflation-normalised data for employee income growth with inflation-deflated tax contribution growth.

Table 6.13 Deflated employee income data compared with deflated tax contribution data

Employee and tax income growth			
Total Sample	**Larger tax income**	**Smaller tax income**	**Total**
Employee income increase (frequency)	23	2	**25**
Employee income increase (percentages)	51.11%	4.44%	**55.56%**
Employee income decrease (frequency)	12	8	**20**
Employee income decrease (percentages)	26.67%	17.78%	**44.44%**
Tax income growth (total)	**35**	**10**	**45**
Tax income growth (percentages)	**77.78%**	**22.22%**	**100%**

Of the 45 businesses analysed, 25 businesses increased employees' incomes and in 35 of the businesses the tax contributions increased. At 20 of the businesses employees' incomes decreased and the tax contributions decreased in ten. Only eight of the businesses decreased their contributions to tax and employee income simultaneously.

6.7 Summary of capital generation

The majority of the businesses showed an increase in capital generation in assets, owners' incomes, employees' incomes and in tax contributions. Of the 45

businesses, between 31.11% and 55.56% showed simultaneous increases in at least two of the parameters of capital generation. Between 4% and 22% of the businesses showed simultaneous decreases in capital generation of at least two of the parameters.

It can therefore be concluded that there is a 31.11% to 55.56% possibility that, if a business is contributing to capital in one of the four areas measured, it is likely to contribute to capital generation in at least one other area. This section of the analysis did not compare the net effect of all the businesses towards capital generation. The analysis of the net contribution is reported in the next part of this chapter.

6.8 Number of people employed

The data were divided into four groups based on the number of people employed by businesses during the first year that data was available. The employment figures, by business, were selected based on the number of people employed during the 1999/2000 financial year, or during any year thereafter, if the businesses were younger and started after 1999/2000. According to the definition developed in Chapter 2, a small business in the manufacturing industry will employ between 20 and 100 people and a very small business between 1 and 19. The businesses analysed maintained, reduced or increased the number of people employed over the five-year period.

Various uncontrollable economic parameters, such as domestic demand, exports, business conditions and confidence, will impact on the final results achieved by small businesses (Laubscher, 1999: 1). It is therefore important not to interpret the results of the model in isolation, but in the context of the greater economy. Small businesses might not contribute to capital generation because of a downturn in the economy and not because of their individual performances. Businesses of different sizes should be compared over a similar time period in

order to understand and interpret the model. The model should therefore be used to analyse all businesses and then to compare the contributions of small businesses with those of larger businesses. For this study, businesses employing fewer than 20 people were compared with businesses employing 20 or more people.

Therefore a business that had 20 employees when it started and now employs only 18 people, or a business that employed 100 people when it started and now employs 120 people, would not have been used if average or current employee status had been used. Since the aim of the research was to determine the impact of small businesses on capital generation, businesses that fell within the definition at the base year, or the year in which the business was started, were analysed.

Businesses with fewer than 20 employees were also surveyed to compare very small, small businesses (one to 19 people) with small businesses (20 to 132 people) in accordance with the definition.

Table 6.14 Number of businesses, by group, for each of the four groups of people employed

	1 to 10 people	**11 to 19 people**	**20 to 40 people**	**41 to 132 people**
Very small businesses (one to 19 people)	14 respondents	12 respondents		
Small businesses (20 to 132 people)			12 respondents	7 respondents

The four employee groups, as listed in Table 6.14, were compared on asset contributions, owners' incomes, employees' incomes and tax contributions. The consumer price inflation rate was used to compare the growth in real terms.

Table 6.15 Asset growth contribution by number of people employed

	Year	Year	Year	Year	Year	Average	Per year
Number of employees	**1**	**2**	**3**	**4**	**5**	**Asset growth (R)**	**Average asset growth (%)**
1 to 10	0%	10%	20%	44%	41%	**1117495**	28%
11 to 19	0%	9%	16%	14%	19%	**735944**	12%
20 to 40	0%	-4%	-4%	-12%	-5%	**-525057**	-6%
41 to 132	0%	-3%	-4%	-1%	-14%	**-1930003**	-5%

Table 6.15 compares the asset contributions of businesses, employing different numbers of employees, with the growth rate calculated on an inflation-escalated base year.

It is important to explain inflation-based escalation as a basis for comparing growth. If the inflation rate is 10% in year one and year two, as an example, a business with an asset base of R100 will need to grow by R10 in year one (to R110) and by R11 in year two (to R121) only to neutralise the effect of inflation. If it grows more than the inflation rate it will contribute positively to asset growth and *vice versa*.

Table 6.15 shows that businesses which employ between one and ten and between 11 and 19 people, on average, grew their assets above the inflation targets set by the model. Businesses employing 20 or more, between 20 and 40 and between 41 and 132 people grew their assets below the inflation growth rate.

Table 6.16 Owner income growth contributions by number of employees

	Year	Year	Year	Year	Year	Average	Per year
Number of employees	**1**	**2**	**3**	**4**	**5**	**Owners' growth (R)**	**Average owners' growth (%)**
1 to 10	0%	-3%	-1%	15%	28%	**32410**	1%
11 to 19	0%	-4%	-22%	5%	-23%	**-48995**	-1%
20 to 40	0%	-21%	-15%	-20%	-31%	**-96629**	-2%
41 to 132	0%	-120%	-132%	-74%	-60%	**-1065141**	-6%

Table 6.16 compares the owner income contributions by number of employees with the expected growth rate according to inflation-escalated base year data.

Table 6.16 shows that businesses that employ between one and ten people on average grew their owners' incomes 1% faster than inflation. Businesses employing between 11 and 19, between 20 and 40 and between 41 and 132 people grew the businesses between 1% and 6% below the inflation growth rate. The trend in the data is that smaller small businesses made larger contributions to owners' incomes.

Table 6.17 Employee income contribution growth by number of employees

	Year	Year	Year	Year	Year	Average	Per year
Number of employees	**1**	**2**	**3**	**4**	**5**	**Employees' growth (R)**	**Average employees' growth (%)**
1 to 10	0%	-13%	-19%	47%	48%	**34238**	1%
11 to 19	0%	8%	7%	9%	15%	**21712**	1%
20 to 40	0%	-14%	-18%	-49%	-86%	**-78391**	-2%

	Year	Year	Year	Year	Year	Average	Per year
Number of employees	**1**	**2**	**3**	**4**	**5**	**Employees' growth (R)**	**Average employees' growth (%)**
41 to 132	0%	-2%	-2%	0%	2%	**-571**	0%

Table 6.17 compares the employees' income contribution, by number of employees, with the expected growth rate according to inflation-escalated base year data.

Table 6.17 shows that, businesses employing between one and ten, between 11 and 19, and between 41 and 132 people, on average, increased their employees' incomes slightly below or above the inflation growth rate. Businesses employing between 20 and 40 people increased their employees' incomes below the inflation growth rate. On average small businesses increased their employees' incomes 2% below the inflation rate. This yields an overall negative return on employee income growth contributions. This can be attributed to the large negative contribution of businesses employing between 20 and 40 people.

Table 6.18 Tax contribution growth by number of employees

	Year	Year	Year	Year	Year	Average	Per year
Number of employees	**1**	**2**	**3**	**4**	**5**	**Tax growth (R)**	**Average tax growth (%)**
1 to 10	0%	71%	64%	88%	85%	**118858**	78%
11 to 19	0%	18%	51%	0%	4%	**95422**	20%
20 to 40	0%	-2%	-152%	53%	21%	**89008**	15%
41 to 132	0%	17%	44%	58%	66%	**757796**	47%

Table 6.18 compares the tax contribution, by number of employees, with the expected growth rate according to inflation-escalated base year data.

Table 6.18 shows that all businesses contributed to income tax growth. Businesses employing between one and ten people contributed 78% above the inflation growth rate. On average, small businesses grew 36% above the inflation rate. This yields an overall positive return on growth in tax income contributions. It is important to state that small businesses start from a very low tax base. This is because most new businesses are not making profits during the first few years of operation. There are various tax deductions and taxes are paid from owners' incomes as profits are not kept in the businesses.

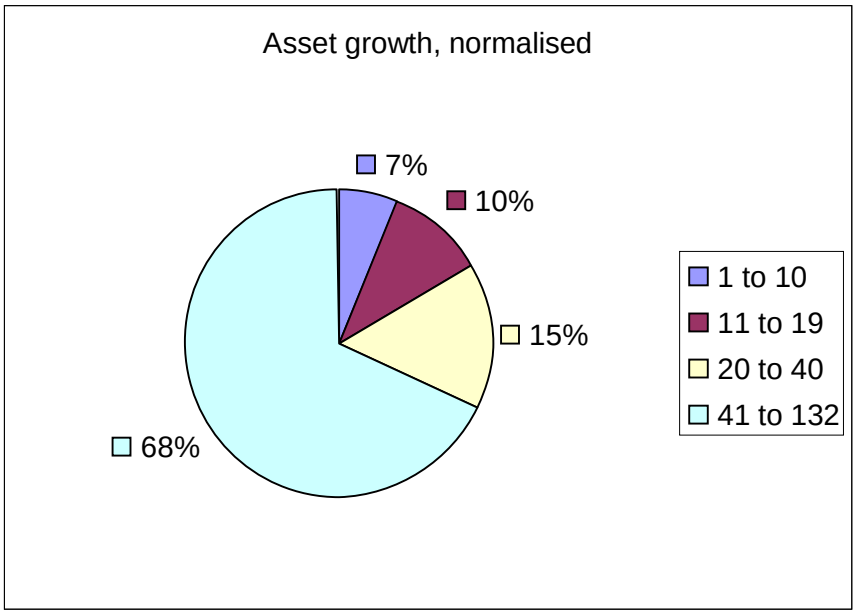

Figure 6.1 Asset growth contributions by number of employees

Figure 6.1 indicates the percentage contribution that different-sized businesses make towards asset growth.

Figures 6.1 to 6.4 will be used mainly to illustrate that it is important to realise that the impact of small businesses are relative to the size of the sample. For

example, a 1% change in asset growth for businesses employing between 41 and 132 people has a much larger effect than a 1% change for businesses employing between one and ten people. This becomes important when conclusions are drawn.

Figure 6.1 shows that, the more people a business employs, the larger are the total assets owned by the business. Businesses which employ between 41 and 132 people contribute 68% of all assets used in businesses, compared to 32% by the balance of the other businesses which employ between one and 40 people.

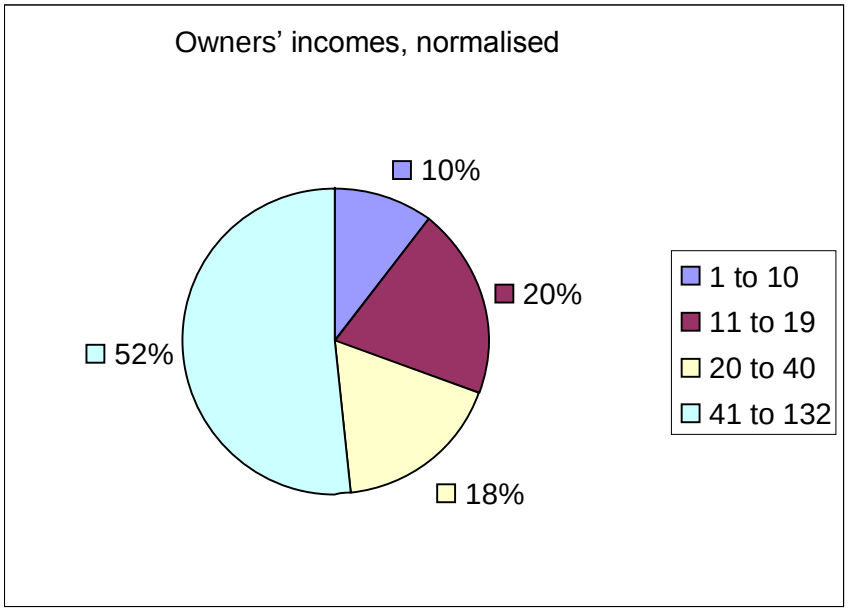

Figure 6.2 Owner income contributions by number of employees

Figure 6.2 shows the percentage contributions that different-sized businesses make towards owner income as an average income, by owner by year.

Figure 6.2 shows that the more people a business employs, the larger is the owner income contribution. Businesses, which employ between 41 and 132 people contribute 52% of all owners' income. Businesses which employ between one and 40 people contribute the balance of 48% of owners' income.

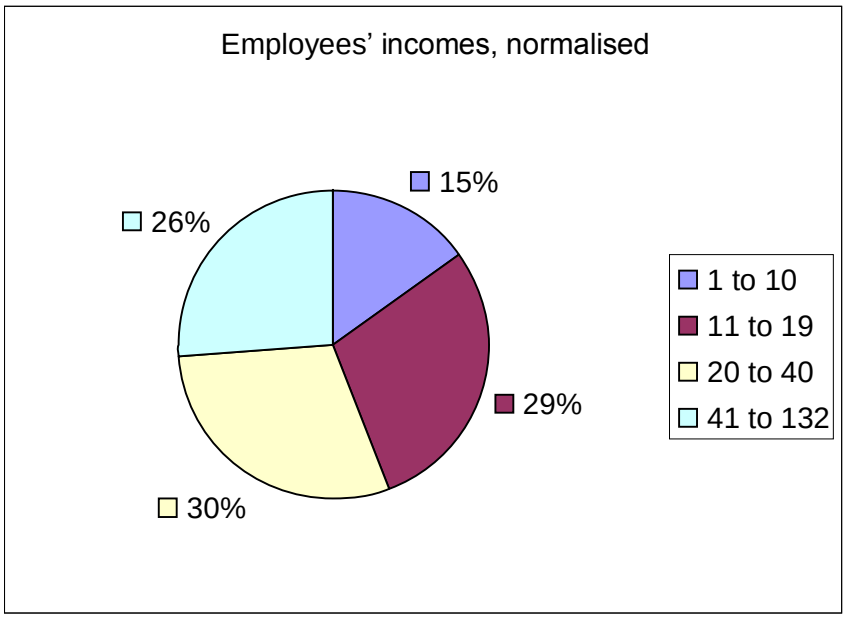

Figure 6.3 Employee income contributions by number of employees

Figure 6.3 indicates the percentage contribution that different-sized businesses make towards employee income as an average income, by employee by year.

Figure 6.3 shows that, the more people a business employs, the larger is the employee income, except in those businesses which employ more than 40 people. Businesses which employ between 41 and 132 people contribute 26% of employee income. Businesses which employ between 20 and 40 people contribute 30%. Businesses which employ between 11 and 19 people contribute 29%, while businesses which employ between one and ten people contribute 15%. The contribution, by employee, is more evenly distributed between different size businesses. This can be attributed to labour legislation.

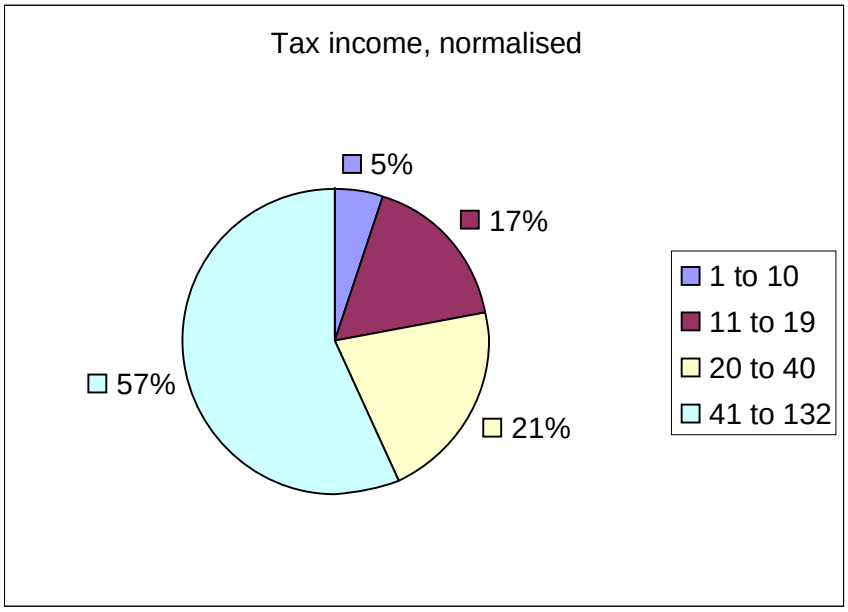

Figure 6.4 Tax contributions by number of employees

Figure 6.4 indicates the percentage contribution that different-sized businesses make towards tax.

Figure 6.4 shows that businesses which employ between 41 and 132 people contribute 57% of tax income. Businesses which employ between 20 and 40 people contribute 21%. Businesses which employ between 11 and 19 people contribute 17%, while businesses which employ between one and ten people contribute 5% of tax income.

6.9 Summary of people employed

When the total contributions towards assets, employees' incomes, tax income and owners' incomes are considered, the larger businesses, based on the number of people employed, make smaller contributions to capital growth. The trend that large businesses (according to the number of employees) contribute less to growth is clearly shown in the data. The interesting and very important

fact is that the larger businesses employ the largest total amount of capital but generally show the slowest growth rate.

If inflation is used as a baseline to determine growth the smaller businesses in the sample, which employ between one and 19 people, performed the best in capital generation. They were also the only businesses, generally, that contributed positively to asset growth, tax income, and employees' incomes. They were slightly negative in their contributions to owners' incomes. All the larger businesses contributed negatively to all these aspects, except for a general positive contribution to tax income. This is illustrated in Table 6.19 and 6.20.

Table 6.19 Capital contribution growth in businesses employing fewer than 20 people

	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Per year Average**
Assets	0	9%	18%	29%	30%	**20%**
Owners' incomes	0	-3%	-14%	9%	1%	**-1%**
Employees' incomes	0	1%	0%	27%	31%	**16%**
Tax income	0	31%	53%	42%	38%	**38%**

Table 6.20 Capital contribution growth for businesses employing 20 or more people

	Year	Year	Year	Year	Year	Per year
	1	**2**	**3**	**4**	**5**	**Average**
Assets	0	-3%	-4%	-4%	-11%	**-5%**
Owners' incomes	0	-78%	-78%	-54%	-50%	**-47%**
Employees' incomes	0	-10%	-13%	-31%	-47%	**-20%**
	1	**2**	**3**	**4**	**5**	**Average**
Tax income	0	9%	8%	56%	52%	**36%**

The pie charts, given earlier in this chapter, show that small businesses make a small contribution to total capital generation but make a large contribution to capital growth, as is indicated in the tables above.

Table 6.21 Total capital growth for the sample

	Year	Year	Year	Year	Year	Per year
	1	**2**	**3**	**4**	**5**	**Average**
Assets	0%	-1%	0%	4%	-1%	**1%**
Owners' incomes	0%	-47%	-52%	-27%	-30%	**-30%**
Employees' incomes	0%	-5%	-7%	1%	-1%	**-2%**
Tax income	0%	16%	27%	53%	49%	**36%**

Table 6.21 shows that employees' incomes, and particularly owners' incomes, did not contribute to capital generation. Tax income as well as asset generation did contribute.

The sum of all the contributions will not provide a net total capital contribution as employees' and owners' incomes are normalised, thereby reducing the total impact on the sample.

6.10 Age of business

The data were divided into three groups based on the age of the businesses in the sample. The businesses were divided into:

1. *New* businesses that are between one and five years old.
2. *Established* businesses that are six to ten years old.
3. *Older* businesses that are 11 to 32 years old.

The first group was selected as a reference group to enable comparisons between groups. The first group is known for its very high failure rate, differentiating it from the older businesses. The second and third group consisted of all the other businesses. These businesses were selected on the assumption that these businesses were less exposed to the risk of start-up failure. The second and third groups were selected to determine whether there were any visible differences as the businesses get older.

