

CHAPTER 7

SUMMARY AND CONCLUSION

The best way I know of persuading you of anything is not to plead with you to trust me, not to invoke authority in general, not even to call upon some expert, but to show you just what it is that persuaded me.

MIT physicist, Philip Morrison (1992:5)

7.1 INTRODUCTION

This chapter provides an abridged version of the study. **The findings and policy recommendations are presented in bold print.**

7.2 FINDINGS OF THE STUDY AND POLICY RECOMMENDATIONS

Chapter 1 contains various definitions of economic growth used in the literature. It outlines the rationale for the different definitions of economic growth and discusses the merits of the various concepts. It also deals with the criticisms levelled at some of the definitions. It outlines population data limitations in South Africa and uses this as the basis to define growth for this study as the percentage increase in gross domestic product at constant prices from one year to the next. This variable is the dependent variable of growth when econometric tools are used to test for factors determining economic growth in South Africa.

Chapter 2 commences with an analysis of the classical roots of economic growth, from the optimism of Adam Smith (1723-1790) to the pessimism of Malthus (1766-1834) and Ricardo (1772-1823). The classical phase ends with the work of John Stuart Mill (1806-1873). The next section touches briefly on the socialism of Marx and then fast-forwards to the neoclassical hiatus, focusing on Marshall (1842-1924). Chapter 2 concludes with a discussion of Schumpeter

(1833-1950) and Kuznets (1901-1985), whose work has important links with our modern growth theory.

Chapter 3 outlines the evolution of the exogenous growth theory by Solow, using *inter alia* the foundations laid by Nicholas Kaldor with his stylised facts. According to Bannock (1998:396), stylised facts are “broad generalizations that are true in essence, though not always in detail”. He also states that “this is one of the most important, but least acknowledged forms of empirical testing in economics... . Many models are designed simply to explain behaviour at its simplest, and can be judged only against the broad truth, rather than the detail”. Van der Ploeg and Tang (1992:16) are of the opinion that the exogenous technical progress of the neoclassical theory fits into Kaldor's stylised facts.

Romer (1989b:54) quotes Kaldor's stylised facts and agrees with his idea that these broad tendencies are essential in the conceptual stages of a body of theory. He is of the opinion that without stylised facts at which to aim, “theorists would be shooting in the dark”.

Romer (1989b:55) contends that the basic questions about growth need to be re-examined. He then elaborates on Kaldor's stylised facts to “make sure not only that the facts have some connection with measured data but also that the list be as inclusive as possible”. The chapter goes on to outline the stylised facts proposed by Romer as well as those of Easterly and Levine (2000:1).

The widening of the array of Romer's stylised facts is in line with the wider availability and scope of international data, notably work on growth accounting, international trade, population growth and migration trends. Regarding the latter, Lucas (1988:25, 40) has shown that these trends are a crucial piece of evidence in distinguishing between theories based on constant and increasing returns to scale.

Easterly and Levine (2000:37) suggest that their stylised facts are more consistent with a technology explanation of growth and income differences than a factor accumulation explanation. Empirical work, however, does not yet distinguish decisively between different theoretical conceptions of “total factor

productivity growth". They recommend that economists should put more effort into modelling and quantifying total factor productivity. **This recommendation is heeded in this study at the end of chapter 6 where the influence on the growth of several productivity variables is examined.**

Growth accounting is then examined. It stems from an investigation by Denison (1987:572) of the sources of growth in the USA from 1909 to 1958. It is an attempt to allocate growth rates in national output or output per person employed to the determinants of output in order to isolate the causes of growth. Further aims are to determine the causes of international differences in output levels and then show which are responsible for differences in growth rates.

The conclusion on growth accounting is that it delivers somewhat limited insights into the growth process because it tends to be static, and depending on the periods it spans, could be influenced by business cycles and therefore measure cyclical swings instead of growth trends. These calculations nevertheless contributed by giving some insight into the relative importance of the factors that are measured. The unexplained residual posed a challenge to researchers to explain the unexplained, or what is also termed "the measure of our ignorance" or multifactor productivity.

