



## Evidence-based Employment Scenarios

Issues of Growth and Employment Concerning the  
Manufacturing and Service Sectors in South Africa

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August 2006

# **Issues of growth and employment concerning the manufacturing and service sectors in South Africa**

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August 2006

## **Human Sciences Research Council**

**August 2006**

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## 1 Introduction

There has been much talk in recent years, both in South Africa and internationally, of the rise of the services sector. Manufacturing is regarded by some as no longer being able to generate economic growth and employment on the scale required in a country such as South Africa. Others have concern that there is a premature expansion of the services sector, which may slow down the South African growth process and economic dynamism. These are complex questions in various ways: empirically/statistically, there is little clarity on the extent to which the apparent changes in the sectoral structure of the South African economy are real as opposed to the shifting around of activities (notably through outsourcing). Economically, different sectors have varying capacities in terms of, *inter alia*, intersectoral linkages, growth and employment multipliers, balance of payments and so on. Politically there are distributional issues involved as well as existing vested interests.

The proposed paper is intended to be a rigorous analysis of these and related questions, at both the conceptual and empirical levels. This extended research proposal briefly outlines some of the background and differing conceptual approaches, gives an overview of some relevant empirical trends in South Africa, and begins to concretise some of the questions and how we plan to go about investigating them.

The HSRC undertook an earlier, empirically focussed study on the services sector and related policy, titled 'Leveraging Services for Growth, Education and Equity'. Services have typically not received the same attention as manufacturing in economic policy as manufacturing has been seen as a driving force behind the development process. Moreover, services were historically mostly non-tradable. As local service firms did not compete internationally, there was not substantial concern over the level of efficiency, product range, product quality and rates of innovation of domestic service sectors. The study noted that three factors have challenged this orthodox approach to the services sector:

- The imminent reduction of barriers to trade in services will expand opportunities to export services, while exposing the domestic services sector to global competition. In fact, services are the fastest growing component of global trade.
- Services increasingly appear to have their own markets dynamics, with increasing diversity of market segments, technology change, etc.
- Many of the costs that undermine the competitiveness of the South African economy emanate from the services sector: communications, transport and utilities.
- In a context of high and growing unemployment, the domestic-oriented services sector provides an important avenue for employment creation.

The current proposed study would build on this earlier project, with a focus on developing a clear conceptual approach as well as germane empirical analysis.

## 2 Overview of two conceptual approaches

Here I briefly outline two – not necessarily mutually exclusive – ways of conceptualising the relationships between different sectors of the economy and the

link with overall growth. Both depart from a simplistic conception in which units of value added are simply equivalent across sectors (according to which this area of investigation would not be particularly fruitful or interesting in the first place!).

## 2.1 Marxian approaches to surplus-producing and non-surplus-producing activities

In marxian approaches, the key distinction would be between those activities that produce surplus and those that do not. Surplus is generated in the production of commodities. The distinguishing feature of commodities is that they are produced for exchange rather than for own use, that is, they have not only use-value but also exchange-value. Commodities are not limited to physical objects, but may also include certain types of services. Thinking in terms of the circuit of capital  $M - C \left\{ \begin{smallmatrix} LP \\ MP \end{smallmatrix} \right\} \dots P \dots C' - M'$ , value is expanded in the commodity production process  $P$  through the contribution of labour power  $LP$ , hence the produced commodity  $C'$  has greater value than the commodities used in the production process. Applying this approach to the questions at hand around the respective roles of the manufacturing and service sectors, a critical consideration is whether or not the activity produces commodities. While all manufacturing activities<sup>1</sup> produce commodities, some service activities (such as restaurants) do produce commodities; others (such as retail trade or financial intermediation, in general) do not. This corresponds with the distinction between productive and unproductive labour, where productive labour is engaged in the production of surplus while unproductive labour is not.<sup>2</sup> Manufacturing work would be regarded as productive, as would services jobs in which surplus is directly produced.