Table 6.22 Asset growth contributions according to the ages of the businesses

	Year	Year	Year	Year	Year	Average	Per year
Age	**1**	**2**	**3**	**4**	**5**	**Asset growth (R)**	**Average asset growth (%)**
1 to 5	0%	15%	10%	20%	13%	**1362183**	12%
5 to 10	0%	-4%	-1%	-6%	-18%	**-697791**	-6%
10 to 32	0%	-7%	-11%	0%	7%	**-211038**	-1%

Table 6.22 compares asset contributions, according to the ages of the businesses, with the inflation-normalised growth rate escalated according to the consumer price index inflation tables on an annual basis.

Table 6.22 shows that the older businesses contributed negatively to asset growth. The older businesses (10 to 32 years old) contributed -1% to asset growth, while the five- to ten-year old businesses contributed -6%. The new businesses increased their contributions by 12%. This is only true if growth was measured against inflation.

Table 6.23 Owner income growth contributions according to the ages of the businesses

	Year	Year	Year	Year	Year	Average	Per year
Age	**1**	**2**	**3**	**4**	**5**	**Owners' growth (R)**	**Average owners' growth (%)**
1 to 5	0%	-5%	-13%	4%	24%	**8987**	3%
5 to 10	0%	-30%	-29%	-11%	-26%	**-120461**	-18%
10 to 32	0%	-77%	-96%	-58%	-55%	**-768309**	-51%

Table 6.23 compares owner income, according to the ages of the businesses, with the inflation-normalised growth rate escalated according to inflation on an annual basis.

Table 6.23 shows that the older businesses contribute less to their owners' incomes. The older businesses, of ten to 32 years old, underperformed in growth (51% below inflation) compared to the businesses of one to five years old (3% above inflation). This is only true if growth was measured against inflation. The five- to ten-year old businesses grew at 18% below inflation but did not make as much of a negative contribution as did the older businesses (10 to 32 years old).

Table 6.24 Employee income growth contribution according to the ages of the businesses

	Year	Year	Year	Year	Year	Average	Per year
Age	**1**	**2**	**3**	**4**	**5**	**Employees' growth (R)**	**Average employees' growth (%)**
1 to 5	0%	-14%	-11%	45%	49%	**30794**	22%
5 to 10	0%	-5%	-8%	-20%	-35%	**-37742**	-13%
10 to 32	0%	-2%	-3%	-5%	7%	**-726**	0%

Table 6.24 compares employees' incomes, according to the ages of the businesses, with the inflation-normalised growth rate escalated according to the inflation rate on an annual basis.

Table 6.24 shows that the contributions of the older businesses to employee income were equal to or below the inflation rate. The older businesses (ten to 32 years old) showed 0% growth. Businesses that were five to ten years old grew by -13% and business that were one to five years old years grew by 22%.

Table 6.25 Tax income growth contribution according to the ages of the businesses

	Year	Year	Year	Year	Year	Average	Per year
Age	**1**	**2**	**3**	**4**	**5**	**Tax growth (R)**	**Average tax growth (%)**
1 to 5	0%	38%	43%	78%	70%	**166456**	49%
5 to 10	0%	5%	20%	27%	36%	**95192**	21%
10 to 32	0%	19%	29%	56%	51%	**553918**	39%

Table 6.25 compares tax income, according to the ages of the businesses, with the inflation-normalised growth rate escalated according to the inflation rate on an annual basis.

Table 6.25 shows that all the businesses contributed positively to taxable income. The five- to ten-year old businesses had the smallest positive contribution at 21%. The businesses between one and five years old were the best contributors at 49%, followed by the businesses between ten and 32 years old, at 39%. It must be noted that new businesses start from a very low tax basis, skewing their real ability to grow.

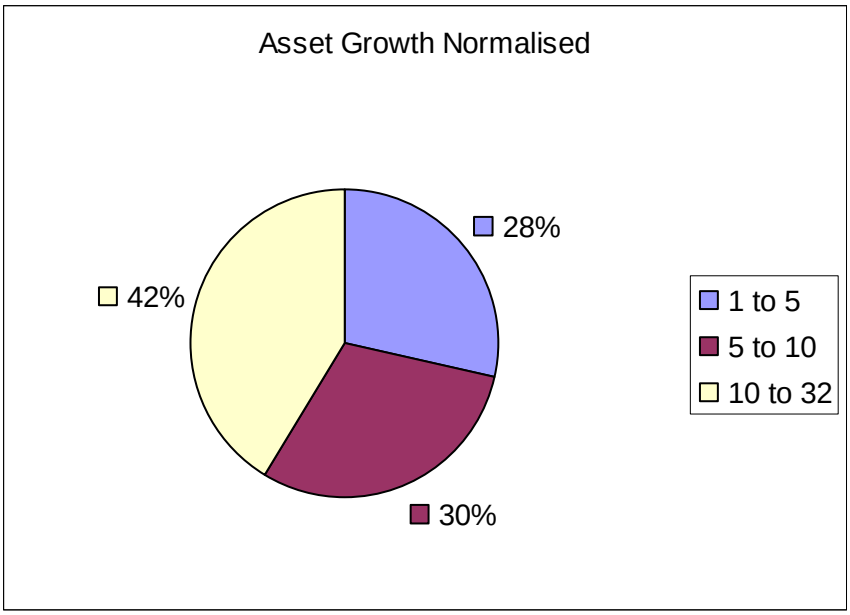

Figure 6.5 Asset contributions of businesses of different ages

Figure 6.5 indicates the percentage contribution that different-sized businesses make towards assets.

Figure 6.5 shows that older business make larger asset contributions. Older businesses contribute 42% of all assets in the businesses, compared to 30% by established businesses and 28% by new businesses.

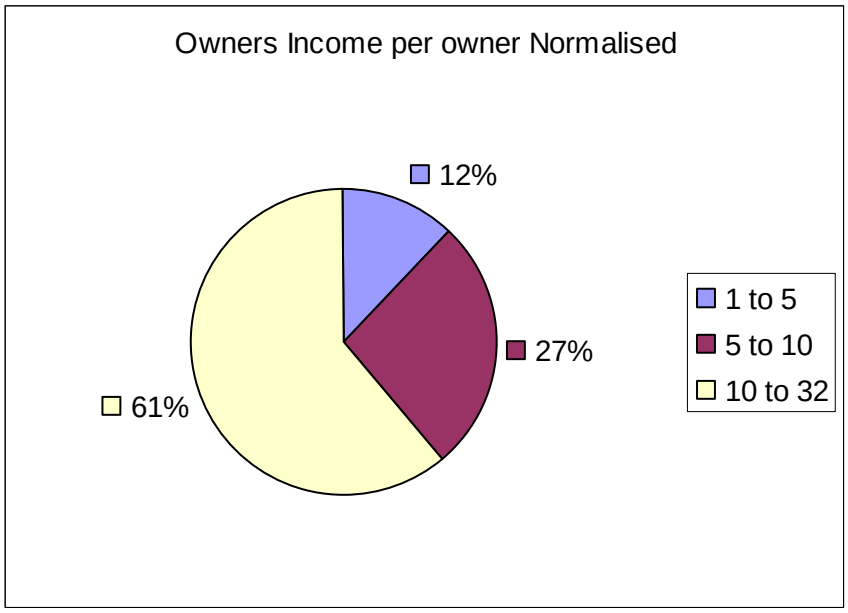

Figure 6.6 Owner income contributions for businesses of different ages

Figure 6.6 indicates the percentage contribution that different-sized businesses make towards owner income as an average income, by owner by year.

Figure 6.6 shows that older businesses make larger contributions to owner income. Older businesses contribute 61% of all owner income in the businesses, compared to 27% by established businesses and 12% by new businesses.

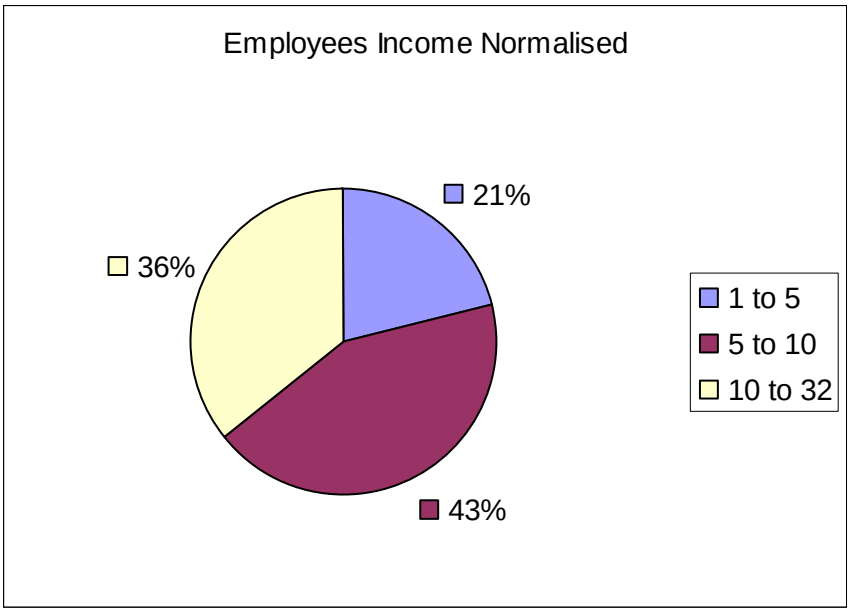

Figure 6.7 Employee income contributions for businesses of different ages

Figure 6.7 shows the percentage contribution that different-sized businesses make towards employee income as an average income, by employee by year.

Figure 6.7 shows that the older businesses contribute 36% of all employees' incomes. This is less than established businesses, which contribute 43%, but more than new businesses which contribute 21%.

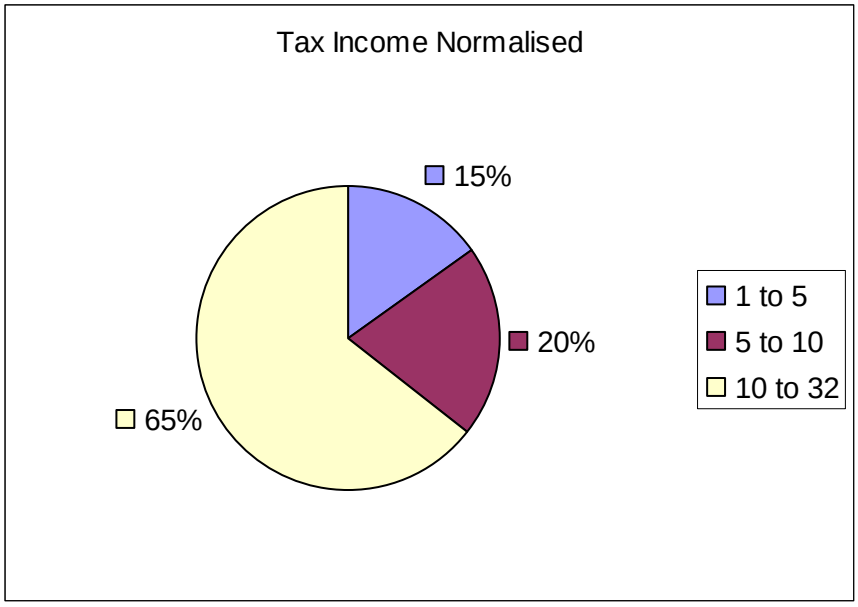

Figure 6.8 Tax contributions by businesses of different ages

Figure 6.8 indicates the percentage contribution that different-sized businesses make towards tax income.

Figure 6.8 shows that the older businesses contribute 65% of all taxes. The contributions decrease according to the ages of the businesses. Established businesses contribute 20% and new businesses contribute 15%.

6.11 Summary by age of business

Table 6.26 The age of a business

	Asset Growth	Owners' incomes	Employees' incomes	Tax Income
1 to 5	12%	3%	22%	49%
5 to 10	-6%	-18%	-13%	21%
10 to 32	-1%	-51%	0%	39%

Generally, an increase in age can be linked to a negative contribution to capital generation. The exception is the contribution to tax. The young businesses, of between one and five years old, generally contributed positively in all capital contribution factors. Generally, the older businesses (ten to 32 years old) performed better than did the five- to ten-year old businesses, except in owners' incomes. The older businesses had a larger contribution to the total volume of capital contribution, as illustrated in Figures 6.5 to 6.8.

6.12 Industry

The data were divided into five groups based on the industries in the sample. The businesses were classified according to the main industry that they were supporting. The small sample made it necessary for some of the sectors to be combined. While the motor, building and food industries had larger samples, the mining, agricultural and general equipment manufacturers were combined.

They were all manufacturing equipment for industry and the businesses in these industries were working across industries, although they were focusing on mining or agricultural equipment.

The different sectors within these groups will have different economic drivers that will make it difficult to draw comparisons. The furniture businesses were mostly involved in providing services to the funeral sector. This, according to the interviewees, was driven by a large demand for coffins over the past few years.

Table 6.27 Asset growth contributions by industry

	Year	Year	Year	Year	Year	Average	Per year
Industry	**1**	**2**	**3**	**4**	**5**	**Asset growth (R)**	**Average asset growth (%)**
Motor	0%	-3%	-3%	-2%	-9%	**-686447**	-4%
Industry	**1**	**2**	**3**	**4**	**5**	**Asset growth (R)**	**Average asset growth (%)**
Building	0%	19%	15%	28%	28%	**1956247**	19%
Mining/Agr/Gen	0%	-6%	-7%	60%	3%	**413146**	18%
Furniture/Funeral	0%	-1%	24%	21%	41%	**1000176**	21%
Food	0%	-7%	-13%	-34%	-31%	**-283967**	-15%

Table 6.27 compares asset contributions according to the industry in which the business operates.

Table 6.27 shows that the food industry (at -15%) is the smallest contributor to asset growth followed by the motor industry (at -4%). All other industries showed a positive growth in capital contributions. The mining industry showed an 18% growth compared to inflation, followed by the building industry at 19%, and the furniture and funeral industry, with the largest growth at 21%.

Table 6.28 Owner income growth contributions by industry

	Year	Year	Year	Year	Year	Average	Per year
Industry	**1**	**2**	**3**	**4**	**5**	**Owners' growth (R)**	**Average owners' growth (%)**
Motor	0%	-59%	-66%	-39%	-44%	**-424663**	-36%
Building	0%	-7%	-32%	15%	31%	**25460**	6%
Mining/Agr/Gen	0%	-8%	-9%	-47%	-32%	**-26635**	-16%
Furniture/Funeral	0%	0%	35%	31%	40%	**59640**	26%
Food	0%	36%	32%	48%	-97%	**31816**	22%

Table 6.28 compares the owner income contributions according to the industry in which the business operates.

Table 6.28 shows that the motor industry is the smallest contributor to owner income growth. The growth in the industry was below the inflation-based growth rate. The mining, agricultural and general engineering industries were the second smallest contributors. All the other industries grew positively. The food industry grew at 22%, furniture and funeral industry at 26% and the building industry at 6%.

Table 6.29 Employee income growth contributions by industry

	Year	Year	Year	Year	Year	Average	Per year
Industry	**1**	**2**	**3**	**4**	**5**	**Employees growth (R)**	**Average employees' growth (%)**
Motor	0%	4%	4%	7%	8%	**12136**	5%
Building	0%	-27%	-33%	63%	64%	**70646**	38%
Mining/Agr/Gen	0%	1%	-3%	-10%	13%	**640**	1%
Furniture/Funeral	0%	-6%	-20%	-27%	-3%	**-11945**	-10%
Food	0%	-23%	-25%	-85%	-175%	**-159146**	-42%

Table 6.29 compares employee income contributions according to the industry in which the business operates.

Table 6.29 shows that the food industry is the smallest contributor to employee income growth, and there was a constant decrease in contributions over the five years. The growth in the industry, at -42%, was far below inflation-based growth. The furniture and funeral industry was the only other industry that underperformed against the inflation growth rate, at 10% below inflation. The motor industry and the building industry both showed a steady increase in employee income.

Table 6.30 Tax contributions by industry

	Year	Year	Year	Year	Year	Average	Per year
Industry	**1**	**2**	**3**	**4**	**5**	**Tax Growth R**	**Average% Tax growth**
Motor	0%	10%	20%	50%	44%	**262526**	30%
Building	0%	40%	52%	74%	74%	**346734**	58%
Mining/Agr/Gen	0%	0%	0%	96%	96%	**36720**	96%
Furniture/Funeral	0%	27%	40%	16%	35%	**108521**	26%
Food	0%	48%	-15%	85%	-70%	**16349**	54%

Table 6.30 compares tax contributions according to the industry in which the business operates.

Table 6.30 shows that all industries contributed positively to tax. The mining, agriculture and general engineering businesses performed best.

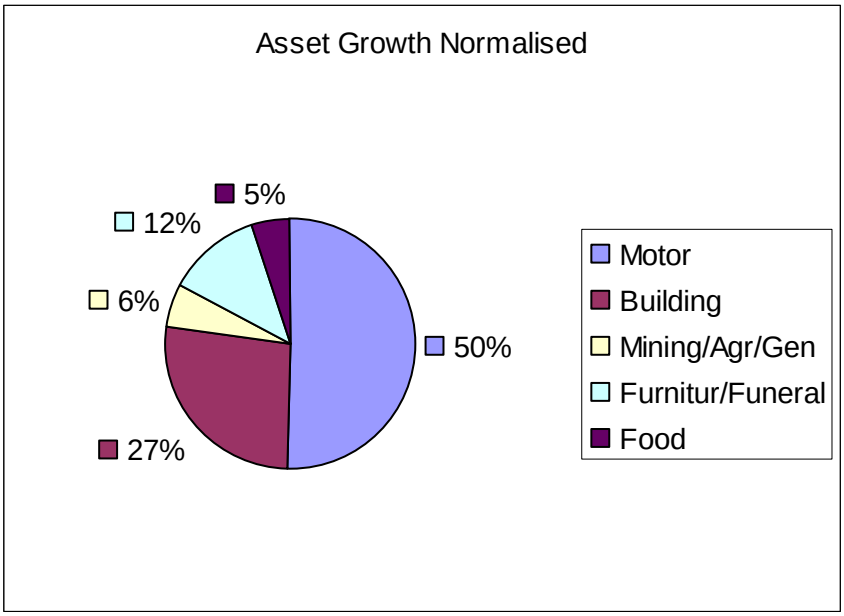

Figure 6.9 Asset contributions by businesses in different industries

Figure 6.9 indicates the percentage contributions that businesses, in different manufacturing sectors, make towards assets.

Figure 6.9 shows that the motor industry contributes 50% of all asset growth in the sample. The second largest contributor is the building industry. The balance of the sectors combined contributes only 23%.

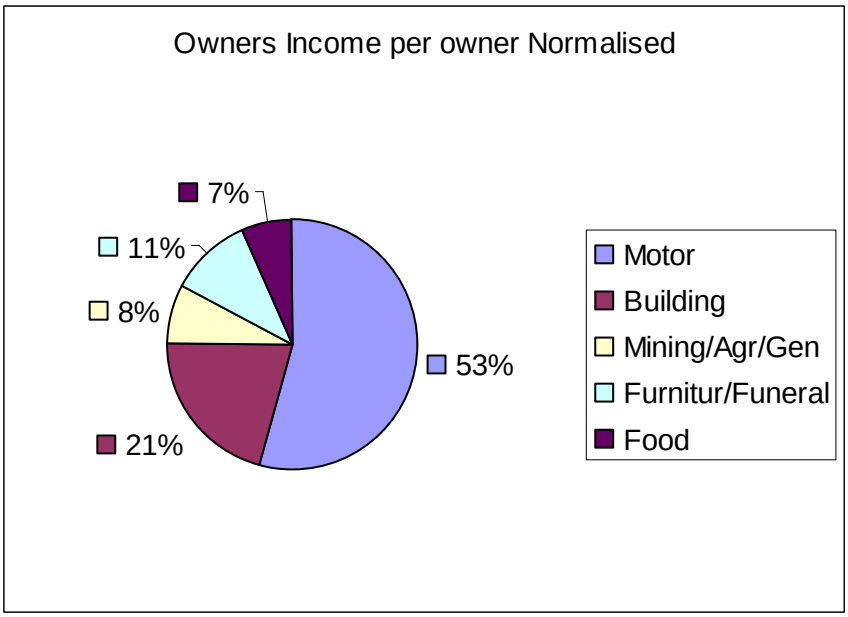

Figure 6.10 Owner income contributions for businesses in different industries

Figure 6.10 indicates the percentage contributions that businesses in different manufacturing sectors make towards owner income contribution as an average income, by owner by year.