Endogenous growth theories widened the research ambit, by breaking the growth constraint of constant or even decreasing returns and extending it to perpetual or even accelerating growth. It also modernised, widened and diversified the concepts of technology and human capital, adding to the spectrum of prospective growth-enhancing variables. It quantified relationships between growth and arrays of independent variables, usually in cross-country analyses.

Chapter 4 investigates and assesses South Africa's growth performance, firstly, in relation to the growth potential as set out by the best-known documents on this subject, namely the Economic Development Plan, (which commenced in the mid-1960s), and the more recent Growth, Employment and Redistribution: a macroeconomic strategy (GEAR) of 1996. Secondly, performance in the light of the outward-oriented strategies of the newly industrialised East Asian economies is appraised. It investigates South Africa's growth performance in the

light of some of the factors that have been identified in growth theory as being of significance in the growth process.

Evidence is presented which shows that the actual output of the South African economy exceeded its estimated potential level until 1969, after which the position was reversed. Moreover, the gap between actual and potential growth rates tended to increase over time, except for the brief period spanning 1993 to 1996 when the gap momentarily decreased. It subsequently took another turn for the worst.

South Africa's growth potential is then examined in terms of the outward-oriented policies of the East Asian economies. **Looking at South Africa's outward orientation, it is concluded that over the decades, South Africa's export growth was lower than the average growth in world trade, causing a loss in world market share. A more equitable outcome would have been the maintenance of its share, and with increased economic growth as the target, a steadily increasing share.**

Simulations with the econometric model of the University of Pretoria (1992:6) showed that **the average annual real growth rate of South Africa could have been increased to more than 7 per cent if South Africa had succeeded in raising its share in world trade from the present level of 0.7 to 1.1 per cent over a period of seven years.**

The observation is made that while South Africa's share in world trade has decreased and the inflow of foreign direct investment has declined, the situation has been aggravated by both the previous and the current governments through their redirection of an increasing share of scarce resources from the more productive private sector to the less productive public sector.

Holden (1993:225) finds that although, in terms of the new trade theory (with its emphasis on economies of scale, product differentiation and R&D expenditures), and despite the existence of intra-industry trade in South Africa, it was not possible to establish any relationship between economies of scale, R&D expenditures and the extent of intra-industry trade. Trading patterns in

South Africa appear to be primarily driven by factor endowments, including the availability of natural sources.

In a seemingly positive environment, growth performance remains below expectation and its estimated potential. Its lack of labour absorption capacity is its main shortcoming. The chapter comments on South Africa's trade and labour policies and their effect on employment, and shows that the following recommendations could steer the economy into a more amiable employment and trade regime:

- More action is needed to break the privatisation and FDI hiatus, which would bring immediate benefits. **Accelerated privatisation can provide an important initial stimulus to FDI because it directly draws in foreign firms by their purchasing of assets. Privatisation should be complemented by market liberalisation, because it indirectly demonstrates government's continued commitment to openness.** Since FDI projects often have a strong export orientation, they improve the trade balance and currency stability, thus increasing the economy's import capacity and provide an important stimulus for job creation.
- South Africa currently occupies a backseat in the promotion of nonmineral exports through **export-processing zones or duty drawback schemes.** There is no reason why these schemes and zones cannot be adapted to suit South Africa's circumstances, as long as the conditions and institutional environment remain transparent, free of bureaucratic red tape, and these schemes concentrate on employment creation. There are encouraging indications that South Africa is moving in that direction with the Couga Harbour Project.
- It is also clear that South Africa should improve the **institutional environment** in other areas such as **crime, more flexible labour regulations, human capital and private sector competition.** These institutional enhancements should improve the availability of skilled labour, enhance economic literacy, upgrade education in areas such as finance, science and technology and ensure a business climate conducive to customer satisfaction through healthy private sector competition.
- The successes in the motor-vehicle manufacturing industry and its upstream supply chain have shown that an **outward orientation** in South Africa can work. With greater pressure on industrialised countries to

dismantle trade barriers against products from emerging markets, exports could become an engine for accelerated growth.