From this perspective the key distinction is thus not between manufacturing and services per se, but between those activities that produce surplus and those that do not. This is not to imply that non-surplus-producing activities are not important for the economy. However, their role is different from surplus-producing activities. Non-surplus-producing activities are essential in the sphere of circulation (that is  $P \dots C' - M'$ ), without which the surplus extracted in the production process cannot be realised and hence reinvested in further production. Further, non-surplus-producing activities are important for accelerating the velocity of circulation, thereby increasing the rate of accumulation. The financial circuit of capital is also critical to accumulation as it allows for the scale of production to be expanded through the credit system. Non-surplus-producing activities may thus be essential for the realisation of surplus, or for the realisation of surplus at higher rates than would otherwise be the case. In turn, a portion of the surplus generated through the commodity production process must be diverted to other fractions of capital in order to support these functions. The profits from, for example, sales or bank lending or typical business services are actually transfers of the portions of the surplus appropriated in the commodity-production process (although the service activities may in the process result in an increase in the surplus produced in commodity production).

One interpretation of a marxian approach nevertheless privileges surplus-producing activities. Intuitively, this emanates in part from the centrality of the production of

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<sup>1</sup> Save those where the product is used by the producer rather than sold.

<sup>2</sup> Note that the concepts of productive and unproductive labour in the marxian sense have no relationship with the conventional economic meaning of labour productivity, nor do they carry any connotations as to the effort or worth of different types of labour.

surplus for accumulation and economic growth. Given that non-surplus-producing activities divert a portion of the surplus generated in surplus-producing activities (although the former may in fact be a condition for the realisation of surplus or may raise the net surplus accruing to surplus-producing activities), in a closed economy it would be the surplus-producing activities that in some sense would be central to economic growth. Significantly, in an open economy this does not necessarily hold, insofar as portions of surplus produced in other countries may be received domestically as payment for even non-surplus-producing services.

The above discussion sketches out, at a very superficial level, a broad marxian approach (while noting that there would be different perspectives within different marxian schools of thought on some of these questions). Marxian analysis has not been comprehensively applied to the types of questions that this project is interested in investigating, but the perspective set out above may provide one analytical way of thinking through the relevant questions, as well as resonating with what is commonly intuitively believed.

## **2.2 Classical developmentalist and heterodox approaches**

There has traditionally been a strong argument in (at least parts of) the heterodox economics literature that sees a sector-specificity in the economic growth process. This implies that a unit of value added is not necessarily equivalent across sectors (for example in terms of its growth-inducing effects). This can be distinguished from those parts of the growth literature that tend to see growth as sector-neutral (as well as activity-neutral in the traditional Solow-type growth models and some endogenous growth theories, or activity-specific such as in the new endogenous growth theories that emphasise the importance of R&D and human capital).<sup>3</sup>

The classical development economics literature posits a strong relationship between changes in the sectoral composition of an economy and its rate of growth. The intersectoral reallocation of labour from low- to high-productivity activities is seen as central to increases in overall productivity in developing countries. Specifically, industrialisation and the growth of manufacturing are the engines of technical change and economic growth. This differs from developed countries where technological innovation, rather than changes in the sectoral composition of the economy, is most important for raising aggregate productivity.<sup>4</sup> Further, in the absence of sufficient dynamism, either technological progress or productivity-enhancing structural changes in the economy are likely to reduce employment.

The heterodox literature – notably that in the broad Kaldorian tradition<sup>5</sup> – has seen the manufacturing sector as being imbued with ‘special characteristics’ that are not shared by the other sectors<sup>6</sup>. This leads to the manufacturing sector being accorded a special place in understanding the causal relationships of the growth process, as well as suggesting that from a policy perspective there needs to be a particular focus on the manufacturing sector.

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<sup>3</sup> See Palma (2005).

<sup>4</sup> Note also that developing countries may gain some of the benefits of technological innovation in a form embodied in imported machinery.

<sup>5</sup> Others associated with this type of approach include Verdoorn, Kalecki, Hirschman, Prebisch, Pasinetti and Thirlwall.