Figure 6.10 shows that the motor industry contributes 53% of owner income. The second largest contributor is the building industry, at 21%. The balance of the sectors combined contributes only 26%.

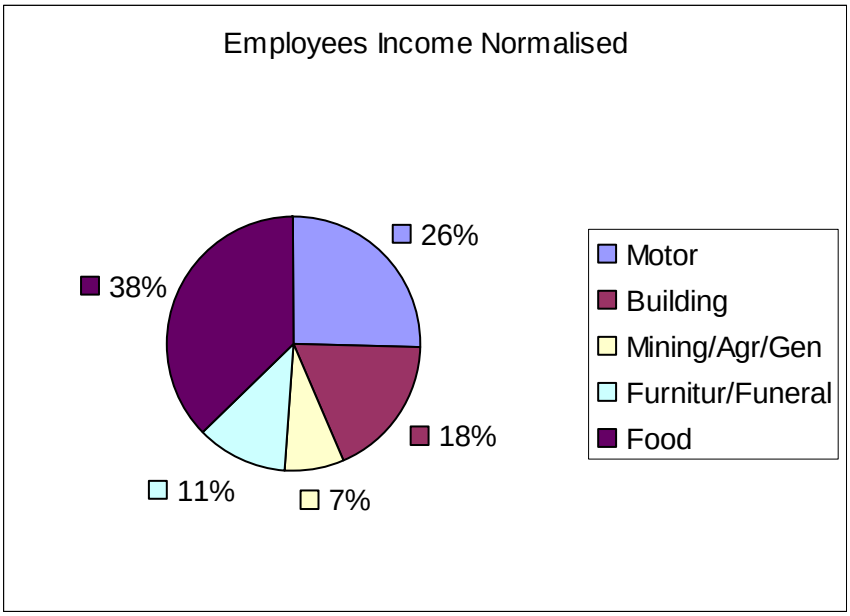

Figure 6.11 Employee income contributions for businesses in different industries

Figure 6.11 indicates the percentage contribution that businesses in different manufacturing sectors make towards employee income as an average income, by employee by year.

Figure 6.11 shows that the food industry contributes 38% of employees' income. The second largest contributor is the motor industry, at 26%, followed by the building industry. The balance of the sectors combined contributes only 18%. The contribution of employees' income in the food sector does not correspond with its contributions in other areas. Contributions are more balanced, compared to asset or owner-income contribution. The equal distribution by industry is in line with employee income distribution based on age and people employed.

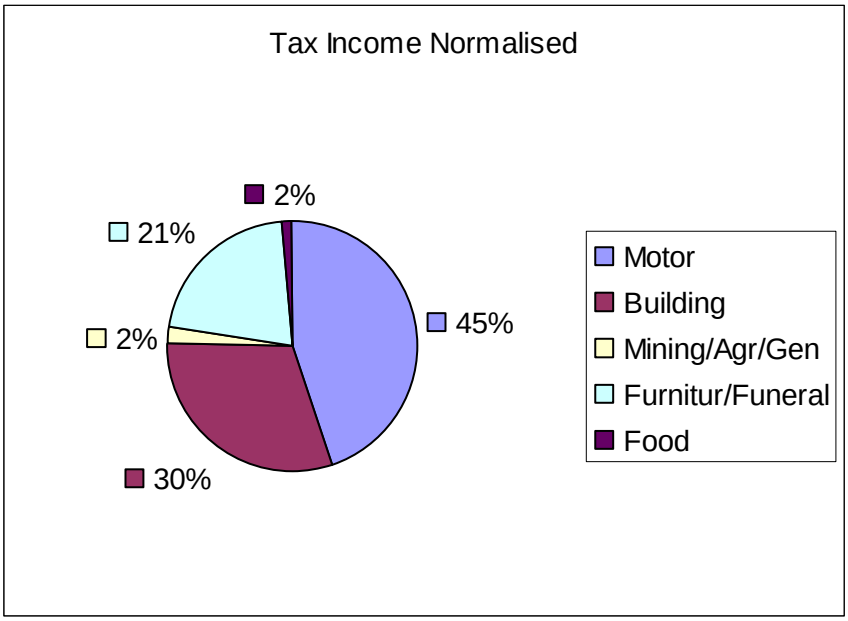

Figure 6.12 Tax income contributions for businesses in different industries

Figure 6.12 indicates the percentage contribution that businesses in different manufacturing sectors make towards tax income.

Figure 6.12 shows that the motor industry contributes 45% of tax income. The second largest contributor is the building industry, at 30%, followed by the furniture and funeral industry (21%). The balance of the sectors combined contributes only 4%.

6.13 Summary by industry

Table 6.31 Summary of growth in capital contribution by business sector

	Asset growth	Owners' income	Employees' Incomes	Tax income
Motor	-4%	-36%	5%	30%
Building	19%	6%	38%	58%
Mining/Agr/Gen	18%	-16%	1%	96%

	Asset growth	Owners' income	Employees' Incomes	Tax income
Furniture/ Funeral	21%	26%	-10%	26%
Food	-15%	22%	-42%	54%

Table 6.31 shows a mixed contribution towards capital generation. The building industry is the only industry that showed an overall positive contribution. All the industries contributed positively to tax.

6.14 Province

The samples were taken in Gauteng and North West. Although the samples were taken in two different provinces, the areas of operation were, in some cases, closer across provincial boarders than they were within the provinces. For example, the motor manufacturing businesses in Rosslyn (Gauteng) and those in Brits (North West) were closer to each other than were the businesses in Vereniging and Johannesburg (both in Gauteng), relative to Rosslyn. Because of these phenomena the areas were individually analysed as separate entities in the next section.

Table 6.32 Asset growth contributions in the two provinces

	Year	Year	Year	Year	Year	Average	Per year
Province	**1**	**2**	**3**	**4**	**5**	**Asset growth (R)**	**Average asset growth (%)**
Gauteng	0%	-3%	-4%	-1%	-6%	**-452147**	-3%
North West	0%	2%	4%	9%	4%	**441273**	4%

Table 6.32 compares asset contributions according to the province in which the businesses operate.

Table 6.32 shows that the businesses in Gauteng contributed less to asset growth, at -3%. North West contributed at 4% compared to inflation growth.

Table 6.33 Owner income growth contribution in the two provinces

	Year	Year	Year	Year	Year	Average	Per year
Province	**1**	**2**	**3**	**4**	**5**	**Owners' growth (R)**	**Average owners' growth (%)**
Gauteng	0%	55%	69%	80%	80%	**-411241**	-44%
North West	0%	38%	37%	-5%	-2%	**-62223**	-10%

Table 6.33 compares owner income contributions according to the province in which the businesses operate.

Table 6.33 shows that the businesses in Gauteng contributed less to owner income at -44%. North West businesses contributed -10% to growth in owners' incomes.

Table 6.34 Employee income growth contributions in the two provinces

	Year	Year	Year	Year	Year	Average	Per year
Province	**1**	**2**	**3**	**4**	**5**	**Employees' growth (R)**	**Average employees' growth (%)**
Gauteng	0%	1%	2%	4%	-5%	**-249**	0%
North West	0%	8%	11%	-4%	4%	**-8450**	-4%

Table 6.34 compares employee income contributions according to the province in which the businesses operate.

Table 6.34 shows that the businesses in Gauteng contributed nothing additional to employees' incomes. North West province underperformed with an average growth of -4% (below the inflation growth base line).

Table 6.35 Tax growth contributions in the two provinces

	Year	Year	Year	Year	Year	Average	Per year
Province	**1**	**2**	**3**	**4**	**5**	**Tax growth (R)**	**Average tax growth (%)**
Gauteng	0%	12%	116%	-4%	1%	**-61938**	-12%
North West	0%	-36%	-60%	-71%	-69%	**380436**	58%

Table 6.35 compares the tax contributions according to the province in which the businesses operate.

Table 6.35 shows that the businesses in Gauteng contributed least to tax growth at -12%. North West contributed 58% and over performed in tax contributions compared to Gauteng.

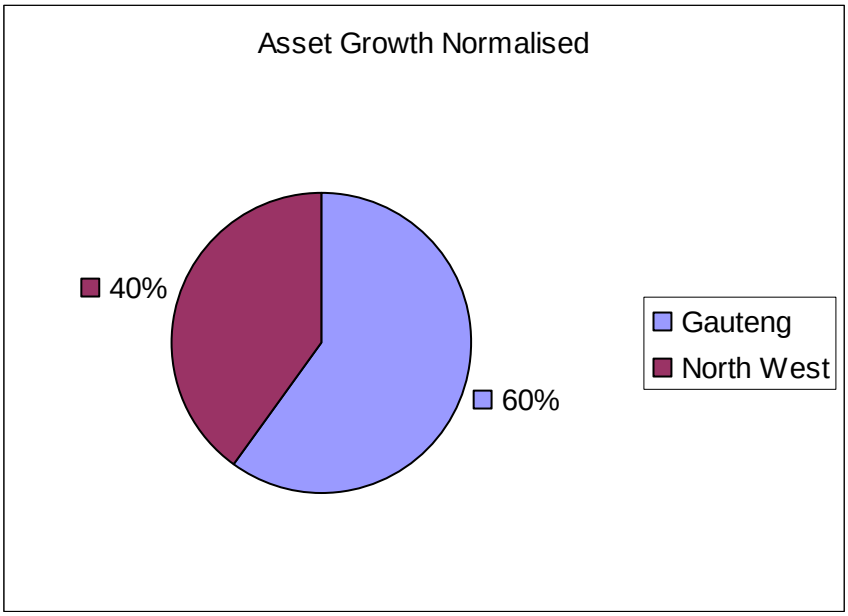

Figure 6.13 Asset income contributions for businesses in different sectors

Figure 6.13 indicates the percentage contribution that businesses in different manufacturing sectors make towards asset income.

Figure 6.13 shows that Gauteng contributes 60% of asset income. North West contributes 40%.

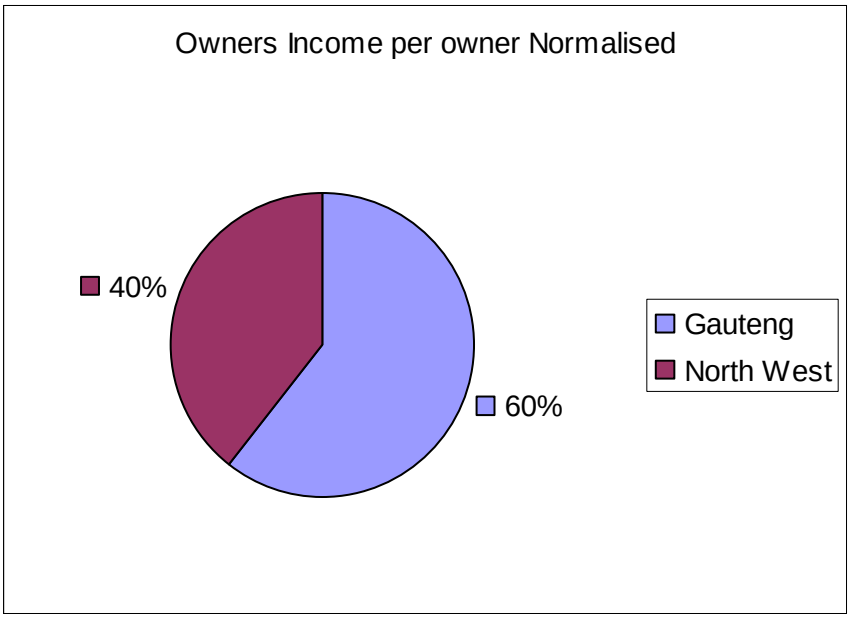

Figure 6.14 Owner income contributions for businesses in different industries

Figure 6.14 indicates the percentage contribution that businesses in different manufacturing sectors make to asset income as an average income, by owner by year.

Figure 6.14 shows that Gauteng province contributes 60% of owner income. North West contributes 40%.

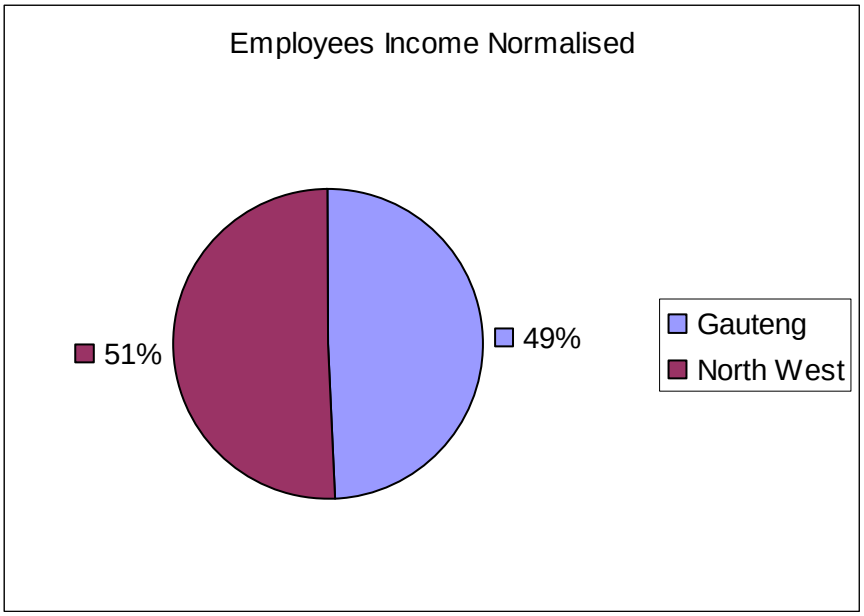

Figure 6.15 Employee income contributions for businesses in the two provinces

Figure 6.15 indicates the percentage contributions that businesses in different manufacturing sectors make towards employee income as an average income, by employee by year.

Figure 6.15 shows that Gauteng contributes 49% of employee income. North West province contributes 51%. The contributions of the two provinces are very similar.

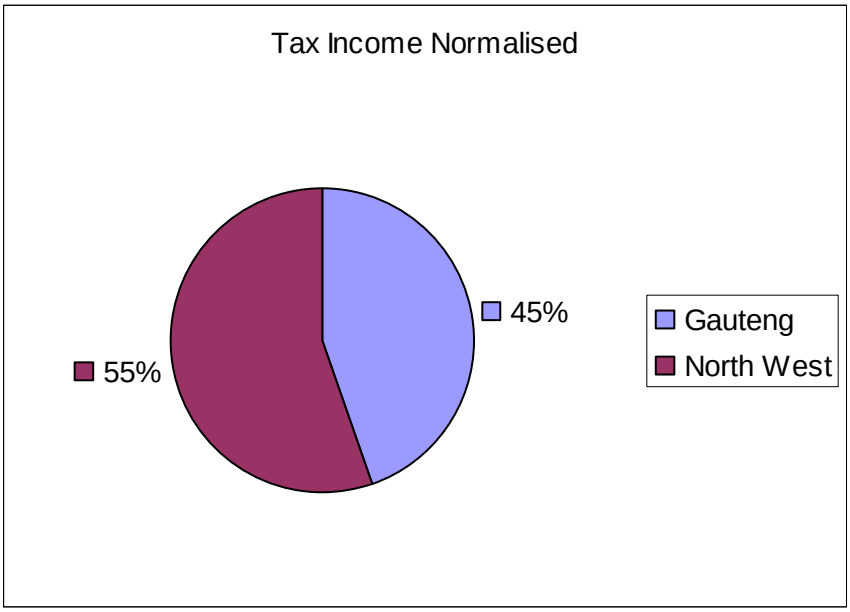

Figure 6.16 Tax income contributions of businesses in the two provinces

Figure 6.16 indicates the percentage contribution that businesses in different manufacturing sectors make towards tax income contribution.

Figure 6.16 shows that Gauteng contributes 55% of tax income. North West contributes 45%.

6.15 Summary by province

Table 6.36 Summary of growth in capital contribution by province

	Asset growth	Owners' income	Employees' income	Tax income
Gauteng	-3%	-44%	0%	-12%
North West	4%	-10%	-4%	58%

It can clearly be seen in Table 36 that, although Gauteng provides the biggest contribution, the growth in capital generation is greater in North West for all parameters except employees' incomes.

6.16 Area

Businesses in Rosslyn (Gauteng) and in Brits (North West) were closer to each other than to other areas in their same provinces. These areas also house the motor manufacturing sector-related industries. This means that it was more logical to group the data by area than by province. Because of these phenomena the areas were individually analysed as separate entities. Areas that were close in proximity (such as Rosslyn, Silverton and Brits), and Johannesburg and Vereeniging were grouped because the sample was too small to form new geographical locations.

Table 6.37 Asset growth contributions according to areas within the provinces

	Year	Year	Year	Year	Year	Average	Per year
Area	**1**	**2**	**3**	**4**	**5**	**Asset growth (R)**	**Average asset growth (%)**
Rosslyn/Silverton/Brits	0%	-6%	-6%	-5%	-11%	**-1053338**	-6%
Rustenburg	0%	2%	4%	9%	5%	**485514**	4%
Johannesburg	0%	1%	1%	8%	4%	**265477**	3%

Table 6.37 compares asset contributions according to the areas in which the businesses operate.

Table 6.37 shows that the businesses in Rosslyn, Silverton and Brits contributed least to asset growth. These areas are also associated with the motor industry, which also showed a negative contribution. Rustenburg and Johannesburg both

showed a positive contribution, at 4% and 3% respectively, and outperformed the consumer price index compared to the inflation baseline.

Table 6.38 Owner income growth contributions according to areas within provinces

	Year	Year	Year	Year	Year	Average	Per year
Area	**1**	**2**	**3**	**4**	**5**	**Owners' growth (R)**	**Average owners' growth (%)**
Rosslyn/Silverton/Brits	0%	-87%	-105%	-117%	-115%	**-631534**	-67%
Rustenburg	0%	-39%	-37%	6%	2%	**-67985**	-10%
Johannesburg	0%	-4%	-17%	-26%	-27%	**-75906**	-12%

Table 6.38 compares owner income contributions according to the areas in which the businesses operate.

Table 6.38 shows that the businesses in Rosslyn, Silverton and Brits contributed least to owner income growth. This area is associated with the motor industry. Rustenburg and Johannesburg also had negative contributions, but not at the same level as Rosslyn, Silverton and Brits.

Table 6.39 Employee income growth contributions according to area in the provinces

	Year	Year	Year	Year	Year	Average	Per year
Area	**1**	**2**	**3**	**4**	**5**	**Employees' growth (R)**	**Average employees' growth (%)**
Rosslyn/Silverton/Brits	0%	-1%	2%	0%	-1%	**-240**	0%
Rustenburg	0%	-8%	-12%	4%	-4%	**-9246**	-4%
Johannesburg	0%	-2%	-4%	-7%	10%	**-307**	0%

Table 6.39 compares employee income contributions according to the areas in which the businesses operate.

Table 6.39 shows that the businesses in Rustenburg contributed least to employee income growth. Johannesburg, Rosslyn. Silverton and Brits showed a 0% contribution and only managed to maintain employees' incomes.

Table 6.40 Tax income growth contributions according to area in the provinces

	Year	Year	Year	Year	Year	Average	Per year
Area	**1**	**2**	**3**	**4**	**5**	**Tax growth (R)**	**Average tax growth (%)**
Rosslyn/Silverton/Brits	0%	-17%	-336%	-3%	-1%	**-116735**	-21%
Rustenburg	0%	36%	60%	71%	69%	**408134**	57%
Johannesburg	0%	-2%	-2%	26%	1%	**19111**	5%

Table 6.40 compares tax income contributions according to the areas in which the businesses operate.

Table 6.40 shows that the businesses in Rosslyn, Silverton and Brits contributed least to tax income growth. Rustenburg over performed compared to the other regions, with a 57% growth. Johannesburg, at 5% growth, was the second best tax income generating region.