The purpose of chapter 5 is to identify growth-inducing or growth-detracting factors tested in international cross-country studies in order to use them in a time-series context in chapter 6 to determine whether these factors have had a meaningful causal link to growth in South Africa in the past four decades or more. Of importance here is whether this could indicate the causes of the poor growth performance in the last decade and provide alternatives to revitalise the growth process – that is, to suggest a set of policy measures to put South Africa in a position to achieve higher growth rates in the future. What complicates growth analysis is that characteristics not included in the information set such as oil reserves, gold reserves, navigable rivers or trade routes, and most importantly government policies, could also have influenced growth.

Chapter 5 identifies the most frequently cited and internationally used growth determinants in cross-country analyses. A range of variables compiled from growth literature is discussed in greater depth. Most of the variables defined in chapter 5 are used in the empirical analysis of chapter 6 in this study; others are supplemented or adjusted, mainly where the same data are not available for South Africa. The identified data series includes the following:

- government expenditure as a percentage of GDP;
- government spending (less defence and education);
- the investment to GDP ratio;
- investment in machinery and equipment;
- investment in transport and communication;
- the ratio of value added in agriculture to total GDP;
- the ratio of value added in mining to total GDP;
- the ratio of value added in manufacturing to total GDP;
- the ratio of value added in residual (excluding the preceding three), to total GDP;
- crime incidents and their growth;
- the growth rate in the manufacturing sector as a source of growth;
- public expenditure on education as a percentage of GDP;
- primary school attainment;
- secondary school attainment;

- higher education attainment;
- openness to international trade and investment;
- exogenous increases in the savings rate;
- average share of exports in GDP;
- income distribution;
- several productivity growth and unit labour cost variables;
- growth in capital stock; and
- institutional factors.

Chapter 6 empirically tests the effect on growth of some of the factors identified in cross-country research papers. These identified growth-inducing factors give an indication of which factors could be important in the quest to find causal growth factors in individual countries. **The time-series approach used in this study allows the researcher to analyse causality in either way, as well as statistical significance, and to simulate the likely impact of a specific factor on growth and on itself.** The results are now summarized.

Various openness variables are used internationally to determine their effect on growth. The variables used in this study were the ratio of imports plus exports as a percentage of GDP, followed by exports as a percentage of GDP, and lastly, the average of exports as a percentage of GDP and imports as a percentage of GDE.

These measures of openness are all indicative of a causal relationship using Granger causality tests, and the causalities run from openness to economic growth. Where openness is measured as the sum of exports and imports as a percentage of GDP, there is an indication of bi-directional causality.

The World Bank favours a strategy whereby developing countries should sequence trade policy reforms, beginning with a modest reduction in import protection, combined with **greater uniformity in the structure of effective protection (something South Africa has not yet achieved)** (Lewis 2001:v). This should be followed by a period of favouring exports, prior to final liberalisation of the domestic market.

Using manufacturing exports as a percentage of GDP as an openness variable in a VAR model of order three, a significant impact on economic growth was found. However, it carries a negative sign (-1.26 for the third lag), which indicates that in the past, manufacturing exports did not really contribute to economic growth. This is contrary to the experience of the fast-growing East Asian countries. This could be an indication that the largely primary exports of the past detracted from manufacturing export growth (Dutch disease effect) or that the sanctions campaign had the intended retarding effect on growth. This evidence, however, also shows that a **potentially powerful additional source of growth can be induced with a policy regime conducive to manufacturing rather than primary exports.**

Accelerating privatisation, in conjunction with market liberalization, can provide an important initial stimulus to FDI because it draws in foreign firms both directly (through the purchase of assets) and indirectly (by sending a strong signal of the government's continuing commitment). Since FDI projects often have a strong export orientation, the trade balance could improve, thus strengthening the economy's import capacity and providing the much needed stimuli for job creation.