<sup>6</sup> Note that these arguments are not necessarily mutually exclusive from the approach outlined above with respect to a marxian approach, and further that this type of thinking is not intended to be presented as a distinct school of thought.

The special characteristics attributed to the manufacturing sector are typically argued to include:

- The idea that manufacturing growth ‘pulls along’ economic growth in ways that growth in other sectors of the economy does not.
- Dynamic economies of scale<sup>7</sup> in manufacturing, such that the growth of productivity in manufacturing is higher the higher the growth in manufacturing output<sup>8</sup>. This is related to the notion that ‘learning by doing’ is more important in industry than in agriculture or services. Learning by doing, innovation and intersectoral linkages thus render productivity endogenous to growth in dynamic manufacturing sectors. This of course means that expanding the manufacturing output would raise manufacturing productivity.
- The argument that most technological change occurs in the manufacturing sector, and further that the technological change that does occur in the rest of the economy actually tends to be diffused out from the manufacturing sector (see cumulative causation). These kinds of technological-change externalities are one form of Hirschman-type intersectoral linkages.
- That manufacturing is critical to alleviating balance of payments constraints that can impose a ‘stop-go’ pattern on developing countries’ growth, and hence to supporting sustained high growth rates, particularly in the absence of a strong primary commodity export sector with stable and favourable terms of trade.

Concerns have arisen in this type of literature in recent years, although more broadly as well, about deindustrialisation and premature deindustrialisation in particular. By way of stylised facts, not only have levels of manufacturing employment corresponding to particular levels of GDP fallen, but the turning point of GDP per capita at which manufacturing employment as a percentage of total employment has tended to decline as well. Further, trade liberalisation appears to have accelerated ‘deindustrialisation’ in a number of emerging economies. The concept of ‘deindustrialisation’ does not necessarily entail the loss of manufacturing output: in fact, in many economies, manufacturing output and exports have grown. Instead it refers to a falling share of manufacturing employment in total employment, and sometimes even a loss of employment in manufacturing (even while output is growing). In some cases, liberalisation has led to a loss of both manufacturing employment and output, where industries did not respond successfully to intensified competition. This has raised concerns that such economies may not be able to take advantage of the apparent broader benefits of manufacturing growth as much as they could have.

### **3 Review of basic South African data**

Figures 1-6 and 8 give an overview of key trends in the sectoral composition of the economy between 1970 and 2005, with a focus on changes in the relative contributions of manufacturing and services. The following series are shown:

1. Employment
2. (Real) fixed capital stock

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<sup>7</sup> Note that this refers to economies of scale at the sectoral level, not necessarily in terms of the enterprise level.

<sup>8</sup> However, note also that in an open economy, economies of scale may be associated with falling prices, depending in part on demand conditions.



3. (Real) value added (at basic prices)
4. (Real) total output
5. A measure of 'labour productivity', calculated as employment/total output
6. A second measure of 'labour productivity', calculated as value added/total output
7. (Real) exports.

In each case the trends are shown for:

- The aggregate economy
- Manufacturing
- Utilities and construction<sup>9</sup>
- Tertiary sectors (SIC 6-9)
- Tertiary sectors excluding general government services (SIC 99).

In each case data is shown as a three-year moving average in order to show trends clearly. All data is from SASID unless otherwise indicated. The following observations can be made on key trends and relationships evident in the figures:

- As can be seen from figures 1 and 2, services account for a large and increasing share of both total output and value added. The tertiary sector excluding general government accounts for 44% of total output and 53% of value added in 2005, up from 33% and 38% respectively in 1970. Manufacturing's share of total output and of value added has been fairly stagnant, although the share peaked in the early 1980s, with value added in particular showing a slight but steady downward trend since then.
- In terms of employment (see figure 3), services have shown significant and steady growth throughout, both in absolute terms and as a percentage of total employment. Manufacturing employment varies between about 1.08-million and 1.55-million over the period, as a share of total employment declining from a peak of almost 18% in the early 1980s and a share of over 16% up until 1992, to just 13.5% at present.<sup>10</sup>
- Figure 4 shows trends in fixed capital stock. The share of capital stock in services has dropped slightly, although it is still close to half of total fixed capital stock. The share of manufacturing has actually been rising, with the capital intensification of this sector.
- Figures 5 and 6 show labour productivity, measured in terms of total output and value added respectively. The notable feature here is the high and rising labour productivity in manufacturing (with both measures of productivity). This is consistent with the idea (discussed above) that the manufacturing sector is the high-productivity sector of the economy and has distinct dynamic characteristics.
- The scatterplot in figure 7 shows the relationship between changes in employment and productivity<sup>11</sup>, by sector, over the last 10 years. Apparent changes in labour productivity per se do not necessarily indicate any dynamism in a sector, but may simply be a function of a sector having shed employment without having reduced production (or at least not proportionately). It is thus perhaps more revealing to look at both changes in productivity and employment: sectors with both rising

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<sup>9</sup> The reason for splitting utilities and construction from tertiary sectors is that services is sometimes defined to include both and sometimes only the tertiary sectors.

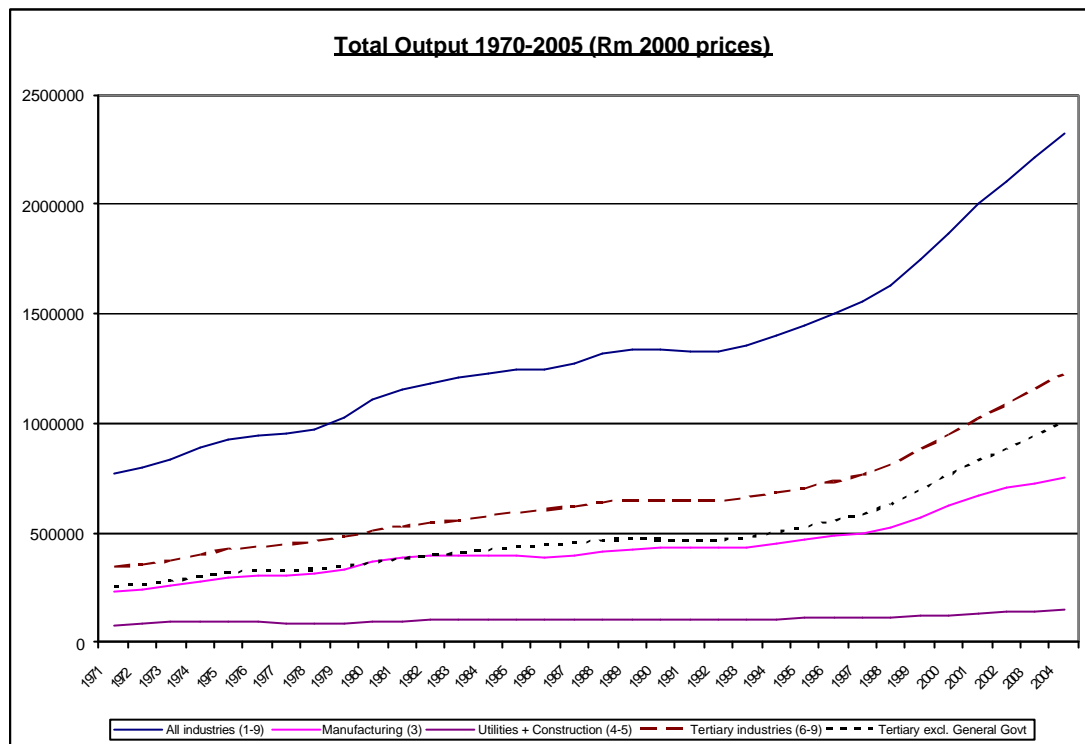
<sup>10</sup> Note that we will attempt to calculate the employment trends and productivity trends using the LFS data from the mid-1990s onwards, which give a different picture.

<sup>11</sup> Note that productivity should actually be measured in terms of labour hours rather than total employment, although it is not clear a priori in which direction this would change the relative trends given the preponderance of casualisation in services in particular.