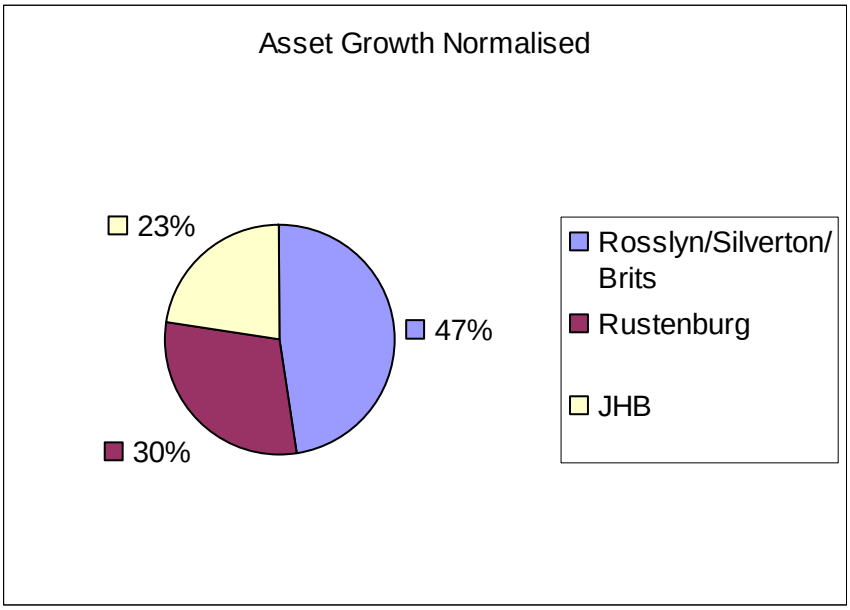

Figure 6.17 Asset income contributions for businesses in different regions in the provinces

Figure 6.17 indicates the percentage contribution that businesses, in different manufacturing sectors, make to asset income.

Figure 6.17 shows that Rosslyn, Silverton and Brits contribute 47% of asset income. The second largest contributor is Rustenburg, in North West province (30%), followed by Johannesburg with a 23% contribution.

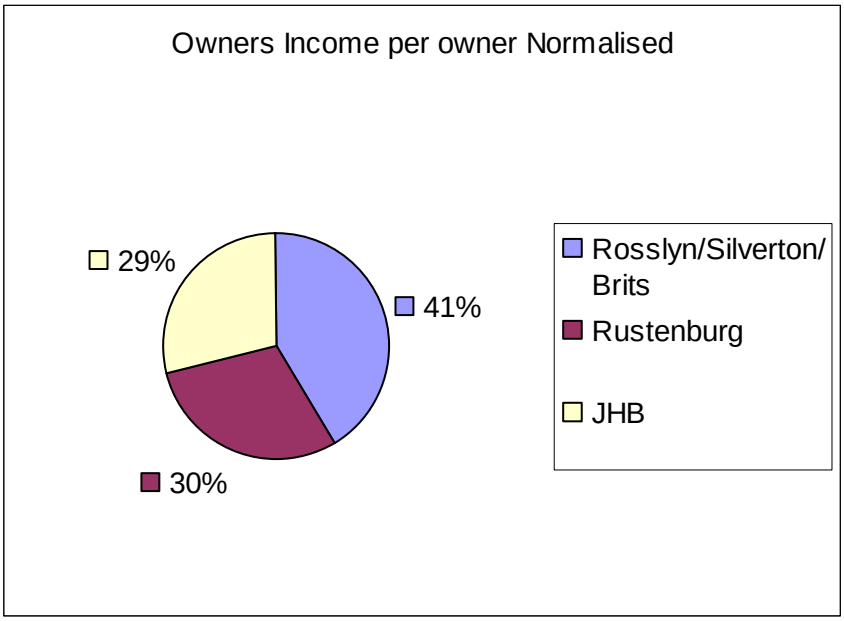

Figure 6.18 Owner income contributions for businesses in different regions in the provinces

Figure 6.18 shows the percentage contributions that businesses in different manufacturing sectors make towards owner income contribution as an average income, by owner by year.

Figure 6.18 shows that Rosslyn, Silverton and Brits contribute 41% to tax income. The second largest contributor is Rustenburg, in North West (30%), followed closely by Johannesburg with a 29% contribution.

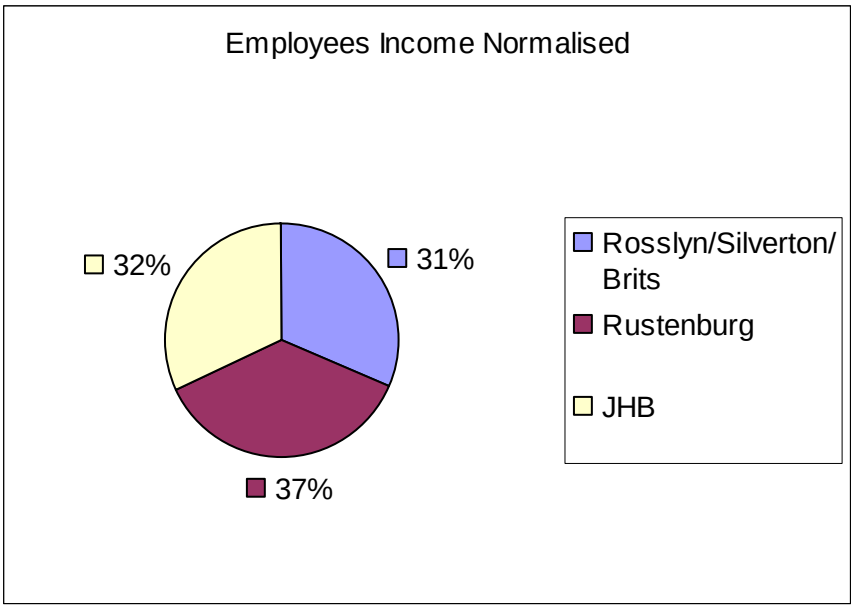

Figure 6.19 Employee income contributions for businesses in different regions in the provinces

Figure 6.19 indicates the percentage contributions that businesses in different manufacturing sectors make towards employee income contribution as an average income, by employee by year.

Figure 6.19 shows that Rosslyn, Silverton and Brits contribute 31% of employee income. The largest contributor is Rustenburg in North West (37%), followed closely by Johannesburg with a 32% contribution. As in other areas of analysis the employee income distribution is fairly consistent.

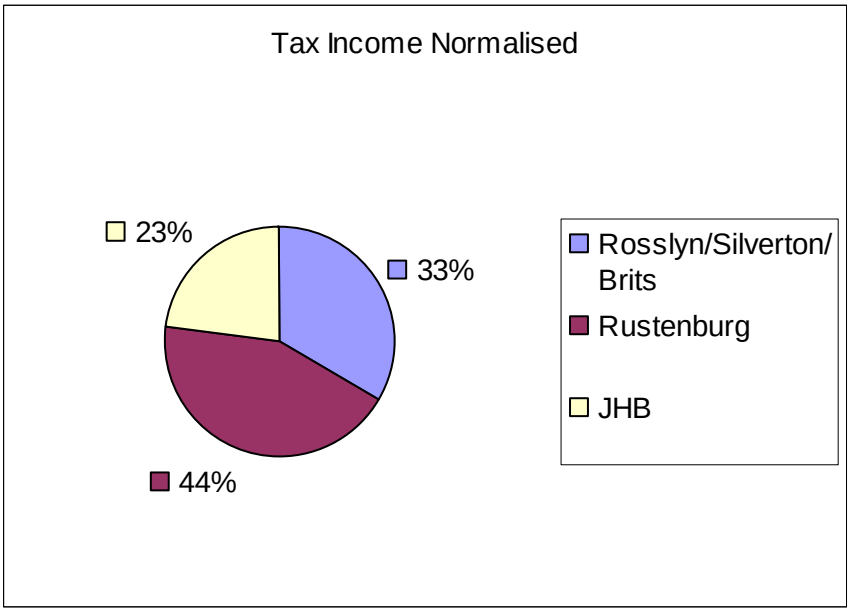

Figure 6.20 Tax income contributions of businesses in different regions in the provinces

Figure 6.20 indicates the percentage contribution that businesses in different manufacturing sectors make towards tax income.

Figure 6.20 shows that Rosslyn, Silverton and Brits contribute 33% of tax income. The largest contributor is Rustenburg in North West (44%). Johannesburg contributes least with a 23% contribution to taxes.

6.17 Summary by area

Table 6.41 Summary of capital contributions by area

	Asset growth	**Owners' incomes**	**Employees' incomes**	**Tax income**
Rosslyn/Silverton/Brits	-6%	-67%	0%	-21%
Rustenburg	4%	-10%	-4%	57%
Johannesburg	3%	-12%	0%	5%

Table 6.41 shows that Rosslyn, Silverton and Brits performed worst. This contrasts with their total contribution. There were mixed, although generally better, performances in the other areas.

6.18 Capital contribution overall

Table 6.42 Overall capital growth contribution by area

	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**	**Per year Average**
Assets	0%	-1%	0%	4%	-1%	**1%**
Owners' incomes	0%	-47%	-52%	-27%	-30%	**-30%**
Employees' incomes	0%	-5%	-7%	1%	-1%	**-2%**
Tax income	0%	16%	27%	53%	49%	**36%**

Small businesses contributed negatively towards owners' and employees' incomes and positively towards assets and taxes. Generally, small business contributes positively, with a 1% growth above inflation. It is also interesting to observe that businesses employing 20 or more people generally perform worse than do the smaller businesses. It is also important to observe that businesses in different areas, provinces, industries and ages all share a similar trend in that large amounts of capital employed deliver slow growth.

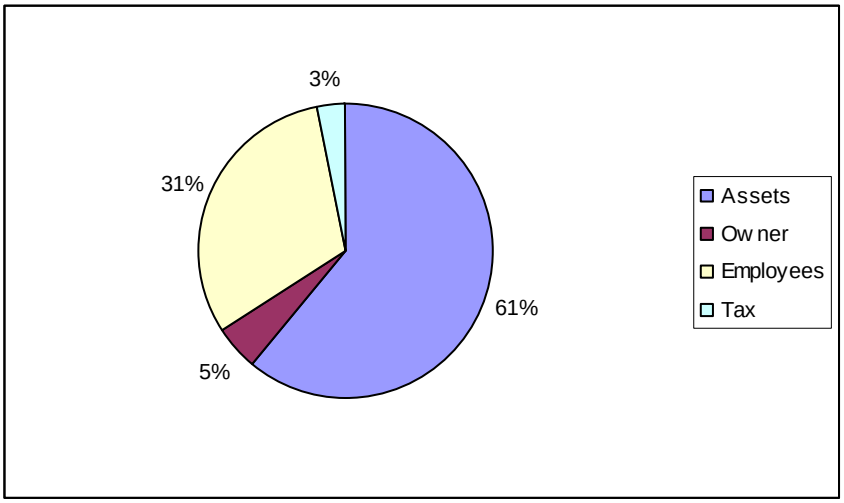

Figure 6.21 Total contribution of the four capital generating parameters

It is important to notice that assets play an important role in total capital contribution and that owner' incomes (total and not normalised), which show highly negative returns, play small parts in the total capital contribution of small businesses.

Table 6.43 and Table 6.44 are reported as overviews of the capital growth and capital contributions for the different samples in the study. They exclude the sizes of the businesses according to the number of people employed.

Table 6.43 A summary of the growth results of the study, excluding the breakdown by number of employees

Description	Description	Asset growth	Owners' incomes	Employees' incomes	Tax income
1 to 5	**Age**	12%	3%	22%	49%
5 to 10	**Age**	-6%	-18%	-13%	21%
10 to 32	**Age**	-1%	-51%	0%	39%
Motor	**Industry**	-4%	-36%	5%	30%
Building	**Industry**	19%	6%	38%	58%

Description	Description	Asset growth	Owners' incomes	Employees' incomes	Tax income
Mining/Agr/Gen	**Industry**	18%	-16%	1%	96%
Furniture/ Funeral	**Industry**	21%	26%	-10%	26%
Food	**Industry**	-15%	22%	-42%	54%
Gauteng	**Province**	-3%	-44%	0%	-12%
North West	**Province**	4%	-10%	-4%	58%
Rosslyn/Silverton/Brits	**Area**	-6%	-67%	0%	-21%
Rustenburg	**Area**	4%	-10%	-4%	57%
Johannesburg	**Area**	3%	-12%	0%	5%

Table 6.44 Weighted contribution capital generation excluding the breakdown by number of employees

The data listed in this table are available from all the figures in Chapter 6 in this study.

Description	Description	Asset Growth	Owners Income	Employees Income	Tax Income
1 to 5	**Age**	28%	12%	21%	15%
5 to 10	**Age**	30%	27%	43%	20%
10 to 32	**Age**	42%	61%	36%	65%
Motor	**Industry**	50%	53%	26%	45%
Building	**Industry**	27%	21%	18%	30%
Mining/Agr/Gen	**Industry**	6%	8%	7%	2%
Furniture/ Funeral	**Industry**	12%	11%	11%	21%
Food	**Industry**	5%	7%	38%	2%
Gauteng	**Province**	60%	60%	49%	45%
North West	**Province**	40%	40%	51%	55%
Rosslyn/Silverton/Brits	**Area**	47%	41%	31%	33%

Description	Description	Asset Growth	Owners Income	Employees Income	Tax Income
Rustenburg	**Area**	36%	30%	37%	44%
Johannesburg	**Area**	23%	29%	32%	23%

Chapter 7: Discussion and Conclusions

7.1 Introduction

This chapter firstly describes the functionality of the model that was developed and tested using the data collected and secondly discusses the findings of this study.

The results obtained from analysing the data with the model, as was reported in Chapter 6, were used in order to discuss the effect of small businesses on capital generation keeping in mind the four main parameters of capital creation and job creation.

Various scenarios were tested using the four parameters of capital generation. Various combinations of the age of the businesses, area location, provincial location, type of industry and the number of people employed were compared. The analysis was based on a sample of 45 businesses.

Conclusions based on the analysis are supported by the literature research, as was reported in Chapter 4. It is important to acknowledge the various critically important roles that small businesses play in the economy, and that this is not contradicted or marginalised by the importance of economic development. Economic *development* is seen to be a better measure of economic contribution in a developing country than is economic *growth*.

7.2 The proposed model

The model is based on the economic theory of capital contribution as a measure of the effectiveness of a business's ability to contribute to economic development

and job creation. Capital contribution is measured by utilising the four key parameters namely:

1. The income of owners, which includes all the salary payments and benefits paid to the owners of a business, including shares and dividend payments.
2. The income of employees (total cost of employment), which includes all the salary payments, benefits paid to the employees and shares if they were issued to employees.
3. Assets, which include all the physical assets such as capital, machines and stock.
4. Company tax, which includes only after-profit taxes paid. These do not include taxes on salaries. Unemployment benefits are included in the total cost of employment and are not part of tax contributions. Regional service levies and taxes on land are also not included as part of tax contributions for this study.

The model was designed to use existing and audited business data readily available for all businesses, minimising the effort required to collect and interpret data in different formats and from different sources. This reduced the difficulty of the research dramatically. By utilising audited financial data the accuracy of the research was increased. It also reduced the possibility of human error when capturing data and when interpreting the data.

Balance sheet and income statement data were used as inputs for the model. The consumer price index, excluding interest rates on mortgage bonds, was used as a parameter in the model to calculate trend data and was used to normalise the data. Consumer price index, excluding interest rates on mortgage bonds, data are readily available and are easily updated. If businesses accept the effectiveness of capital generation as a measure to assess their contributions, the model can be effectively used to measure and control government or business development initiatives.

The model was developed by using Microsoft Excel to capture and store the data from the interviews and questionnaires and to make all the calculations illustrated in Figure 7.1:

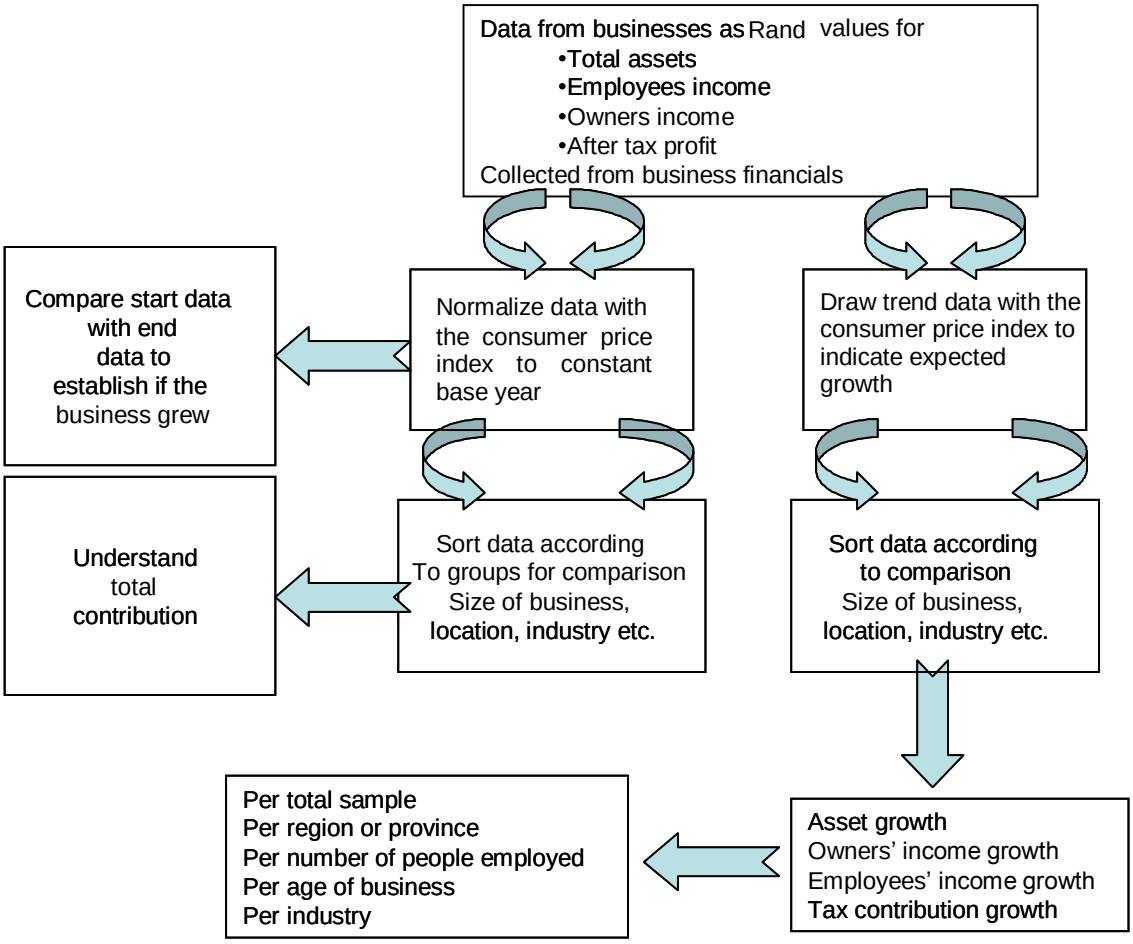

Figure 7.1 Illustration of the model's input requirements, calculation methods and model outputs

The model provided insight into the four areas of capital generation:

1. Generation of assets.
2. Generation of owners' incomes.
3. Generation of employees' incomes.

4. Generation of taxes.

This level of detail provides an ideal management tool that can be used to asses the strengths and weaknesses of businesses and of development initiatives. These will be discussed later.

The model also allows researchers to evaluate businesses in different sectors or across sectors and to draw comparisons between sectors. Researchers will be able to analyse medium-sized and large businesses on the same basis. Although only small businesses in the manufacturing sector were analysed in this study, the model appears to be applicable to all sectors and all business sizes. The model is designed to be used in micro, or informal, businesses that do not use formal accounting practises. In such cases the data will have to be reworked to fit the model. The easiest application will be in listed businesses because of access to their financial information.