Empirical evidence in the study shows that the openness of the economy to international trade and investment should be prioritised. Import tariffs and quotas must be reduced and ultimately eliminated according to a set and tight timetable. The relevant government departments and prospective local and foreign investors should agree on attractive incentive schemes to upgrade local skills, production facilities and technology. Export promotion should include set targets linked to incentives which increase progressively with the ratio of exports to turnover ratio. These should be included in the agreements, since export-led growth, in line with the new growth theories, remains critical for the future. For obvious reasons, imports of productive capital goods should have priority over imports of nonproductive luxury goods, to revive the economy. Export promotion should concentrate on manufactured goods rather than primary products (see findings on manufacturing growth on page 218).

To ensure success, the President's Office should be the state institution responsible for formulating and implementing an openness-promoting strategy of this kind. In the future, through the African Union structures, this could widen to include other African states.

Higher education levels contributing to a more skilled workforce were found to have a positive impact on growth and in the long run should also contribute to higher competitiveness in the export of manufactured goods. This means that school curricula should be adapted to favour subjects such as science, mathematics and biology which enhance and enrich the technological capabilities of South Africa's human capital. It is therefore vital for growth that these achievements be commended. **Presidential accolades for achievements in these subjects should be instituted; South African schools should participate in TIMMS (Trends in International Mathematics and Science Study) projects and the government and press give prominence to the results.**

The effect of investment variables on economic growth in South Africa was found to be statistically significant, but these variables appear to be ambivalent contributors to economic growth. The relationship between economic growth and investment growth, as well as the investment-gdp ratio, displayed a bidirectional causality. Causality was also established, running from investment in machinery and other equipment to economic growth. However, a VAR analysis showed that **the only significant relationship was the reverse relationship from investment to growth**, which was supported by the impulse response graph. There seems to be a **reverse causality between investment in transport and communication and economic growth. These results indicate that investment promotion as a growth-promoting vehicle is likely to miss the target and should be avoided.**

King and Levine (1994:282, 286) drew a similar conclusion to the one tested in this study and recommended a revision of **the role of investment and physical capital accumulation in economic growth and development. They propose that because of the bidirectional causality in the relationship, it should be viewed as part of the process of economic development and growth, and not as the primary connecting source.** Of

specific importance is the feedback from economic growth to investment growth. The results and recommendations of this study are therefore in accordance with their views.

Easterly and Levine (2000:4) found evidence which **“suggests that creating the conditions for productive capital accumulation is more important than capital accumulation per se and that policy-makers should focus more on policies that encourage total factor productivity growth”**. The sections on productivity growth in this study confirm this finding for South Africa (see 6.4.7, specifically 6.4.7.1 to 6.4.7.5).

The effects of different measures of government spending on growth were also investigated. The first of these was the ratio of government spending to GDP used by Gwartney *et al* (1998:4), as well as the ratio of government spending less spending on education and defence to GDP. The second variable is what Barro (1997:26) terms “nonproductive” spending. In both instances, the growth rates in these variables are also analysed.

Granger causality tests conducted on these variables for South Africa show causality from government spending to growth. Using this evidence in tandem with a VAR model implies that an increase in government spending, especially **nonproductive spending, might lead to a decrease in economic growth**. VAR models for both variables (tables 6.15 and 6.16) show that in both cases, using government spending to explain growth, coefficients are negative and statistically significant, implying that **excessive government spending in the past detracted from growth**. Using impulse response functions (figure 6.7), one can infer that **the negative effect of nonproductive spending on growth is higher than that of productive government spending**. This is also a long-run effect since after 20 simulation periods, the growth level is still below the original long-run path. These findings imply that **benign government spending, mainly on domestic defence and personal safety and security as well as education, should constitute almost the entire budget and that other government activities falling outside of this group should be privatised**.

As ascertained by Kaldor (1967:12), and in accordance with several recent international studies, rapid rates of growth are almost invariably associated with the rapid rate of growth of the secondary sector, mainly the manufacturing sector. The influence on growth of various variables defined in terms of the main sectors was investigated.

