

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

**Johan - Paul Olivier**

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

by

Johan - Paul Olivier

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

Study leader: Dr. Marius Pretorius

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.

## Table of Contents

<b>Preface</b>	<b>iii</b>
<b>Synopsis</b>	<b>iv</b>
<b>Chapter 1: Introduction</b>	<b>13</b>
1.1 <i>Background</i>	13
1.2 <i>Research problem</i>	17
1.3 <i>Problem statement</i>	21
1.4 <i>Research questions</i>	22
1.5 <i>Research objective</i>	23
1.6 <i>Approach</i>	24
1.7 <i>Benefits of the study</i>	25
1.8 <i>Nature and form of results</i>	26
1.9 <i>Conclusion</i>	27
<b>Chapter 2: Defining a Small Business in South Africa</b>	<b>28</b>
2.1 <i>Introduction</i>	28
2.2 <i>Delimitation and scope of the study</i>	30
2.3 <i>Geographical area</i>	30
2.4 <i>Industry</i>	32
2.5 <i>Definitions</i>	33
2.5.1    Local definitions of small business	33
2.5.2    Informal business sector	36
2.5.3    Survivalist businesses	39
2.5.4    Micro-enterprises	40
2.5.5    Very small businesses	40
2.5.6    Small businesses	41
2.5.7    Medium-sized businesses	41
2.6 <i>Contract-grading as a measure of validating small business definitions</i>	43
2.6.1    South Africa	43
2.6.2    United States	46
2.6.3    India	47
2.6.4    Europe	48
2.7 <i>International definitions</i>	49
2.7.1    Background	49
2.8 <i>Analysis of definitions</i>	50
2.8.1    International comparisons	54
2.8.2    Conclusion	58
<b>Chapter 3: Development of a Model</b>	<b>63</b>
3.1 <i>Introduction</i>	63
3.2 <i>The economic perspective</i>	64

3.3	<i>Four factors of growth</i>	66
3.3.1	Size and quality of the labour force	66
3.3.2	Quantity and quality of capital	67
3.3.3	Technology	67
3.3.4	The availability of natural resources	67
3.4	<i>Growth versus development</i>	69
3.5	<i>Population and the labour force</i>	70
3.6	<i>The change in population</i>	74
3.7	<i>Capital formation, technology and employment</i>	76
3.8	<i>The trade-off between consumption and investment</i>	78
3.9	<i>The capital production function</i>	78
3.10	<i>The labour production function</i>	81
3.11	<i>Economic measurement model parameters</i>	85
3.11.1	Job creation	85
3.11.2	Gross domestic product	86
3.11.3	Capital generation	86
3.12	<i>Conclusion</i>	88
<b>Chapter 4: Analysis of the Small Business Environment</b>		<b>91</b>
4.1	<i>Introduction</i>	91
4.2	<i>The importance of economic development compared to economic growth</i>	92
4.2.1	The impact of capital generation on economic development	93
4.2.1.1	Tax contribution	93
4.2.1.2	Owners and Employees income	94
4.2.1.3	Asset growth	95
4.3	<i>Trends in the small business manufacturing industry</i>	96
4.3.1	Number of small businesses	96
4.3.2	Government's commitment and policy	99
4.3.3	Role of small business	101
4.3.4	Small business impact on employment	102
4.4	<i>Environmental data</i>	105
4.4.1	Impact of the Auto Immune Deficiency Syndrome	105
4.4.2	Political and economic environment	108
4.4.3	Export environment	109
4.5	<i>The effect of globalisations small businesses</i>	111
4.6	<i>Risk associated with small businesses</i>	112
4.7	<i>Areas of weakness</i>	113
4.7.1	Government regulations	115
4.8	<i>Competitive advantages of small and medium-sized businesses</i>	116
4.9	<i>The effects of globalisation</i>	117
4.10	<i>Economic and general overview of South Africa</i>	117
4.11	<i>Economic indicators</i>	118
4.11.1	Gross domestic product	119
4.11.2	Turnover generated by small and medium-sized enterprises and their impact on job creation	120