The model allows for comparisons between capital contributions by analysing data in different regions or provinces, different sub-sectors, different sizes of businesses, and so on. This can be useful to extract trends, and strengths or weaknesses, in the abilities of businesses to contribute to capital generation. The economic realities of *development*, compared to *growth*, were highlighted and supported in the literature.

7.3 Findings and interpretation

The sample of 45 businesses consisted only of businesses operational during the period of the study. The businesses' capital contribution to asset generation and tax contribution outperformed the consumer price index inflation rate only in certain years, excluding interest rates on mortgage bonds, as shown in Table 6.42.

Table 7.1 List of consumer price index and gross domestic product figures for 2000/1 to 2004/5 and the capital growth figures of the businesses analysed

Year (consumer price index, excluding interest rates on mortgage bonds)	**2000/1**	**2001/2**	**2002/3**	**2003/4**	**2004/5**
	7.8%	6.6%	9.3%	6.8%	4.5%*
Year (gross domestic product) manufacturing	**2000/1**	**2001/2**	**2002/3**	**2003/4**	**2004/5**
	8.1%	3.2%	2.8%	-.09%	2.6%
Year (return against consumer price index, excluding interest rates on mortgage bonds) Asset + Tax Contribution	**2000/1 Base year**	**2001/2**	**2002/3**	**2003/4**	**2004/5**
	0%	0%	1%	7%	2%
Return on contribution measured against growth in gross domestic product for industry	**2000/1 Base year**	**2001/2**	**2002/3**	**2003/4**	**2004/5**
Tax and asset	0%	3.2%	3.8%	7.9%	4.6%
**Estimate*					

If the capital generating aspects of tax and assets measured in the model had to be compared with growth in the gross domestic product, the small businesses would have outperformed growth in the gross domestic product of the manufacturing industry in South Africa to a larger extent than the consumer price index, excluding interest rate on mortgages. If total taxes and assets are seen as indicators of the businesses' contribution to gross domestic product, small businesses would have done extremely well. This is not a completely correct assumption as the capital generating aspects measured did not measure the businesses' total contribution to the gross domestic product such as total sales or

products manufactured[31]. The comparison between capital generation and gross domestic product is made to illustrate the effectiveness of capital generation as a measurement tool.

The literature shows that unemployment in South Africa can be halved by 2014 if an economic growth of 5% can be achieved (Mail and Guardian, 2003: 1). Based on the growth figures for the sample businesses analysed for 2003/4 and 2004/5, this can be achieved by small businesses (also see Table 7.1).

7.3.1 Employee income contribution

If the four capital generating factors are analysed separately, the following can be concluded about sub-hypothesis (H_{20}) regarding employee income contributions[32]:

1. Generally, small business did not contribute (H_{20}) to a growth in employees' incomes (also see Table 6.42).
2. The number of businesses that succeeded in increasing their employees' incomes outweighed the number that decreased their employees' incomes (also see Table 6.5).

If the sample is divided in two, based on the number of people employed, some interesting facts emerge:

1. Businesses that employ 20 or more people did not contribute to a growth in employees' incomes (also see Table 6.17).

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[31] See 4.11.1 Gross domestic product

[32] H_{20}: Small businesses do not generate additional income for their employees

H_{2a}: Small businesses do generate additional income for their employees

2. Businesses that employ fewer than 20 people did contribute to a growth in employees' incomes (also see Table 6.17).
3. If total growth, compared to consumer price index, excluding interest rates on mortgage bonds, is not considered, the same number of businesses, that employed fewer than 20 people, increased their employees' incomes as decreased it (also see Table 6.5).
4. Of businesses' that employed 20 or more people, a larger number increased employees' incomes than decreased employees' incomes (also see table 6.5).
5. Businesses that employed fewer than 20 people contributed only 43% of the total volume of physical employee income (also see Figure 6.3).
6. Businesses that employed more than 20 people paid the balance (56%) of the total volume of the employment bill (also see Figure 6.3).

This younger businesses (one to five years old), employing a smaller percentage of people, contributed positively to employment income generation while older businesses, employing a larger percentage of people, contributed negatively to employment income generation.

If the growth in employee income in industries is analysed, the motor, building and mining industries contributed positively, while the furniture and food industries contributed negatively (also see Table 6.29).

The food industry contributed the largest volume proportion of employee income (38%) and the mining, agricultural and general manufacturing industry the smallest (7%) (also see Figure 6.11).
Gauteng, which contributes 49% to total volume employee income, showed a negative growth of close to zero. North West, with a larger employees' income volume base (51%), also showed a negative employee income growth (also see Table 6.34 and Figure 6.15).

If the employee income contribution data are analysed by region, the following became clear. Rustenburg, with the largest employment income volume base (37%) showed the largest negative contribution to employee income growth. The other two regions showed a negative contribution of close to zero (also see Table 6.39 and Figure 6.19).

It can be concluded that businesses with a small number of employees have higher employee income growths generally.

7.3.2 Tax income contributions

If the four capital generating factors are analysed separately the following can be concluded about tax income contributions[33]:

1. Generally, small business did contribute to additional taxes (H_{02a}) and therefore government income (also see Table 6.42).
2. The number of businesses that succeeded in increasing their tax income contributions by far outweighed (77.78%) the number that decreased their tax income contributions (22.22%) (also see Table 6.6).

If the sample is divided in two, based on the number of people employed, the following interesting facts emerged:

1. Businesses that employ 20 or more people did contribute to tax growth (H_{3a}) (also see Table 6.18).
2. Businesses that employ 20 or fewer than 20 people contributed to tax growth (H_{3a}) (also see Table 6.18).

[33] H_{30}: Small businesses do not generate additional income for government (tax).
H_{3a}: Small businesses do generate additional income for government (tax).

3. Businesses that employ ten or fewer people showed a 78% growth in tax contributions (also see Table 6.18).
4. If total tax growth, compared to the consumer price index, is not considered, businesses that employ fewer than 20 people and businesses that employ more than 20 people both increased their tax contributions by 75% and 82.35% respectively (also see Table 6.6).
5. Businesses that employ fewer than 20 people contributed only 22% of the total tax income volume base and businesses that employ 20 or more people contributed the balance of the tax income volume base (78%) (also see Figure 6.4).
6. Businesses that employ fewer than 20 people, with a small tax volume base, and businesses that employ 20 or more people, with a larger tax volume base, are both able to generate growth in taxes.
7. Businesses that employ fewer than 20 people are able to generate tax faster than are businesses that employ 20 or more people.
8. Fewer businesses that employ fewer than 20 people are able to grow their tax bases (also see Table 6.6).

Based on the above, it appears that younger businesses (one to five years old) that have a smaller tax volume base contributed most positively to tax generation (49%) while the older businesses contributed positively, but to a lesser extent (also see Table 6.18 and Figure 6.4).

If tax growth in industries is analysed, the building, mining and furniture, motor and food industries contributed positively. The mining and food industries contributed least to the tax volume base (2%) each and showed growth in tax contributions of 96% and 54% respectively. The motor, building and furniture industries, with larger tax volume bases, contributed 30%, 58% and 26%, respectively, to tax growth (also see Table 6.30 and Figure 6.12).

Businesses with a small tax base contributed most to tax growth. A notable exception is the building industry.

Gauteng, which has the smaller tax volume base, showed a negative tax growth. North West, with a larger tax volume base, showed positive tax growth. Rosslyn, with 33% of the tax volume base, showed negative contributions to tax growth, while Rustenburg, with 44% of the tax volume base and Johannesburg (23% of tax volume base), contributed positively (also see Table 6.35 and 6.40, and Figure 6.16 and 6.20).

It can be concluded that businesses employing fewer people, younger businesses and industries with smaller tax bases show larger tax growth potential. The exception is the building industry, which has a large tax volume base as well as a large contribution. Geographical areas with a smaller tax volume base showed negative growth. This contradicts the findings about age, size and industry that a small tax volume base shows the largest tax growth.

7.3.3 Contribution to owners' incomes

If the four capital generating factors are analysed separately, the following can be concluded about the sub-hypothesis regarding owners' income contributions[34]:

1. Generally, small business did not increase growth in owners' incomes (H_{03}) (also see Table 6.42).
2. The number of businesses that succeeded in increasing their owners' incomes outweighed the number that decreased the income of owners (also see Table 6.4).

– [34] H_{40}: Small businesses do not generate additional income for their owners.

– H_{4a}: Small businesses do generate additional income for their owners.

If the sample is divided in two, based on the number of people employed, the following interesting facts emerge:

1. Businesses that employ 20 or more people did not grow owners' income (H_{40}) (also see Table 6.16).
2. Businesses that employ fewer than ten people contributed to the growth in owners' incomes (H_{4a}). More small businesses, which employ fewer than 20 people, and large businesses, which employ 20 or more people, succeeded in increasing their owners' incomes if total growth compared to the consumer price index is not considered (also see Table 6.4).
3. Small businesses that employ fewer than 20 people showed a larger percentage increase in owners' incomes than did large businesses that employ more than 20 people (also see Table 6.16).
4. Smaller businesses only contributed 30% to total physical owners' incomes and the balance of owners' incomes was contributed by the larger businesses (also see Figure 6.2).
5. Businesses that employ fewer than 20 people contribute less to the owners' income volume base and are able to generate owners' incomes faster than their larger counterparts. More of these businesses are also able to grow their owners' income bases.

Younger businesses (one to five years old) contributed the least to the owners' incomes but contributed positively to owners' income generation while the older businesses contributed negatively (also see Figure 6.6 and Table 6.23).

If the growth in owners' incomes is analysed by industry, the building, food and furniture industries contributed positively. The motor and building industry contributed negatively. The motor industry has 53% of the owners' income volume base and the food industry 7% (also see Table 6.28 and Figure 6.10).

Gauteng, which has the largest owners' income volume base (60%), showed a large negative growth in owners' incomes (-44%). North West, with a smaller owners' base (40%), showed a smaller negative growth (-10%) (also see Table 6.33 and Figure 6.14).

A similar trend is seen if owners' income data is analysed by region. Rosslyn, with the bulk of the owners' income volume base, showed the largest negative contribution to growth in owners' incomes compared to Rustenburg and Johannesburg. They both contributed negatively to growth, but to lesser extents (also see Table 6.38 and Figure 6.18).

It can be concluded that businesses with smaller owners' income volume bases have a better growth in owners' incomes. This is true for different industries, the age of the businesses as well as their locations.

7.3.4 Contributions to asset income

If the four capital generating factors are analysed separately the following can be concluded about contributions to asset income[35]:

1. Generally, small business did contribute to asset growth (H_{5a}) (also see Table 6.42).
2. The number of businesses that increased asset growth outweighed the number that decreased asset growth (also see Table 6.3).

– [35] H_{50} Small businesses do not generate additional income for investment in assets (capital and goods)

– H_{5a}: Small businesses do generate additional income for investment in assets (capital and goods)

If the sample is divided in two, based on the number of people employed, the following interesting facts emerge:

1. Businesses that employ 20 or more people (larger businesses) did not contribute to asset growth (H_{04}) (also see Table 6.15).
2. Businesses that employ fewer than 20 people (smaller businesses) contributed to asset growth (also see Table 6.15).
3. A higher number of smaller businesses succeeded in increasing their asset contributions while a higher number of larger businesses decreased their asset contributions than increased their asset contributions, if total growth compared to the consumer price index is not considered (also see Table 6.3).
4. The smaller businesses only contributed 17% to total physical assets and the balance of assets were held by the larger businesses (also see Figure 6.1).
5. Smaller small businesses with fewer assets are able to generate assets faster than are larger businesses and more of these businesses are able to grow their asset bases.

Younger businesses (one to five years old) with fewer assets contributed positively to asset generation while the older businesses contributed negatively (also see Table 6.22 and Figure 6.5).

If asset growth by industry is analysed, the building, mining and furniture industries contributed positively. The motor and food industries contributed negatively with the motor industry having 50% of the asset volume base and the food industry 5% (also see Table 6.27 and Figure 6.9).

Gauteng, with the larger asset volume base, showed negative asset growth. North West, with a smaller asset volume base, showed positive growth (also see Table 6.32 and Figure 6.13).

A similar trend is seen if asset contribution data is analysed by region. Rosslyn, with the bulk of the asset volume base, showed a negative contribution to asset growth while Rustenburg and Johannesburg both contributed positively (also see Table 6.37 and Figure 6.17).

It can therefore be concluded that businesses with fewer assets have better asset growth. This is true for different industries, age of the businesses as well as their locations. The only contradiction was the food industry, which contributed negatively and had a small percentage of the total asset volume base.

7.4 The employment potential of small businesses

Based on the hypothesis[36], the data in the model can be used to evaluate the contribution of small businesses to job creation. A total of 26 (57.78%) businesses increased the number of employees (H_{6a}), 11 (24.44%) stayed the same (H_{60}) and 8 (17.78%) decreased the number of employees (H_{60}). Therefore 57.78% of businesses contributed to job creation (H_{6a}) while 42.22% did not (H_{60}). Only businesses that employ fewer than 20 people managed to grow their employee base (also see Table 6.6).

While 57.78% of businesses increased the number of people employed, the businesses generally did not improve the capital position of owners or employees. Businesses that employ fewer than 20 people did contribute to growth in employee and owner income. Businesses employing 20 or more people did not contribute to growth in employee and owner income (also see Table 6.5 and Table 6.4).

[36] H_{60}: Small businesses do not contribute to job creation

H_{6a}: Small business do contribute to job creation

The average increase in employment for the period 1999 to 2004 was 16%. This needs to be compared with the total employment in similar sectors for the same period to make any comparative analyses. This growth varied from:

1. 59% growth in businesses that employ one to ten people.
2. 21% growth in businesses that employ 11 to 19 people.
3. -1% growth in businesses that employ 20 to 40 people.
4. 14% growth in businesses that employ 41 and more people.

Based on the employment growth figures listed the smaller companies (employing less than 20 people) grew employment faster, with a negative growth by companies employing 20 to 40 people. Companies employing more than 40 people showed a positive growth rate (slower than companies employing less than 20 people).

7.5 Conclusions

7.5.1 Conclusions relating to employment contribution

Historically, South Africa has a large unemployed population. Based on the literature, conditions for growth are supported by the South African and international political, social and economic environments. These conditions will support a growth in the number of small businesses as well as the number of people employed. It is clear that this growth plays an important role in developing economies such as South Africa and India. Historically, South Africa and other countries showed a decline in formal employment that was followed by growth in small business. The model supports the literature findings and historical trends by reporting an overall positive growth in the number of people employed. These findings are valid if only the successful businesses analysed are considered.

If only 20% to 30% of small businesses are successful, the effect of the success of small business is reduced (Nattrass and Glass, 1986: 2). If the sample consisted only of successful businesses, of which only 57.78% contributed to job creation, the figure of 30% of all successful businesses that created jobs would be reduced to 17.33%. Even unsuccessful business generated jobs, and contributed in various other areas, although the net contribution was low. The question to be answered in further studies is whether the cost of generating the additional jobs can be justified.

Levy (1996: 6) showed that businesses younger than four years grew by 55% per year while businesses that were twenty years or older grew between 5% and 8% per year. In the study the younger businesses were also the smaller businesses, employing fewer people, thereby supporting the data. The data showed an employment growth of between 59%, in businesses employing ten and fewer people, to -1% in businesses employing 21 to 40 people. This shows that the more people a company employs, the less is the employment growth. These findings are supported by Dewar, (1987: 7) as, when businesses grow from very small to small, the greatest number of jobs is created, followed by a slowdown in job creation.

No reliable data for provinces could be accessed for the period of the research. If the *Statistics South Africa* data are converted for the two provinces, there is a 25.1% growth in employment in North West and a 21.6% growth in employment in Gauteng. National data shows overall employment growth to be 22.1% (Statistics South Africa Primary Tables: 66).

Generally, small businesses grew at 16% on average which is, below the provincial rates. However, businesses that employ fewer than 20 people grew on average by 38%, outperforming industry. North West, with the largest number of unemployed, grew by 20% compared to a negative growth of -7% in Gauteng for businesses employing 20 or more people. Both provinces showed a lower–than-

industry average growth for businesses employing 20 or more people. Chapter 3 concluded that, although job creation takes a burden away from government to support jobless people and therefore provides more capital that can be spent to develop the country, it does not necessarily improve the potential of these people to improve themselves. It may merely help them to survive

Businesses that showed a large percentage growth in personnel can be seen as *entrepreneurial* when compared to those with lower growth, *owner-based*, interest. The data in this research were contradictory as small business employing fewer than 20 people showed the largest personnel growth (supporting its *entrepreneurial* nature) and the largest contribution to the income of owners (supporting its *owner-based* nature). According to the Australian study, these businesses with a large employment growth would be *entrepreneurial*, but the question of why owners' incomes increased so drastically needs to be raised. This is supported by Hallberg (2000: 1) in his definition of a small business. An increase in owners' incomes should be related to *owner-based* interest more than to *entrepreneurial* interest and more research will be necessary to clarify this. The opposite also occurs in businesses that employ more than 20 people and do not generate a growth in employment. According to the definition they should be classified as *owner-based* although they show a negative contribution towards the income of owners. In South Africa an entrepreneur would start a business and rapidly expand it to a point where he or she reaches a comfort level in the size of the business and in the income generated. At his point expansion would stop.

It can be argued that a business showing a high growth in owners' incomes is focused more around the owners than the business. This would be supporting the research that small businesses support the expected growth trend in employment creation based on recent shifts in the employment market in South Africa. In a study by Riley, (1993: ix) it has been seen that younger businesses grow much faster than do older and more established ones. In a sample of 165

South African small and medium-sized enterprises, Levy (1996: 7) found that only 12 contributed significantly to job creation.

The contribution of small business to job creation can be concluded with the statements which follow:

1. Businesses which employ fewer than 20 people outperformed the businesses employing 20 or more people in employment creation.
2. Small businesses create fewer jobs than the manufacturing industry average. This is true for businesses which employ 20 or more people, but not for businesses which employ fewer than 20 people.
3. The low success rate of small businesses generally reduces the effectiveness of successful small businesses to create jobs.
4. It seems as if small businesses which employ 20 or more people reach a stable phase in their growth.
5. The jobs created by small businesses, for both employees and owners, do not contribute to capital generation and are therefore not supportive of development. This is true for businesses employing 20 or more people, but not for businesses employing fewer than 20 people.
6. Although the effect of job creation is understood, it seems as if capital generation plays a more important role in justifying support to small business development. This is based on the fact that capital generation for assets and taxes was above gross domestic product, compared to job creation that was below the industry average.

The questions that follow arose from the study:

1. Is their a relationship between the income of owners and job creation relative to the entrepreneurial nature of small business in South Africa?
2. What is the impact of job creation considering that people are still living below the breadline even if they are employed?

7.6 Conclusions relating to capital contribution

It can be concluded, considering tax and asset growth, that small businesses generate additional capital (also see Table 6.42). Hypothesis H_{10} cannot be accepted and therefore hypothesis H_{1a} that small businesses generate additional capital is therefore accepted.

Considering growth in employees' and owners' incomes, small businesses do not contribute to capital generation (also see Table 6.42). Hypothesis H_{10}, that small businesses do not generate additional capital, is therefore accepted.

Small businesses which employ fewer than 20 people contributed positively to all aspects of capital contribution, compared to businesses which employ more than 20 people. The latter only performed positively in capital tax contribution. These findings are supported by Rutashobya and Olomi (1999: 173), who found that small businesses tend to grow only to a stage and then flatten their growth rates.

Various reports are referred to in the literature study indicating that government and banks are losing millions of Rands because of small business failure. Only one example in Chapter 4 reports a loss of R68 million because of small business failure over a four year period. If the failure rate of small business is taken into consideration, a success rate of 30% will require a successful business to grow by much more than the current growth rate to cancel the losses made by an unsuccessful business. The failure rate of 70% is high compared to the United States of America, where the failure rate is approximately 15% (Perry, Steagall and Woods, 1995: 98).

It is also important to highlight that an increase in the gross domestic product does not necessarily mean an increase in the capital available within a business to pay tax or to increase assets, though it will improve a country's trade balance.