Results show that **statistical significance exists to support the theoretical positive impact of growth in the manufacturing sector on the economic growth rate. Of particular significance is that manufacturing growth feeds on itself while simultaneously contributing to long-term economic growth. It would therefore appear that the manufacturing sector is a formidable engine to speed up economic growth.** The same analysis for agricultural and mining indicates a relatively small positive response in economic growth owing to innovations in growth in these sectors.

Policy should therefore be directed towards creating an environment conducive to developing manufacturing in general for local as well as global consumption and its downstream service sectors such as trade and transport. The privatisation of state monopolies in the electricity, transport and communication sectors should be expedited and the privatisation processes should ensure that competition, specifically foreign competition, is imbedded. Adopting and adapting some of the industrial and labour policies of the East Asian economies which industrialised successfully could be an example worthy of emulation. One important factor that could facilitate sectoral growth is their export promoting-strategies, which have indeed been emphasised in the analysis of the openness of the economy, in section 6.4.1 on page 134.

Besides excessive nonproductive government spending, a further possible negative impact on economic growth, namely South Africa's high crime rate, was also investigated. Impulse response graphs show that economic growth is responsive to increases in the growth rate of crime incidents, which serves as a negative shock to higher growth. This negative impact, however, dies out relatively quickly as the convergence back to the long-run growth level occurs after only about four periods. This may be good news in the sense that an improvement in the safety and security situation may soon lead to a situation

more conducive to economic growth. **Better preventive and visible policing and modern surveillance techniques in major metropolitan areas have been shown to reduce crime and should be extended. More importantly, these should be supplemented by job creation through the above-mentioned openness strategy, because the study also found that a lack of growth and the concomitant absolute and relative poverty levels tend to trigger criminal activities.**

The two state (or stock) variables referred to in empirical growth analysis, namely measures of physical capital and human capital stock, were also analysed for South Africa. **The Granger causality tests suggest that a bi-directional causality exists between growth in capital stock and economic growth. This result is in line with the results obtained for growth in fixed investment and economic growth. The same holds true for the quantitative proxy for human capital. Causality was not established for the two proxies for qualitative measures of human capital, namely government expenditure on education and government expenditure on education expressed as a percentage of total government expenditure.** This could be the result of the extremely low correlation that exists between these series and economic growth stemming from the below par education standards of the past or low availability or poor quality education in the past.

Statistical significance exists to support the overall theoretical positive impact of the growth in capital stock (an indicator of productive capacity) on the economic growth rate. This is evident from the impulse response functions showing that the initial effect of a positive innovation in capital stock on economic growth is also positive. **The high cost of new productive equipment could retard or stultify this progress. Foreign direct investment would be an ideal way of overcoming this obstacle. Its other beneficial effects in terms of cutting-edge technology spillovers and human capital enhancement were analysed in section 5.2.5 on page 103.**

The high cost of capital expenditure, exacerbated by an intermittent depreciating and appreciating currency, and the present sluggish foreign direct

investment, result in sluggish capital productivity growth. This effect could be counteracted and reversed by local initiatives. **An idea that could be pursued to enhance the country's productive capacity, improve capital productivity growth and create jobs, would be to encourage two shifts per day in manufacturing industries, until foreign investment picks up.** This could result in improved capital productivity, lower fixed unit costs, better export-pricing possibilities, less traffic congestion on roads, and most importantly, employment opportunities which the economy so urgently requires.

Manufacturing competitiveness and export performance could be further enhanced through a managed depreciating currency as a secondary, but equally important alternative monetary target to price stability.

Foreign direct investment could be encouraged, through programmes such as the Motor Industry Development Programme, in sectors that could also benefit from the African Growth and Opportunity Act (AGOA) and privatisation with ensured competition as mentioned above.

To augment the analysis on human capital, a number of productivity variables were tested, which simultaneously also served to indicate the role that technology played in South Africa's past growth performance.

For the period under consideration, innovations in labour productivity growth in manufacturing were found to Granger cause growth. It is also a statistically significant contributor to economic growth and directly explains a sizable portion of the forecast error variance of economic growth with a sustained long-run significance (of just over 20 per cent).