4.11.3	Inflation data	120
4.11.4	Employment data	121
4.11.5	Quantifiability of the employment potential	123
<b>Chapter 5: Research Methodology</b>		<b>125</b>
5.1	<i>Introduction</i>	125
5.2	<i>The population</i>	125
5.3	<i>Time period</i>	125
5.4	<i>Research design</i>	126
5.5	<i>The survey and initial limitations</i>	128
5.6	<i>Data analysis</i>	130
5.7	<i>Objective of the questionnaire</i>	131
5.8	<i>Type of interview</i>	132
5.9	<i>Confidentiality and non-disclosure agreements</i>	132
5.10	<i>The questionnaire</i>	133
5.11	<i>Analysis methodology</i>	134
5.12	<i>Objectivity of the data</i>	134
5.13	<i>Interpretation of data</i>	134
5.14	<i>Preparation of data for analysis</i>	135
5.15	<i>Calculation methodology and testing of logic</i>	137
5.15.1	The raw data	137
5.15.2	Calculating trend data	138
5.15.3	Calculating averages	139
5.15.4	Calculating percentages	140
5.15.5	Normalised or deflated data	141
<b>Chapter 6: Findings</b>		<b>143</b>
6.1	<i>Introduction</i>	143
6.2	<i>The method of analysis</i>	143
6.2.1	Sample data	143
6.2.2	Measurement parameters	144
6.3	<i>Statistical analyses of data</i>	147
6.4	<i>The data</i>	149
6.5	<i>Summary of employment effects</i>	159
6.6	<i>Comparing the capital generating parameters</i>	161
6.7	<i>Summary of capital generation</i>	166
6.8	<i>Number of people employed</i>	167
6.9	<i>Summary of people employed</i>	175
6.10	<i>Age of business</i>	178
6.11	<i>Summary by age of business</i>	184
6.12	<i>Industry</i>	185



6.13	<i>Summary by industry</i>	192
6.14	<i>Province</i>	193
6.15	<i>Summary by province</i>	199
6.16	<i>Area</i>	200
6.17	<i>Summary by area</i>	206
6.18	<i>Capital contribution overall</i>	207
<b>Chapter 7: Discussion and Conclusions</b>		<b>211</b>
7.1	<i>Introduction</i>	211
7.2	<i>The proposed model</i>	211
7.3	<i>Findings and interpretation</i>	214
7.3.1	Employee income contribution	216
7.3.2	Tax income contributions	218
7.3.3	Contribution to owners' incomes	220
7.3.4	Contributions to asset income	222
7.4	<i>The employment potential of small businesses</i>	224
7.5	<i>Conclusions</i>	225
7.5.1	Conclusions relating to employment contribution	225
7.6	<i>Conclusions relating to capital contribution</i>	229
7.7	<i>Conclusions relating to contributions other than job creation and capital creation</i>	233
7.8	<i>Revisiting the hypotheses</i>	235
7.9	<i>Shortcomings</i>	237
7.9.1	Shortcomings of the model	237
7.9.2	Shortcomings of the study	238
<i>Appendix 1</i>		239
<i>Appendix 2</i>		243
<i>Appendix 3</i>		250
<i>Appendix 4</i>		252
<i>Appendix 5</i>		254
<i>Appendix 6</i>		256
<i>Appendix 7</i>		258
<i>Bibliography</i>		281

## List of Figures

Figure 2.1 Graphical representation of the development of a so-called best-fit definition compiled by the writer	29
Figure 2.2 Map of South Africa	31
Figure 2.3 Employment potential of different-sized businesses	42
Figure 3.1 Adam Smith production function	71
Figure 3.2 Typical production function	72
Figure 3.3 Production function	73
Figure 3.4 The four stages of population growth	75
Figure 3.5 Production possibilities curve	76
Figure 3.6 The capital production function	79
Figure 3.7 Combination of the capital function with the labour production function.	81
Figure 6.1 Asset growth contributions by number of employees	172
Figure 6.2 Owner income contributions by number of employees	173
Figure 6.3 Employee income contributions by number of employees	174
Figure 6.4 Tax contributions by number of employees	175
Figure 6.5 Asset contributions of businesses of different ages	181
Figure 6.6 Owner income contributions for businesses of different ages	182
Figure 6.7 Employee income contributions for businesses of different ages	183
Figure 6.8 Tax contributions by businesses of different ages	184
Figure 6.9 Asset contributions by businesses in different industries	189
Figure 6.10 Owner income contributions for businesses in different industries	190
Figure 6.11 Employee income contributions for businesses in different industries	191
Figure 6.12 Tax income contributions for businesses in different industries	192
Figure 6.13 Asset income contributions for businesses in different sectors	196
Figure 6.14 Owner income contributions for businesses in different industries	197
Figure 6.15 Employee income contributions for businesses in the two provinces	198
Figure 6.16 Tax income contributions of businesses in the two provinces	199
Figure 6.17 Asset income contributions for businesses in different regions in the provinces	203
Figure 6.18 Owner income contributions for businesses in different regions in the provinces	204
Figure 6.19 Employee income contributions for businesses in different regions in the provinces	205
Figure 6.20 Tax income contributions of businesses in different regions in the provinces	206
Figure 6.21 Total contribution of the four capital generating parameters	208
Figure 7.1 Illustration of the model's input requirements, calculation methods and model outputs	213