Generally, businesses performed positively in asset growth, which forms the largest proportion of capital growth (also see Figure 6.21). This is a very positive indicator, since a growth in assets shows that businesses are strengthening. This is particularly important considering that investment in assets is particularly low in Africa.

Generally, small businesses performed extremely well in creating additional tax income. A positive growth in tax income will be a benefit to government, increasing income and therefore increasing its ability to spend. A negative aspect about the growth in tax income is that it grew faster than all other aspects of capital generation, and by a considerable margin. It must also be noted that a large percentage of the businesses started at a very low tax base that enhanced this growth phenomenon. The reason for the low start-up tax rate is that many small businesses show losses at the beginning of operations and therefore pay no tax or very little tax. The finding, that the biggest contributor to small business capital generation was in tax contribution, contrasts with government's plans to lighten the burden on small business. It would have been better to see a bigger growth in asset and employee capital income generation than in capital generation in taxes. Taxes forms a small portion of the total capital volume base as indicated in Figure 6.21.

It is also important to note that government is aware of the regulatory constraints on, and costs to, small businesses and that it is working on reducing these constraints. However, no reference, other than in political statements, is made to reducing the physical tax burden on growing or developing small businesses.
The fact that owners' income did not grow proportionally with other sources of income growth is interesting. Both owners' income growth and employees' income growth placed the people involved in these businesses in a worse position regarding the capital strength of their incomes. In all the capital generating aspects, the smaller businesses which employed fewer than 20

people contributed the smallest percentage to total capital volume based contribution.

The youngest businesses generally contribute the smallest weighted average to capital growth and had the fastest growth in all measured areas. The older businesses employed the largest weighted contribution to capital employed, but had the slowest growth.

The motor industry, followed by the building industry, contributed most to the weighted average volume based capital contribution. The motor industry showed the smallest *growth* in capital generation, but not in *actual* volume based capital generation. No clear trend can be seen in the other industries. The influence of the motor industry can clearly be seen in the Rosslyn, Brits and Silverton areas (see Table 6.43 and Table 6.44). The data from these three areas are comparative. It is interesting to note, when comparing the provinces and regions, that they showed similar contributions to employee income contribution. A very strong trend in the data is observed that businesses using larger volumes of capital contribute less to growth and *vice versa*. A detailed analysis is necessary to form a clearer understanding by sector or region.

The contribution of small businesses towards capital generation can be concluded as follows:

1. Businesses generally contributed to job creation. Businesses which employ fewer than 20 people contribute positively to employees' and owners' incomes, to tax and to asset growth.
2. Businesses which employ more than 20 people contributed positively only to tax growth.
3. Small business failure is a large threat to the successful contribution of small business to job and capital generation.

4. Small business invests in assets, and this is a positive sign as assets form the bulk of capital contribution.
5. It is concerning that tax contribution is outperforming all the other parameters of capital generation. Small business in developing countries has better opportunities if capital is directed towards asset growth instead of taxes. In South Africa, government decides on programmes and interventions for growth. In a survey by Levy (1996: 10), taxes were seen as the third biggest constraint for small business development.
6. Owners' and employees' incomes showed negative contributions towards capital generation. It is known that South African labour rates do not favour competition with developing nations such as India, Brazil and China and the lower growth in employees' incomes can be related to pressure to become more competitive. It has been reported in the literature that many small business owners start businesses for reasons other than pure growth, such as independence and necessity. This can be attributed to the low growth in owners' incomes. Owners also see investment in assets as a way of building their own equity.
7. There is a definite trend, in the data, that businesses using the most capital in assets, salary bills, owner payments and tax contributions show a slower growth than businesses using smaller total capital contributions.
8. The motor industry showed a phenomenal growth over the past few years, but did not manage to grow its capital employed above the consumer price index. This was also clear in all the different regions supporting the industry.
9. The industry data can be used to study the different industries in more detail.
10. Analysing a business over a short period of one or two years will not yield a clear picture of the businesses' performance. It is important to take a longer view.

11. Although more businesses contributed to positive growth when measuring the four growth parameters, the net contributions in certain instances or parameters measured were negative.
12. The results show that small business contributes to economic development and growth.
13. Small businesses in the study did not do better in job creation compared to larger businesses, based on the industry data, but did outperform large businesses when capital generation is taken into account

The questions that need to be investigated arising from this study include:

1. What are the costs of creating jobs in small businesses compared to the capital contributions? This question falls outside the scope of this study.
2. What is the real effect of growth in the gross domestic product on job creation and reduction of poverty based on the negative results shown by the World Bank?
3. Why did owners' incomes, in particular, not keep track with inflation growth?
4. What are the drivers impacting on capital generation in the different industries?
5. How does capital generated compare with the cost of capital due to failure?
6. What is the effect of the Auto Immune Deficiency Syndrome on capital generation, seeing that small business does not really have the ability to handle the cost of the disease?

7.7 Conclusions relating to contributions other than job creation and capital creation

Small business support is not traditionally based purely on achieving economic growth, but rather on achieving various political and social objectives. The model

indicated that small business could achieve economic development objectives in South Africa if its failure rate can be reduced.

Small business development is not only for capital and job generation. It is also for various other socio-economic reasons. The United States hopes to support the concept of a free market economy, while the United Kingdom hopes to ensure that a large proportion of the economy stays active and Japan hopes to enable large corporations to outsource non-core activities at cheaper rates. It is believed in Europe that small business contributes to innovation and job creation.

If all the risk factors and other burdens can be removed, small businesses will be able to make meaningful contributions to the economy. South Africa has a strong economic base with a good infrastructure to support small business development. The areas of weakness identified in small businesses can be improved considerably if capital can be generated to reduce financial risk, to improve operating capital and to improve the use of human resources.

The contributions, in areas other than job and capital generation, can be concluded as follows:

1. South Africa and other developing countries use small business development as a measure to stimulate growth and job creation, while in developed countries the non-capital benefits are much more important.
2. It is known that productivity decreases as businesses become smaller, but the smaller small businesses managed to utilise their capital resources better than did the businesses which employ 20 or more people.
3. Additional capital generation will lower the risks associated with small businesses and improve their areas of strength.
4. There are clear differences between established economies, where small businesses play a role in innovation, outsourcing, and accessing niche

markets, and developing economies, where economic development and job creation are the important parameters.

5. The motor industry showed high *growth* but a low contribution to *development*. This supports observations by the World Bank and other writers that *growth*, as seen in the industry, does not necessarily support *development*.

7.8 Revisiting the hypotheses

The main research hypotheses were:

1. H_{10}: Small businesses do not generate additional capital ($H_{10} \geq 0$).
2. H_{1a}: Small businesses generate additional capital ($H_{1a} > 0$).

Not all the capital generating parameters measured did contribute (H_{1a}) or did not contribute (H_{10}) to capital generation and their contribution are discussed under the sub-hypotheses. The size, age, location and business sector had an impact on the capital contribution. The importance of size of a small business measured by the number of people in defining such a business will be the only parameter used in this discussion on the hypotheses. The other parameters such as location, age and business sector will not be discussed. The H_{10} and H_{1a} hypotheses have the sub–hypotheses which follow:

i. H_{20}: Small businesses do not generate additional income for their employees ($H_{20} \geq 0$).
ii. H_{2a}: Small businesses generate additional income for their employees ($H_{2a} > 0$).
iii. H_{30}: Small businesses do not generate additional income for government (tax) ($H_{30} \geq 0$).
iv. H_{3a}: Small businesses generate additional income for government (tax) ($H_{3a} > 0$).

v. H_{40}: Small businesses do not generate additional income for their owners ($H_{40} \geq 0$).
vi. H_{4a}: Small businesses generate additional income for their owners ($H_{4a} > 0$).
vii. H_{50}: Small businesses do not generate additional income for investment in assets (capital and goods) ($H_{50} \geq 0$).
viii. H_{5a}: Small businesses generate additional income for investment in assets (capital and goods) ($H_{5a} > 0$).

It can be concluded, considering tax (H_{3a}) and asset growth (H_{5a}), that small businesses generate additional capital (also see Table 6.42). Hypothesis H_{10} cannot be accepted and therefore hypothesis H_{1a} that small businesses generate additional capital is therefore accepted.

Considering growth in employees' (H_{20}) and owners' incomes (H_{40}), small businesses do not contribute to capital generation (also see Table 6.42). Hypothesis H_{10}, that small businesses do not generate additional capital, is therefore accepted.

Small businesses which employ fewer than 20 people contributed positively to all aspects of capital contribution, compared to businesses which employ more than 20 people. The latter only performed positively in capital tax contribution.

These eight sub-hypotheses are followed by the final two hypotheses regarding job creation by small businesses:

1. H_{60}: Small businesses do not contribute to job creation ($H_{60} \geq 0$).
2. H_{6a}: Small businesses contribute to job creation ($H_{6a} > 0$).

Based on the total sample 57.78% of businesses contributed to job creation (H_{6a}) while 42.22% did not (H_{60}). In total only businesses that employ fewer than 20

people managed to grow their employee base (also see Table 6.6, Appendix 6 and sub-section 7.4).

7.9 Shortcomings

7.9.1 Shortcomings of the model

The shortcomings of the model listed, considered the processes of obtaining data, analysing the data and interpreting the data. The most important shortcomings of the model follow:

1. The model needs to be populated with data that is difficult to obtain. The data is difficult to obtain because of the sensitivity of the data and the volume of data necessary to populate the model.
2. It is difficult to measure informal businesses capital contribution due to formal data (audited financial statements) necessary to populate the model.
3. The model does not acknowledge the impact of job creation on alleviating pressure from other sources such as government unemployment benefits.
4. The model does not calculate the impact of businesses that failed.
5. The model does not calculate or analyse other factors such as business cycles, competition by other countries and larger businesses, etcetera on capital generation by small businesses.
6. The data for employees and owners cannot be directly compared with the data for assets and taxes because the employees and owners data are normalised with an additional factor (number of owners or employees)

7.9.2 Shortcomings of the study

The shortcomings of the study listed considered, the processes of obtaining data, analysing the data and interpreting the data. The most important shortcomings of the study follow:

1. The sample consisted of 45 companies that represent a small percentage of the total sample size.
2. No direct comparative studies based on capital generation as a measure of development are available to benchmark the findings of this study.
3. The data cannot be directly measured against current measurements such as GDP and was only compared to these measurements.
4. The study does not calculate the cost of creating jobs to compare the cost of job creation with the actual capital created.
5. The study does not calculate the cost of capital due to failure of businesses.
6. The sample sizes for the manufacturing industry sectors were small due to the large number of manufacturing industry sectors analysed.
7. The study can only comment on businesses' effect on capital contribution, but not on the reasons for different contributions.

Appendix 1

AGREEMENT IN REGARD TO CONFIDENTIALITY AND NON-DISCLOSURE

In favour of your business (hereinafter referred to as "Your Business")

I, the undersigned, _____ hereby agree as follows:

WHEREAS I am a duly authorised representative of

_____ (hereinafter referred to as "the researcher");

AND WHEREAS YOUR BUSINESS and the researcher are desirous of entering into INFORMATION EXCHANGE (hereinafter referred to as "the discussions");

AND WHEREAS for purposes of the discussions YOUR BUSINESS will be disclosing to the researcher certain confidential information;

AND WHEREAS YOUR BUSINESS requires the undertaking below to be made by the researcher in order to protect the proprietary interests of YOUR BUSINESS in the confidential information;

NOW THEREFORE the researcher undertakes towards YOUR BUSINESS that:

1. All Confidential Information obtained or received by the researcher from YOUR BUSINESS or about the business of YOUR BUSINESS shall be treated as confidential and shall not be used by the researcher or disclosed to any third party or entity or in any way be used to the prejudice of YOUR BUSINESS;
2. The Confidential Information will only be used directly in connection with the discussions and will not be used for any other reason or purpose whatsoever without the prior written consent of YOUR BUSINESS, which may be withheld for any reason whatsoever;

3. It will ensure that every officer, employee, contractor or other person involved in the discussions shall be bound not to disclose any of the Confidential Information and such individual shall be bound to deal with Confidential Information in the same manner as the researcher is bound to do in terms of this Agreement;
4. It shall securely store all documents, papers and other matter furnished to the researcher by YOUR BUSINESS in connection with or which constitutes the Confidential Information, in such a manner as to ensure that only individuals entitled to access to the Confidential Information and who are bound in terms of clause 3 of this Agreement, shall have access to it;
5. The researcher agrees that, notwithstanding the fact that certain Confidential Information may already be in the possession of the researcher or may already be contained or expressed in public literature in general terms not specifically in accordance with the Confidential Information, the Confidential Information shall remain subject to the provisions of this Agreement;
6. In the event of the researcher being compelled it shall immediately notify YOUR BUSINESS thereof in order that YOUR BUSINESS may seek an appropriate protective order or waive compliance with such provisions of this Agreement as would prevent compliance with the law, or give its consent thereto, and such waiver, compliance or consent shall not constitute a breach of this Agreement.
7. The researcher acknowledges that a breach of this Agreement shall give rise to a claim for damages by YOUR BUSINESS. The researcher accordingly acknowledges and agrees that the provisions hereof shall continue for so long as the confidential nature of the information persists.
8. All Confidential Information disclosed by YOUR BUSINESS to the researcher shall remain the property of YOUR BUSINESS notwithstanding such disclosure.

9. The researcher acknowledges that this Agreement does not grant, transfer or confirm upon the researcher, either expressly or impliedly, any rights, license or any interest in any intellectual property by the furnishing of the Confidential Information pursuant to this Agreement.

…/SIGNED

SIGNED at _____ on this _____ day of _____

As Witnesses:

1. ……

2. ……

Signature _____
(duly authorised hereto by the researcher)

PRINT FIRST NAME AND SURNAME CLEARLY

Dr/Mr/Ms: _____

Capacity: _____

Signed at _____ on this _____day of _____

As Witnesses:

1. ……

2. ……

Signature _____

(duly authorised hereto by YOUR BUSINESS)

Dr/Mr/Ms: _____

Capacity: _____

Appendix 2

UNIVERSITY OF PRETORIA

Capital generation as a measurement of SME contribution to economic development

The following questionnaire is part of an extensive research study undertaken to investigate the impact of SMEs by analysing, *capital generation as a measurement of SME contribution to economic development*.

Based on economic theory a business will contribute to economic development if it can generate capital. The capital generation can be measured via

- Contribution to government tax,
- contribution to workers income,
- contribution to owners income and
- contribution to the growth of business assets

The research will have important relevance especially for government, banks, businesses and agencies developing the South African SME sector.

All business data will be treated as confidential and no reference will be made to the businesses contributing to the research except if requested. Business references to the data will be erased in order to protect business sensitive information.

Confidentiality agreements will be signed by the researcher, Johan Olivier. Businesses contributing to the research will be provided with a summary of the findings if required.

It will be appreciated it if you would complete it as thoroughly as possible. All information will be treated as confidential and will only be used for academic purposes.

Johan Olivier
DBAl Candidate
University of Pretoria
Tel: 083 327 3336

Study Leader:	Dr. Marius Pretorius Chair of Entrepreneurship Tel: (012) 420-3394 Cell: 082 822 6333

Questionnaire

General business information

Business name_____

Contact name: _____

Contact's designation: _____

Contacts details : Telephone(___)_____Fax(___)_____

Email address: _____

Physical address: _____

Would you like us to publish your business as a contributor to the research?

Mark the appropriate answer with an (x) in one of the open blocks below.

Yes	
No	

2. Do you require a confidentiality agreement?

Mark the appropriate answer with an (x) in one of the open blocks below.

Yes	
No	

3. Do you require a summary of the findings?

Mark the appropriate answer with an (x) in one of the open blocks below.

Yes	
No	

4. In which province is your main business located?

Mark the appropriate answer with an (x) in one of the open blocks below.

Gauteng	
Free State	
Western Cape	
Northern Cape	
Limpopo Province	
Mapumalanga	
KwaZulu-Natal	
North West	
Eastern Cape	

5. How many shareholders (owners, directors or members of a closed corporation) were working in the above businesses over the past 5 years?

Write the appropriate number in the open blocks below.

Year 1	
Year 2	
Year 3	
Year 4	
Year 5	

6. How many workers excluding shareholders were working in the above business over the past 5 years?

Write the appropriate number in the open blocks below.

Year 1	
Year 2	
Year 3	
Year 4	
Year 5	

7. Under which manufacturing sector would you classify your business?

Mark the appropriate block or blocks with a cross (X) or describe any alternative sector.	
Automotive and transport manufacturing	
General engineering manufacturing	
Chemical manufacturing	
Agricultural, forestry and fishing manufacturing	
Mining manufacturing	
General manufacturing	
Other (Please specify)	

8. Please provide the last 5 years audited financial statements if not available please complete section 8.1. If your business is younger than 5 years please provide the last year's data since operations started.

Please indicate from which year onward the information will be made available	
First year of audited statements provided	

Or

8.1 Complete the following data Tables with at least the last 5 years data as accurate as possible. If your business is younger than 5 years please provide the last years data since operations started.

Please indicate from which year onward the information will be completed

First year of audited statements provided	

8.1.1 This data will be used to calculate the business's contribution to **business tax**. The data used is available from your income statement as tax and loss/profit after tax.
(*The net loss if any is important since profits will be balanced with losses when taxes are paid.*)

Complete the appropriate blocks with the last 5 years data as described above.

Indicate losses as a negative (i.e. -1000)

Year	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
Business tax contribution									
Net loss/profit									

8.1.2 This data will be used to calculate the business's contribution to workers income. The data used is available from the income statement.

Complete the appropriate blocks with the last 5 years data as described above.

Year	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**	**2003**
Salaries (excluding directors and owners)									
Staff welfare									
Commissions									
Other Benefits									

8.1.3 This data will be used to calculate the business's contribution to shareholder income. The data is available from the income statement as directors or members salaries and dividends.

Complete the appropriate blocks with the last 5 years data as described above.

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total members/ shareholders salaries									
Dividends paid									

8.1.4 This data will be used to calculate the business's ability to grow its assist. The data is available from the balance sheet as total assets.

Complete the appropriate blocks with the last 5 years data as described above.