For the period under consideration, **multifactor productivity in manufacturing Granger caused growth, made a statistically significant contribution to economic growth**, while simulated innovations in multifactor productivity growth explained a 9 per cent portion of the forecast error variance of economic growth in the second period, increasing to more than 12 per cent by the third period and beyond.

Innovations in capital productivity growth in mining explain a relatively small initial portion, but with an accelerating stable long-run significance (up to 20 per cent) of the forecast error variance of the **economic growth rate**. **This supports the results obtained from Granger causality tests.**

Innovations in multifactor productivity growth in the mining sector explain an initially modest 15 per cent portion of the forecast error **variance of economic growth for the second period, but with an accelerating stable long-run significance (up to 30.8 per cent in the 10th period)**. **This underscores the results obtained from Granger causality tests.**

The analyses of the effects of various productivity growth rates on growth reaffirm the importance of the contribution of all types of productivity increases to growth, and verify the role that growth accounting suggests in this respect. They also seem to indicate that multifactor productivity growth and labour productivity growth, in manufacturing in particular, are strong growth stimulants. The above-mentioned policy options on export-processing zones and multiple shifts, and local and foreign competition, will stimulate and enhance productivity growth in manufacturing, and induce exports of manufactures, but should be carefully chosen and constantly honed in consultation with private sector institutions. Foreign trade policies used by the high-performing Asian economies that pursued rapid industrialisation could be of vital importance to enhance the chances of success in this respect.

The role of the National Productivity Institute should be extended to focus on manufacturing activities, its local and international competitive abilities and manufacturing sector job creation and retention structures. These enhanced activities should be benchmarked with those of countries that have a proven and superlative industrial productivity performance record. The role of the Competition Commission should also be elevated to include competition issues in the process of privatisation and its findings given greater prominence in government communications and statements.

Innovations in unit labour cost growth in the manufacturing sector have an initial zero effect on growth, which increases to a modest 13 per cent retarding effect on growth for the second period. However, there is a sharply accelerating influence to 34 per cent by the sixth period, after which it stabilises at a long-run significance of 34.5 per cent to the 10th period. The bidirectional influences of unit labour cost must be carefully examined and strategically managed by both management and trade union leaders, because high increases in unit labour costs could compromise international competitiveness while also enhancing the risk of the long-term or permanent exclusion of the large unemployed labour contingent from gainful employment. Instead, the focus should be on the bidirectional initial effect, which could be enhanced by the employment of the unemployed rather than higher increases for current job incumbents. The initial effect of the purchasing power of the newly employed on manufacturing itself seems to be greater because of the statistically significant bidirectional influences and lagged positive contributions of productivity growth on itself, and by implication, the negative effects of unit labour cost increases by its significant first lag. **The analyses on unit labour costs favour an employment-creation strategy rather than a real average wage increase alternative in order to lift the economic growth rate.**

7.3 PROGNOSIS

The results of the analyses confirm the importance for economic growth of manufacturing, export and productivity growth and successful policies aimed at enhancing these stimulants of growth. If well managed, these factors could have a profound influence on South Africa's growth rate, employment creation and competitiveness.

Government expenditure should be limited and targeted towards an amiable growth environment focusing on rival private sector competition, education and health and safety and security. Government should also ensure a freer trade and investment environment, conducive to openness in terms of local and foreign trade and foreign investment, with its concomitant spinoffs for technology, productivity promotion and foreign direct investment.

This study encountered severe deficiencies in official data on human capital, which, in international studies, has been shown to be one of the crucial growth factors in most economies. Continuity in economic time series is vital when redesigning questionnaires involving both outputs and inputs. It is imperative to have proper time series on production, foreign trade, employment, hours worked and earnings in the different sectors, their capital inputs, as well as the skills profiles of these sectors. Statistics South Africa should be tasked, in cooperation with the main users of its outputs, to ensure the integrity and long-term trends of time series, especially production and labour series.