## List of Tables

Table 3.1 Statistics relevant to the South African population based on <i>The World Fact Book, 2002</i>	83
Table 4.1 The results of a study on small business employment growth in the manufacturing industry in Australia	104
Table 4.2 Human Immune Deficiency Virus (HIV) infection rates for the North West and Gauteng provinces from 1998 to 2000	106
Table 4.3 Age breakdown of Human Immune Deficiency Virus (HIV) infection rates	107
Table 4.4 Inflation data based on the consumer price index, as published by Statistics South Africa, 2005	120
Table 5.1 The consumer price index from the 1999/2000 tax year to the 2004/2005 tax year	138
Table 5.2 Calculating a trend for growth, required to equalise inflation pressure	139
Table 5.3 Actual data from business financial statements	140
Table 5.4 Growth expressed in percentages	140
Table 5.5 The effect of normalising the actual raw data	141
Table 5.6 A summary of all calculation parameters showing an example that had a growth equal to the consumer price index	142
Table 6.1 Evaluation variables (independent variables) used to investigate the growth criteria (dependent variables)	145
Table 6.2 Statistical significance of the data used to test the model	148
Table 6.3 Normalised asset growth data compared with number of people employed	150
Table 6.4 Normalised owners' income data compared with the number of people employed	152
Table 6.5 Normalised employee income data compared with the number of people employed for all businesses	154
Table 6.6 Normalised tax income data compared with the number of people employed for all businesses	157
Table 6.7 Summary of the four capital growth parameters	159
Table 6.8 Normalised asset growth data compared with normalized owners' income data	161
Table 6.9 Normalised asset growth data compared with normalised employee income data	162
Table 6.10 Normalised asset growth data compared with normalised tax income data	163
Table 6.11 Normalised owner income data compared with normalised employee income data	164
Table 6.12 Normalised owner income data compared with normalised tax contribution data	165
Table 6.13 Normalised employee income data compared with normalised tax contribution data	166
Table 6.14 Number of businesses, by group, for each of the four groups of people employed	168
Table 6.15 Asset growth contribution by number of people employed	169
Table 6.16 Owner income growth contributions by number of employees	170
Table 6.17 Employee income contribution growth by number of employees	170
Table 6.18 Tax contribution growth by number of employees	171
Table 6.19 Capital contribution growth in businesses employing fewer than 20 people	176
Table 6.20 Capital contribution growth for businesses employing 20 or more people	177
Table 6.21 Total capital growth for the sample	177
Table 6.22 Asset growth contributions according to the ages of the businesses	178
Table 6.23 Owner income growth contributions according to the ages of the businesses	179
Table 6.24 Employee income growth contribution according to the ages of the businesses	180
Table 6.25 Tax income growth contribution according to the ages of the businesses	180
Table 6.26 The age of a business	184
Table 6.27 Asset growth contributions by industry	186
Table 6.28 Owner income growth contributions by industry	187
Table 6.29 Employee income growth contributions by industry	187
Table 6.30 Tax contributions by industry	188
Table 6.31 Summary of growth in capital contribution by business sector	192

Table 6.32 Asset growth contributions in the two provinces	193
Table 6.33 Owner income growth contribution in the two provinces	194
Table 6.34 Employee income growth contributions in the two provinces	194
Table 6.35 Tax growth contributions in the two provinces	195
Table 6.36 Summary of growth in capital contribution by province	199
Table 6.37 Asset growth contributions according to areas within the provinces	200
Table 6.38 Owner income growth contributions according to areas within provinces	201
Table 6.39 Employee income growth contributions according to area in the provinces	201
Table 6.40 Tax income growth contributions according to area in the provinces	202
Table 6.41 Summary of capital contributions by area	206
Table 6.42 Overall capital growth contribution by area	207
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	215