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003
Total assist									

End

Appendix 3

This table refer to all categories used for analysis

Reference	Age	Industry	Form	Province	Area	Employees
Business	Age	Industry	Form	Province	Area	AVG.
v1	v2	v3	v4	v5	v6	v7
3	10	3	1	2	3	2
20	4	1	1	1	5	5
12	6	2	1	2	4	7
24	4	6	1	2	6	6
29	3	5	1	1	5	6
16	2	5	1	2	3	4
27	7	6	1	2	6	14
25	8	1	1	2	6	10
11	5	2	2	2	4	30
26	8	6	1	2	6	14
2	4	2	1	1	2	17
23	3	2	1	2	6	16
10	9	6	2	2	4	10
38	12	7	1	1	5	10
36	23	3	2	1	5	12
39	3	7	1	1	5	11
28	21	6	2	1	5	13
37	10	1	1	1	5	24
35	3	4	1	1	7	12
32	9	10	3	2	6	13
8	6	5	2	2	4	16
21	6	7	2	2	3	14
17	2	2	1	2	3	13
30	3	4	1	1	7	15
43	8	6	2	2	6	34
4	5	4	2	2	3	19
9	10	2	1	2	4	20
45	7	1	2	1	1	20
42	32	1	2	2	6	28
1	4	1	1	1	1	24
22	10	11	1	2	6	18

Reference	Age	Industry	Form	Province	Area	Employees
Business	Age	Industry	Form	Province	Area	AVG.
15	7	1	2	1	2	30
19	3	8	1	2	3	25
33	4	8	2	1	5	32
7	30	1	2	2	4	35
13	10	5	1	2	4	35
40	8	1	2	1	1	41
41	10	9	2	2	6	39
5	5	2	2	2	4	56
44	20	7	2	1	1	64
31	13	1	2	2	6	96
18	20	7	2	2	3	41
6	7	3	2	2	4	87
14	3	1	2	1	1	90
34	8	7	1	1	1	124

Appendix 4

Appendix 4 refer to all the inflation corrected data for the individual businesses

Asset Growth Base Trend					Owners Income per owner base trend					Employees Income base trend					Tax Income base trend					
AGT1999/00	AGT2000/1	AGT2001/2	AGT2002/3	AGT2003/4	OIT1999/00	OIT2000/1	OIT2001/2	OIT2002/3	OIT2003/4	EIT1999/00	EIT2000/1	EIT2001/2	EIT2002/3	EIT2003/4	TIT1999/00	TIT2000/1	TIT2001/2	TIT2002/3	TIT2003/4	Business
v48	v49	v50	v51	v52	v53	v54	v55	v56	v57	v58	v59	v60	v61	v62	v63	v64	v65	v66	v67	V1
70000	75460	80440	87921	93900	5000	5390	5746	6280	6707	42000	45276	48264	52753	56340	0	0	0	0	0	3
	2000	2132	2330	2489		0	0	0	0		9320	9935	10859	11598		0	0	0	0	20
2500000	2695000	2872870	3140047	3353570	88000	94864	101125	110530	118046	12871	13875	14791	16167	17266	18789	20255	21591	23599	25204	12
	50000	53300	58257	62218		24000	25584	27963	29865		9000	9594	10486	11199		0	0	0	0	24
		150000	163950	175099			46000	50278	53697			12000	13116	14008			0	0	0	29
			7000	7476				0	0				1575	1682				3250	3471	16
210000	226380	241321	263764	281700	60000	64680	68949	75361	80486	24000	25872	27580	30144	32194	1610	1736	1850	2022	2160	27
140000	150920	160881	175843	187800	24000	25872	27580	30144	32194	8000	8624	9193	10048	10731	0	0	0	0	0	25
915000	986370	1051470	1149257	1227407	127500	137445	146516	160142	171032	42500	45815	48839	53381	57011	1634	1761	1878	2052	2192	11
35000	37730	40220	43961	46950	15000	16170	17237	18840	20121	4650	5013	5344	5840	6238	0	0	0	0	0	26
	218118	232514	254138	271419		46000	49036	53596	57241		15014	16005	17493	18683		30122	32110	35096	37483	2
		1322844	1445869	1544188			0	0	0			12825	14018	14971			0	0	0	23
882411	951240	1014021	1108325	1183691	0	0	0	0	0	6928	7469	7962	8702	9294	7000	7546	8044	8792	9390	10
250000	269500	287287	314005	335357	234225	252494	269159	294191	314196	43303	46680	49761	54389	58087	15200	16386	17467	19091	20390	38
1001200	1079294	1150527	1257526	1343038	420000	452760	482642	527528	563400	76364	82320	87753	95914	102436	300000	323400	344744	376806	402428	36
		20000	21860	23346			96000	104928	112063			1270	1388	1482			16340	17859	19074	39
2281683	2459654	2621991	2865836	3060713	1	1	1	1	1	56472	60876	64894	70929	75752	100130	107940	115064	125765	134317	28
230000	247940	264304	288884	308528	171934	185345	197578	215953	230638	28731	30972	33016	36087	38541	0	0	0	0	0	37
		60000	65580	70039			0	0	0			8000	8744	9339			0	0	0	35
72000	77616	82739	90433	96583	46000	49588	52861	57777	61706	21600	23285	24822	27130	28975	0	0	0	0	0	32
625000	673750	718218	785012	838393	72000	77616	82739	90433	96583	20844	22470	23953	26181	27961	0	0	0	0	0	8
4928491	5312913	5663566	6190277	6611216	387235	417439	444990	486374	519448	170180	183455	195562	213750	228285	52036	56095	59797	65358	69803	21
			39500	42186				8400	8971				7200	7690				0	0	17
		52000	56836	60701			0	0	0			34286	37474	40023			0	0	0	30
280000	301840	321761	351685	375600	75550	81443	86818	94892	101345	30000	32340	34474	37681	40243	198545	214032	228158	249376	266334	43
186662	201222	214502	234451	250394	6667	7187	7661	8373	8943	1389	1497	1596	1744	1863	5000	5390	5746	6280	6707	4
500000	539000	574574	628009	670714	13000	14014	14939	16328	17439	9000	9702	10342	11304	12073	0	0	0	0	0	9
12566	13546	14440	15783	16856	85550	92223	98310	107452	114759	28800	31046	33095	36173	38633	31434	33886	36122	39482	42166	45
230000	247940	264304	288884	308528	880000	948640	1011250	1105297	1180457	16696	17998	19186	20970	22396	1465	1579	1684	1840	1965	42

Asset Growth Base Trend					Owners Income per owner base trend					Employees Income base trend					Tax Income base trend					
AGT1999/00	AGT2000/1	AGT2001/2	AGT2002/3	AGT2003/4	OIT1999/00	OIT2000/1	OIT2001/2	OIT2002/3	OIT2003/4	EIT1999/00	EIT2000/1	EIT2001/2	EIT2002/3	EIT2003/4	TIT1999/00	TIT2000/1	TIT2001/2	TIT2002/3	TIT2003/4	Business
	166326	177304	193793	206971		19000	20254	22138	23643		16125	17189	18788	20065		789	841	919	982	1
300000	323400	344744	376806	402428	46000	49588	52861	57777	61706	420000	452760	482642	527528	563400	7000	7546	8044	8792	9390	22
3500000	3773000	4022018	4396066	4694998	96000	103488	110318	120578	128777	48989	52810	56295	61531	65715	70000	75460	80440	87921	93900	15
		3000000	3279000	3501972			46000	50278	53697			1680	1836	1961			0	0	0	19
	10500000	11193000	12233949	13065858		46000	49036	53596	57241		60327	64308	70289	75069		35000	37310	40780	43553	33
3663000	3948714	4209329	4600797	4913651	46000	49588	52861	57777	61706	55139	59440	63363	69256	73965	0	0	0	0	0	7
207117	223272	238008	260143	277833	0	0	0	0	0	9514	10256	10933	11950	12763	0	0	0	0	0	13
16000	17248	18386	20096	21463	54444	58691	62564	68383	73033	25667	27669	29495	32238	34430	834000	899052	958389	1047520	1118751	40
1300000	1401400	1493892	1632824	1743856	0	0	0	0	0	11261	12139	12941	14144	15106	0	0	0	0	0	41
3500000	3773000	4022018	4396066	4694998	150000	161700	172372	188403	201214	28696	30934	32976	36042	38493	200000	215600	229830	251204	268286	5
21000	22638	24132	26376	28170	775550	836043	891222	974105	1040345	22000	23716	25281	27632	29511	76543	82513	87959	96139	102677	44
2900000	3126200	3332529	3642454	3890141	520000	560560	597557	653130	697543	47667	51385	54776	59870	63941	700000	754600	804404	879213	939000	31
12000000	12936000	13789776	15072225	16097136	250000	269500	287287	314005	335357	3846	4146	4420	4831	5159	0	0	0	0	0	18
5208000	5614224	5984763	6541346	6986157	46000	49588	52861	57777	61706	36535	39384	41984	45888	49008	0	0	0	0	0	6
		9332078	10199962	10893559			40000	43720	46693			21726	23746	25361			0	0	0	14
21500000	23177000	24706682	27004403	28840703	1375447	1482732	1580592	1727587	1845063	130995	141213	150533	164532	175720	0	0	0	0	0	34

Appendix 5

Appendix 7 refer to the Deflated base data as retrieved from the various businesses

Asset Growth					Owners Income per owner					Employees Income					Tax Income					
AG1999/00	AG2000/1	AG2001/2	AG2002/3	AG2003/4	OI1999/00	OI2000/1	OI2001/2	OI2002/3	OI2003/4	EI1999/00	EI2000/1	EI2001/2	EI2002/3	EI2003/4	TI1999/00	TI2000/1	TI2001/2	TI2002/3	TI2003/4	Business
v8	v9	v10	v11	v12	v13	v14	v15	v16	v17	v18	v19	v20	v21	v22	v23	v24	v25	v26	v27	V1
70000	70000	91000	89000	90000	5000	12525	0	0	0	42000	42000	42000	40000	40000	0	0	0	0	0	1
	2000	2000	2000	2000		0	0	0	0		9320	6480	14400	19200		0	0	0	0	2
2500000	1900000	1060000	1450000	1390000	88000	88000	88000	94000	240000	12871	13223	15002	12210	12077	18789	27115	42351	14551	130000	3
	50000	50000	50000	50000		24000	24000	24000	24000		9000	4500	8000	8400		0	0	4300	3000	4
		150000	2000000	250000			46000	24000	42000			12000	12000	17333			0	0	0	5
			7000	11000				0	0				1575	1575				3250	350	6
210000	512000	2000000	2003000	3023000	60000	60000	180000	180000	240000	24000	24000	16473	16909	17143	1610	8000	8120	16200	19000	7
140000	300000	800000	900000	1100000	24000	26400	37200	34800	36120	8000	7680	8400	7385	9680	0	0	0	183490	18100	8
915000	2100000	2500000	5240000	6000000	127500	127500	41500	241500	241500	42500	24309	30882	350000	400000	1634	180000	114000	488000	381000	9
35000	40000	45200	55120	60000	15000	16800	18000	21600	24000	4650	4286	6857	7145	8143	0	0	2000	0	8000	10
	218118	259885	405418	430000		46000	48000	72000	74000		15014	11720	10841	1111		30122	34633	35267	40134	11
		1322844	1262844	1276844			0	0	0			12825	9537	8482			0	0	42000	12
882411	882411	882411	1066411	1026411	0	0	0	0	0	6928	7698	8554	9504	10560	7000	0	1564	1899	7387	13
250000	250000	250000	250000	250000	234225	249175	265080	282000	300000	43303	48114	53460	59400	66000	15200	26100	25100	30000	30000	14
1001200	1002000	1000100	1100000	1000000	420000	420000	300000	300000	240000	76364	77455	79636	80000	96000	300000	300000	300000	200000	100000	15
		20000	40000	180000			96000	96000	132000			1270	1380	1500			16340	17859	19074	16
2281683	2352250	2425000	2500000	4000000	1	0	0	0	0	56472	57624	58800	60000	96000	100130	90000	123000	110000	300000	17
230000	600000	1200000	1660000	1869000	171934	186885	203136	220800	240000	28731	31229	33945	36897	40105	0	23000	58000	83000	90000	18
		60000	70000	150000			0	0	0			8000	8000	11077			0	0	0	19
72000	72000	72000	72000	72000	46000	36000	36000	36000	36000	21600	23077	23077	24000	26000	0	0	0	5480	0	20
625000	625000	625000	625000	660000	72000	72000	72000	72000	72000	20844	20529	21870	21600	21600	0	0	0	0	0	21
4928491	6354617	7327414	7647386	7471368	387235	415759	384309	850331	525157	170180	231310	245494	305319	310730	52036	82663	623139	0	120407	22
			39500	256362				8400	12000				7200	12000				0	0	23
		52000	63400	80000			0	0	20000			34286	32000	49600			0	0	0	24
280000	150000	250000	250000	300000	75550	85550	85550	88550	95550	30000	30000	30000	27857	30000	198545	354887	451287	326543	298465	25
186662	188773	201728	119424	197654	6667	9667	10260	10050	11293	1389	1442	13711	14395	16774	5000	11000	0	98012	9467	26
500000	550000	600000	650000	750000	13000	14000	15000	16000	16000	9000	9600	10200	10800	10800	0	0	0	0	3500	27
12566	15556	19000	19877	19800	85550	300017	303350	300000	306667	28800	30000	30000	30000	33000	31434	34445	34683	25367	25000	28

Asset Growth					Owners Income per owner					Employees Income					Tax Income					
AG1999/00	AG2000/1	AG2001/2	AG2002/3	AG2003/4	OI1999/00	OI2000/1	OI2001/2	OI2002/3	OI2003/4	EI1999/00	EI2000/1	EI2001/2	EI2002/3	EI2003/4	TI1999/00	TI2000/1	TI2001/2	TI2002/3	TI2003/4	Business
230000	250000	280000	240000	180000	880000	440000	440000	440000	440000	16696	17647	20625	27692	30000	1465	33122	107899	199345	58966	29
	166326	554179	902245	910200		19000	24000	0	24000		16125	16884	15621	15875		789	0	0	3300	30
300000	310000	310100	203000	201000	46000	120000	120000	192000	0	420000	360000	360000	240000	120000	7000	14000	12000	0	0	31
3500000	3500000	3700000	3700000	4500000	96000	96000	96000	96000	96000	48989	54432	60480	67200	68800	70000	80000	80000	110000	200500	32
		3000000	3200000	3200000			46000	12000	100000			1680	2000	2077			0	0	8000	33
	10500000	10800000	11000000	11500000		46000	64868	69750	75000		60327	64868	69750	75000		35000	0	344000	90100	34
3663000	3586000	3715000	3101000	5086000	46000	46000	153500	192500	227500	55139	59999	64515	66895	77579	0	75000	113000	990000	250000	35
207117	218118	259885	405418	412000	0	0	0	0	0	9514	12571	11686	12857	24286	0	0	0	70000	80000	36
16000	40000	95000	140000	230000	54444	56778	60166	60166	70000	25667	27000	27000	29334	30000	834000	764333	98133	900012	943222	37
1300000	1300000	1300000	1300000	1300000	0	0	0	0	0	11261	12109	13020	14308	16216	0	0	0	0	0	38
3500000	5400000	6100000	6200000	6400000	150000	150000	175000	200000	250000	28696	28696	21379	21379	23571	200000	210000	400000	640000	690000	39
21000	25000	150000	550000	434000	775550	392775	295183	296183	298517	22000	24933	27508	27508	34182	76543	43566	27897	55267	60455	40
2900000	3600000	4250000	8900000	11400000	520000	107143	128571	700000	900000	47667	49429	50000	56667	57143	700000	1000000	1200000	1800000	2400000	41
12000000	11500000	11000000	11500000	10000000	250000	250000	250000	280000	300000	3846	3333	5833	5000	6250	0	20000	30000	40000	50000	42
5208000	4685000	5408000	5018000	536000	46000	140500	153500	192500	227500	36535	39755	42747	51424	52391	0	0	339000	308000	515000	43
		9332078	11405874	10368976			40000	48000	72000			21726	22458	22652			0	0	0	44
21500000	21920000	22390400	22917248	23507318	1375447	487747	518880	564000	600000	130995	139356	155664	178105	200000	0	0	0	50000	100000	45

Appendix 6

Appendix 7 refer to all the employment data used for analysis, indicating the number of people employed during each year per business

Employees					Reference
E1999/00	Business	E2001/2	E2002/3	E2003/4	Company
v68	v1	v70	v71	v72	V1
2	3	2	3	3	3
	20	3	6	8	20
3	12	6	8	13	12
	24	8	6	5	24
	29	4	4	9	29
	16		4	4	16
5	27	11	22	28	27
6	25	9	13	15	25
6	11	34	40	50	11
8	26	14	22	14	26
	2	14	22	23	2
	23	8	19	22	23
10	10	10	10	10	10
10	38	10	10	10	38
11	36	11	9	5	36
	39	11	11	11	39
12	28	12	12	15	28
12	37	24	30	38	37
	35	12	12	13	35
13	32	13	13	12	32
13	8	16	18	20	8
14	21	14	14	14	21
	17		15	10	17

Employees					Reference
E1999/00	Business	E2001/2	E2002/3	E2003/4	Company
	30	14	15	15	30
18	43	20	56	56	43
18	4	20	0	20	4
20	9	20	20	20	9
20	45	20	20	20	45
23	42	32	26	26	42
	1	25	24	24	1
25	22	20	18	4	22
25	15	25	25	25	15
	19	25	25	26	19
	33	32	32	32	33
33	7	33	38	38	7
35	13	35	35	35	13
36	40	40	45	48	40
39	41	39	39	37	41
46	5	58	58	70	5
60	44	65	65	66	44
60	31	92	120	140	31
65	18	30	30	20	18
83	6	83	92	92	6
	14	92	89	89	14
105	34	100	95	90	34

Appendix 7

The results of the statistical analysis of the data as performed by the Department of statistics at the University of Pretoria

```
PROGRAM - NORM DTA - TWEEDE METODE
title1 'O18B';
*-------------------------------------------------------------
------------*
|O18B SAS - Proc GLM
|
| Data: NORM     DTA A
|
*-------------------------------------------------------------
------------*;
options linesize=73;
DATA d1;
set dta.norm;
*if v1¬=' ';

jasset=0;
jowner=0;
jemp  =0;
jtax  =0;
array ver1 (j) v8 -v12;
array ver2 (j) v13-v17;
array ver3 (j) v18-v22;
array ver4 (j) v23-v27;
do over ver1;
        if ver1>=0 then  jasset+1;
        if ver2>=0 then  jowner+1;
        if ver3>=0 then  jemp  +1;
        if ver4>=0 then  jtax  +1;
        end;

wasset=mean(of v8 -v12);
wowner=sum(of v13-v17);
iowner=sum(of v53-v57);
rowner=((wowner-iowner)/jowner)/wasset;
wemp  =sum(of v18-v22);
iemp  =sum(of v58-v62);
remp  =((wemp-iemp)/jemp)/wasset;
wtax  =sum(of v23-v27);
itax  =sum(of v63-v67);
```

```
rtax  =((wtax-itax)/jtax)/wasset;
wtot=sum(of wowner wemp wtax);
itot=sum(of iowner iemp itax);
rtot  =((wtot-itot)/jemp)/wasset;


if v68>0 then begin = v68;
else if v69>0 then begin = v69;
else if v70>0 then begin = v70;
else if v71>0 then begin = v71;
else if v72>0 then begin = v72;
if 1<=begin<=19 then size='Klein';
if    begin>=20 then size='Groot';
if 1 <=v2<=5  then oud=' 1 -5 ';
if 6 <=v2<=10 then oud=' 6 -10';
if     v2>=11 then oud='11+   ';

proc print data=d1(obs=3);

proc glm data=d1;
class size oud  ;
model rowner = size|oud  jowner / ss3;
means size|oud  ;
lsmeans size|oud         / stderr pdiff;
title2 ' J Olivier - ANOVA';
title3 'NORM DTA             ';

proc glm data=d1;
class size oud  ;
model remp   = size|oud  jemp   / ss3;
means size|oud  ;
lsmeans size|oud         / stderr pdiff;
title2 ' J Olivier - ANOVA';
title3 'NORM DTA             ';

proc glm data=d1;
class size oud ;
model rtax   = size|oud  jtax   / ss3;
means size|oud        ;
lsmeans size|oud         / stderr pdiff;
title2 ' J Olivier - ANOVA';
title3 'NORM DTA             ';

proc glm data=d1;
class size oud ;
model rtot   = size|oud  jemp   / ss3;
means size|oud        ;
```

```
lsmeans size|oud         / stderr pdiff;
title2 ' J Olivier - ANOVA';
title3 'NORM DTA             ';

RESULTATE
1                                   O18B
1
                                              10:40 Tuesday,
October 4, 2005

 Obs v1 v2 v4 v5   v7    v8    v9     v10    v11    v12
v13  v14    v15

   1  1  4  1  1 24.25     . 166326 554179 902245 910200
. 19000 24000
   2  2  4  1  1 16.75     . 218118 259885 405418 430000
. 46000 48000
   3  3 10  1  2  2.40 70000  70000  91000  89000  90000
5000 12525     0

 Obs   v16   v17  v18     v19      v20      v21      v22
v23   v24   v25

   1     0 24000     . 16124.79 16884.32 15620.92 15875.00
.    789     0
   2 72000 74000     . 15013.88 11720.07 10841.14 13330.43
.  30122 34633
   3     0     0 42000 42000.00 42000.00 40000.00 40000.00
0      0     0

 Obs   v26   v27  v48    v49     v50       v51       v52
v53  v54

   1     0  3300     . 166326 177303.52 193792.74 206970.65
. 19000
   2 35267 40134     . 218118 232513.79 254137.57 271418.93
. 46000
   3     0     0 70000  75460  80440.36  87921.31  93899.96
5000  5390

 Obs    v55      v56      v57    v58     v59      v60
v61      v62

   1 20254.00 22137.62 23642.98     . 16124.79 17189.03
18787.61 20065.16
   2 49036.00 53596.35 57240.90     . 15013.88 16004.79
17493.24 18682.78
```

```
   3  5745.74  6280.09  6707.14 42000 45276.00 48264.22
52752.79 56339.98

 Obs v63   v64      v65      v66      v67 v68 v69 v70 v71
v72 v73 v74

   1  .    789   841.07   919.29   981.81  .   24  25  24
24  .   2
   2  .  30122 32110.05 35096.29 37482.83  .    8  14  22
23  .   1
   3  0      0     0.00     0.00     0.00  2    2   2   3
3  4   4

 Obs v75 v76 v77 v78 v79 jasset jowner jemp jtax j   wasset
wowner

   1  2   2   2   1   1     4      4     4    4  6
633237.50  67000
   2  1   1   1   1   2     4      4     4    4  6
328355.25 240000
   3  4   4   4   2   1     5      5     5    5  6
82000.00  17525

 Obs   iowner    rowner     wemp      iemp      remp
wtax      itax

   1  85034.60 -0.007120  64505.03  72166.59 -0.003025
4089   3531.17
   2 205873.25  0.025983  50905.52  67194.68 -0.012402
140156 134811.17
   3  29122.97 -0.028288 206000.00 244632.98 -0.094227
0      0.00

 Obs       rtax     wtot       itot      rtot    begin
size    oud

   1 .000220228  135594.03  160732.37  -0.00992    24
Groot  1 -5
   2 .004069393  431061.52  407879.10   0.01765     8
Klein  1 -5
   3          0  223525.00  273755.96  -0.12251     2
Klein  6 -10
1                                 O18B
2
                              J Olivier - ANOVA
                            NORM DTA
```

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The GLM Procedure

Class Level Information

Class	Levels	Values
size	2	Groot Klein
oud	3	1 -5 6 -10 11+

Number of observations 45

1 O18B 3

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The GLM Procedure

Dependent Variable: rowner

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	6	12.54517340	2.09086223	0.99	0.4452
Error	38	80.18019565	2.11000515		
Corrected Total	44	92.72536905			

R-Square	Coeff Var	Root MSE	rowner Mean
0.135294	1281.083	1.452586	0.113387

Source	DF	Type III SS	Mean Square	F Value	Pr > F

```
 size                          1    0.05535554    0.05535554
0.03  0.8722
 oud                           2    5.21253714    2.60626857
1.24  0.3022
 size*oud                      2    5.27972557    2.63986279
1.25  0.2977
 jowner                        1    0.00018792    0.00018792
0.00  0.9925
1                                        O18B
4

                              J Olivier - ANOVA
                            NORM DTA
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                               The GLM Procedure

 Level of        ----------rowner----------   ----------
jowner----------
 size         N            Mean        Std Dev            Mean
Std Dev

 Groot       19     0.26795739     2.25853770     4.68421053
0.67103830
 Klein       26     0.00043220     0.06980731     4.26923077
1.04144870


 Level of        ----------rowner----------   ----------
jowner----------
 oud          N            Mean        Std Dev            Mean
Std Dev

 1 -5        17     0.02036768     0.04987208     3.52941176
0.94324222
 6 -10       20     0.45634806     2.05564354     5.00000000
0.00000000
 11+          8    -0.54634804     0.95739931     5.00000000
0.00000000


 Level of Level of    ----------rowner---------- ----------
jowner---------
 size     oud       N          Mean      Std Dev
Mean      Std Dev
```

```
 Groot    1 -5      5  -0.00046407   0.00374156
3.80000000   0.83666003
 Groot    6 -10     9   1.03190048   3.05813832
5.00000000   0.00000000
 Groot    11+       5  -0.83871870   1.14714194
5.00000000   0.00000000
 Klein    1 -5      12   0.02904758   0.05773427
3.41666667   0.99620492
 Klein    6 -10     11  -0.01455846   0.07030613
5.00000000   0.00000000
 Klein    11+       3  -0.05906360   0.08004388
5.00000000   0.00000000
1                                  O18B
5

                            J Olivier - ANOVA
                          NORM DTA
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                            The GLM Procedure
                           Least Squares Means


H0:LSMean1=
                    rowner         Standard    H0:LSMEAN=0
LSMean2
    size            LSMEAN            Error       Pr > |t|
Pr > |t|

    Groot       0.06481501       0.35149638          0.8547
0.8722
    Klein      -0.01475534       0.34513374          0.9661


                        rowner         Standard
LSMEAN
       oud              LSMEAN            Error    Pr > |t|
Number

       1 -5         0.01119697       0.50694865       0.9825
1
       6 -10        0.51072735       0.39248394       0.2010
2
       11+         -0.44683481       0.57342109       0.4407
3
```

Least Squares Means for effect oud
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: rowner

i/j	1	2	3
1		0.5062	0.5947
2	0.5062		0.1325
3	0.5947	0.1325	

NOTE: To ensure overall protection level, only probabilities associated with pre-planned comparisons should be used.

size	oud	Number	rowner LSMEAN	Standard Error	Pr > |t|	LSMEAN Number
Groot	1 -5		-0.00284942	0.69705599	0.9968	1
Groot	6 -10		1.03395682	0.53096398	0.0589	2
Groot	11+		-0.83666236	0.68518520	0.2296	3
Klein	1 -5		0.02524335	0.58165822	0.9656	4
Klein	6 -10		-0.01250212	0.48917929	0.9797	5
Klein	11+		-0.05700726	0.86649453	0.9479	6

1 O18B 6

J Olivier - ANOVA
NORM DTA

10:40 Tuesday, October 4, 2005

The GLM Procedure

Least Squares Means

Least Squares Means for effect size*oud
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: rowner

i/j	1	2	3	4	5	6
1		0.2755	0.4242	0.9717	0.9916	0.9630
2	0.2755		0.0265	0.2653	0.1173	0.2670
3	0.4242	0.0265		0.3902	0.2995	0.4669
4	0.9717	0.2653	0.3902		0.9655	0.9421
5	0.9916	0.1173	0.2995	0.9655		0.9627
6	0.9630	0.2670	0.4669	0.9421	0.9627	

NOTE: To ensure overall protection level, only probabilities associated
with pre-planned comparisons should be used.
1 O18B
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J Olivier - ANOVA
NORM DTA
10:40 Tuesday, October 4, 2005

The GLM Procedure

Class Level Information

Class	Levels	Values
size	2	Groot Klein
oud	3	1 -5 6 -10 11+

Number of observations 45

The GLM Procedure

Dependent Variable: remp

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	6	0.19062847	0.03177141	0.93	0.4831
Error	38	1.29471361	0.03407141		
Corrected Total	44	1.48534208			

R-Square	Coeff Var	Root MSE	remp Mean
0.128340	-5840.117	0.184584	-0.003161

Source	DF	Type III SS	Mean Square	F Value	Pr > F
size	1	0.03275003	0.03275003	0.96	0.3331
oud	2	0.09607329	0.04803665	1.41	0.2567
size*oud	2	0.01344556	0.00672278	0.20	0.8218
jemp	1	0.02516753	0.02516753	0.74	0.3955

The GLM Procedure

Level of jemp	----------remp----------			----------	
size	N	Mean	Std Dev	Mean	Std Dev
Groot	19	-0.04853483	0.16689806	4.68421053	0.67103830
Klein	26	0.02999744	0.19144182	4.26923077	1.04144870

Level of jemp	----------remp----------			----------	
oud	N	Mean	Std Dev	Mean	Std Dev
1 -5	17	0.05248224	0.23482836	3.52941176	0.94324222
6 -10	20	-0.05303581	0.16220967	5.00000000	0.00000000
11+	8	0.00328622	0.00743996	5.00000000	0.00000000

Level of size	Level of oud	----------remp---------- N	Mean	Std Dev	---------- Mean	Std Dev
Groot	1 -5	5	-0.00105717	0.00126137	3.80000000	0.83666003
Groot	6 -10	9	-0.10396067	0.23681393	5.00000000	0.00000000
Groot	11+	5	0.00375403	0.00605812	5.00000000	0.00000000
Klein	1 -5	12	0.07479033	0.27993493	3.41666667	0.99620492
Klein	6 -10	11	-0.01137001	0.02973944	5.00000000	0.00000000
Klein	11+	3	0.00250654	0.01090299	5.00000000	0.00000000

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J Olivier - ANOVA

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The GLM Procedure
Least Squares Means

H0:LSMean1=

size	remp LSMEAN	Standard Error	H0:LSMEAN=0 Pr > |t|	H0:LSMean1=LSMean2 Pr > |t|
Groot	-0.04041778	0.04466570	0.3712	0.3331
Klein	0.02078577	0.04385718	0.6383	

oud	remp LSMEAN	Standard Error	Pr > |t|	LSMEAN Number
1 -5	0.07268117	0.06441949	0.2663	1
6 -10	-0.08146241	0.04987411	0.1107	2
11+	-0.02066679	0.07286634	0.7782	3

Least Squares Means for effect oud
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: remp

i/j	1	2	3
1		0.1114	0.3949
2	0.1114		0.4471
3	0.3949	0.4471	

NOTE: To ensure overall protection level, only probabilities associated
with pre-planned comparisons should be used.

size	oud	remp LSMEAN	Standard Error	Pr > |t|	LSMEAN Number
Groot	1 -5	0.02654744	0.08857700	0.7660	1
Groot	6 -10	-0.12775775	0.06747119	0.0659	2
Groot	11+	-0.02004304	0.08706854	0.8192	3
Klein	1 -5	0.11881491	0.07391306	0.1162	4
Klein	6 -10	-0.03516708	0.06216148	0.5749	5
Klein	11+	-0.02129053	0.11010806	0.8477	6

1 O18B
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J Olivier - ANOVA
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The GLM Procedure
Least Squares Means

Least Squares Means for effect size*oud
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: remp

i/j	1	2	3	4	5	6
1		0.2028	0.7244	0.3624	0.5982	0.7474
2	0.2028		0.3021	0.0359	0.2714	0.3924

```
     3      0.7244      0.3021                 0.2774
0.8801      0.9927
     4      0.3624      0.0359      0.2774
0.1708      0.3331
     5      0.5982      0.2714      0.8801      0.1708
0.9087
     6      0.7474      0.3924      0.9927      0.3331
0.9087


 NOTE: To ensure overall protection level, only
probabilities associated
       with pre-planned comparisons should be used.
1                                    O18B
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                             J Olivier - ANOVA
                           NORM DTA
                                                 10:40 Tuesday,
October 4, 2005

                             The GLM Procedure

                          Class Level Information

                  Class         Levels    Values

                  size               2    Groot Klein

                  oud                3    1 -5 6 -10 11+


                       Number of observations    45
1                                    O18B
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                             J Olivier - ANOVA
                           NORM DTA
                                                 10:40 Tuesday,
October 4, 2005

                             The GLM Procedure

 Dependent Variable: rtax

                                        Sum of
 Source                      DF       Squares    Mean Square
F Value  Pr > F
```

Model	6	0.84748894	0.14124816	0.89 0.5087
Error	38	5.99984830	0.15789074	
Corrected Total	44	6.84733725		

R-Square	Coeff Var	Root MSE	rtax Mean
0.123769	-1006.764	0.397355	-0.039469

Source	DF	Type III SS	Mean Square	F Value	Pr > F
size	1	0.07445861	0.07445861	0.47	0.4964
oud	2	0.21323525	0.10661763	0.68	0.5150
size*oud	2	0.38748169	0.19374085	1.23	0.3045
jtax	1	0.02487943	0.02487943	0.16	0.6936

The GLM Procedure

Level of size	N	rtax Mean	rtax Std Dev	jtax Mean	jtax Std Dev
Groot	19	-0.12342411	0.59681716	4.68421053	0.67103830
Klein	26	0.02188366	0.09035833	4.26923077	1.04144870

```
 Level of        ------------rtax-----------   ------------
jtax-----------
 oud          N            Mean         Std Dev            Mean
Std Dev

 1 -5        17      0.00564971      0.05487163      3.52941176
0.94324222
 6 -10       20     -0.10789996      0.58372556      5.00000000
0.00000000
 11+          8      0.03573391      0.14720309      5.00000000
0.00000000


 Level of Level of    -----------rtax---------- -----------
jtax----------
 size     oud        N          Mean       Std Dev
Mean       Std Dev

 Groot    1 -5       5    0.00870681    0.01517202
3.80000000    0.83666003
 Groot    6 -10      9   -0.30456792    0.84523277
5.00000000    0.00000000
 Groot    11+        5    0.07050383    0.17643258
5.00000000    0.00000000
 Klein    1 -5      12    0.00437592    0.06549627
3.41666667    0.99620492
 Klein    6 -10     11    0.05301019    0.11212052
5.00000000    0.00000000
 Klein    11+        3   -0.02221596    0.07432408
5.00000000    0.00000000
1                                    O18B
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                            J Olivier - ANOVA
                          NORM DTA
                                                10:40 Tuesday,
October 4, 2005

                            The GLM Procedure
                           Least Squares Means


H0:LSMean1=
                                      Standard    H0:LSMEAN=0
LSMean2
    size       rtax LSMEAN            Error        Pr > |t|
Pr > |t|
```

```
    Groot      -0.08174403      0.09615180          0.4006
0.4964
    Klein       0.01054036      0.09441131          0.9117


                                          Standard
LSMEAN
       oud        rtax LSMEAN            Error     Pr > |t|
Number

       1 -5        0.04215038      0.13867576       0.7628
1
       6 -10      -0.14943933      0.10736395       0.1720
2
       11+         0.00048346      0.15685929       0.9976
3


                  Least Squares Means for effect oud
                 Pr > |t| for H0: LSMean(i)=LSMean(j)

                        Dependent Variable: rtax

              i/j              1              2
3

                 1                      0.3526
0.8593
                 2         0.3526
0.3844
                 3         0.8593         0.3844


 NOTE: To ensure overall protection level, only
probabilities associated
       with pre-planned comparisons should be used.


                                              Standard
LSMEAN
  size      oud        rtax LSMEAN            Error     Pr >
|t|      Number

  Groot     1 -5        0.03615296       0.19067961
0.8506            1
  Groot     6 -10      -0.32822839       0.14524515
0.0296            2
```

```
  Groot    11+         0.04684335      0.18743235
0.8040             3
  Klein    1 -5        0.04814779      0.15911255
0.7638             4
  Klein    6 -10       0.02934972      0.13381495
0.8276             5
  Klein    11+        -0.04587643      0.23702950
0.8476             6


1                                   O18B
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                              J Olivier - ANOVA
                            NORM DTA
                                                  10:40 Tuesday,
October 4, 2005

                              The GLM Procedure
                             Least Squares Means

                  Least Squares Means for effect size*oud
                    Pr > |t| for H0: LSMean(i)=LSMean(j)

                              Dependent Variable: rtax

  i/j            1           2           3           4
5           6

     1                 0.1633      0.9700      0.9559
0.9784      0.7975
     2      0.1633                 0.0988      0.1313
0.0524      0.2932
     3      0.9700      0.0988                 0.9962
0.9354      0.7511
     4      0.9559      0.1313      0.9962
0.9373      0.7616
     5      0.9784      0.0524      0.9354      0.9373
0.7729
     6      0.7975      0.2932      0.7511      0.7616
0.7729


 NOTE: To ensure overall protection level, only
probabilities associated
       with pre-planned comparisons should be used.
1                                   O18B
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```

J Olivier - ANOVA
NORM DTA
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The GLM Procedure

Class Level Information

Class	Levels	Values
size	2	Groot Klein
oud	3	1 -5 6 -10 11+

Number of observations 45
1 O18B
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J Olivier - ANOVA
NORM DTA
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The GLM Procedure

Dependent Variable: rtot

Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	6	6.45310342	1.07551724	0.49	0.8152
Error	38	84.23507455	2.21671249		
Corrected Total	44	90.68817797			

R-Square	Coeff Var	Root MSE	rtot Mean
0.071157	2104.158	1.488863	0.070758

Source	DF	Type III SS	Mean Square	F Value	Pr > F
size	1	0.04776986	0.04776986	0.02	0.8841
oud	2	3.04467035	1.52233518	0.69	0.5093
size*oud	2	2.55660591	1.27830296	0.58	0.5666
jemp	1	0.09160694	0.09160694	0.04	0.8400

1 O18B

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J Olivier - ANOVA
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The GLM Procedure

Level of size	N	rtot Mean	rtot Std Dev	jemp Mean	jemp Std Dev
Groot	19	0.09599846	2.22874694	4.68421053	0.67103830
Klein	26	0.05231330	0.22410673	4.26923077	1.04144870

Level of oud	N	rtot Mean	rtot Std Dev	jemp Mean	jemp Std Dev
1 -5	17	0.07849964	0.24257854	3.52941176	0.94324222
6 -10	20	0.29541230	2.05139379	5.00000000	0.00000000
11+	8	-0.50732791	0.93401431	5.00000000	0.00000000

Level of size	Level of oud	rtot Mean	rtot Std Dev	jemp Mean	jemp Std Dev

size	oud	N	Mean	Std Dev	Mean	Std Dev
Groot	1 -5	5	0.00718558	0.01716912	3.80000000	0.83666003
Groot	6 -10	9	0.62337189	3.12234944	5.00000000	0.00000000
Groot	11+	5	-0.76446084	1.13725884	5.00000000	0.00000000
Klein	1 -5	12	0.10821383	0.28672235	3.41666667	0.99620492
Klein	6 -10	11	0.02708172	0.14267198	5.00000000	0.00000000
Klein	11+	3	-0.07877301	0.16075412	5.00000000	0.00000000

1 O18B
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J Olivier - ANOVA
NORM DTA
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The GLM Procedure
Least Squares Means

H0:LSMean1=

size	rtot LSMEAN	Standard Error	H0:LSMEAN=0 Pr > |t|	LSMean2 Pr > |t|
Groot	-0.05734680	0.36027472	0.8744	0.8841
Klein	0.01657078	0.35375318	0.9629	

oud	rtot LSMEAN	Standard Error	LSMEAN Pr > |t|	Number
1 -5	0.12602852	0.51960928	0.8097	1
6 -10	0.27982560	0.40228591	0.4909	2

```
       11+       -0.46701814      0.58774181      0.4318
3


                    Least Squares Means for effect oud
                   Pr > |t| for H0: LSMean(i)=LSMean(j)

                         Dependent Variable: rtot

              i/j              1              2
3

                  1                      0.8413
0.5020
                  2         0.8413
0.2493
                  3         0.5020         0.2493


 NOTE: To ensure overall protection level, only
probabilities associated
       with pre-planned comparisons should be used.


                                                Standard
LSMEAN
  size      oud       rtot LSMEAN           Error     Pr >
|t|      Number

  Groot    1 -5        0.05985098      0.71446440
0.9337            1
  Groot    6 -10       0.57797068      0.54422437
0.2949            2
  Groot    11+        -0.80986205      0.70229714
0.2560            3
  Klein    1 -5        0.19220606      0.59618466
0.7489            4
  Klein    6 -10      -0.01831948      0.50139614
0.9710            5
  Klein    11+        -0.12417422      0.88813453
0.8895            6


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                             J Olivier - ANOVA
                           NORM DTA
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The GLM Procedure
Least Squares Means

Least Squares Means for effect size*oud
Pr > |t| for H0: LSMean(i)=LSMean(j)

Dependent Variable: rtot

i/j	1	2	3	4	5	6
1		0.5927	0.4162	0.8706	0.9339	0.8779
2	0.5927		0.1029	0.6755	0.3785	0.4836
3	0.4162	0.1029		0.3305	0.3305	0.5321
4	0.8706	0.6755	0.3305		0.8142	0.7852
5	0.9339	0.3785	0.3305	0.8142		0.9137
6	0.8779	0.4836	0.5321	0.7852	0.9137	

NOTE: To ensure overall protection level, only probabilities associated
with pre-planned comparisons should be used.

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