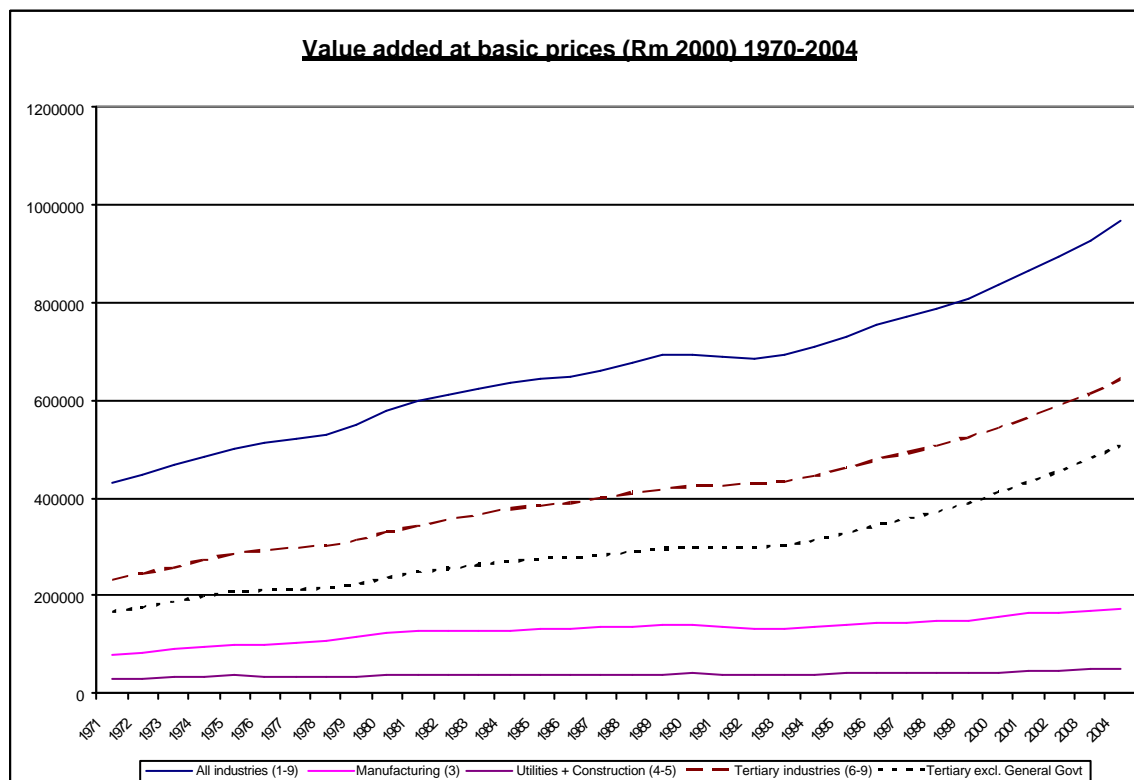
labour productivity and rising employment (those in the north-east quadrant in figure 7) could be considered as particularly employment-dynamic. These sectors were identified in order to ascertain whether there is a pattern in terms of manufacturing or services (or course, other characteristics of these sectors would also be of interest to examine). These sectors were, however, a mixture: the manufacturing sectors are plastic products, coke and refined petroleum, other chemicals and manmade fibres, and other manufacturing. The service sectors are finance and insurance, other services excluding medical, dental and veterinary, wholesale and retail trade, and community social and personal services: other producers.

- Figure 8 shows the trends in real exports by sector. 55% of exports are accounted for by manufacturing, up from a quarter in 1970 (when gold was far more important). The share of services has risen gradually, up to 17% in 2005 – far below services' share of output or value added. Note that there is some evidence that the share of services trade may be underestimated. Further, South Africa lags many developing countries both in relation to the composition and the growth in services trade.
- Finally, in terms of the trade balance in services, there is a deficit throughout, with the exception of a small surplus in 2002. The ongoing failure of the services sector to generate a trade surplus also needs to be taken into consideration in assessing its dynamic and growth-supporting or growth-inducing capacity.

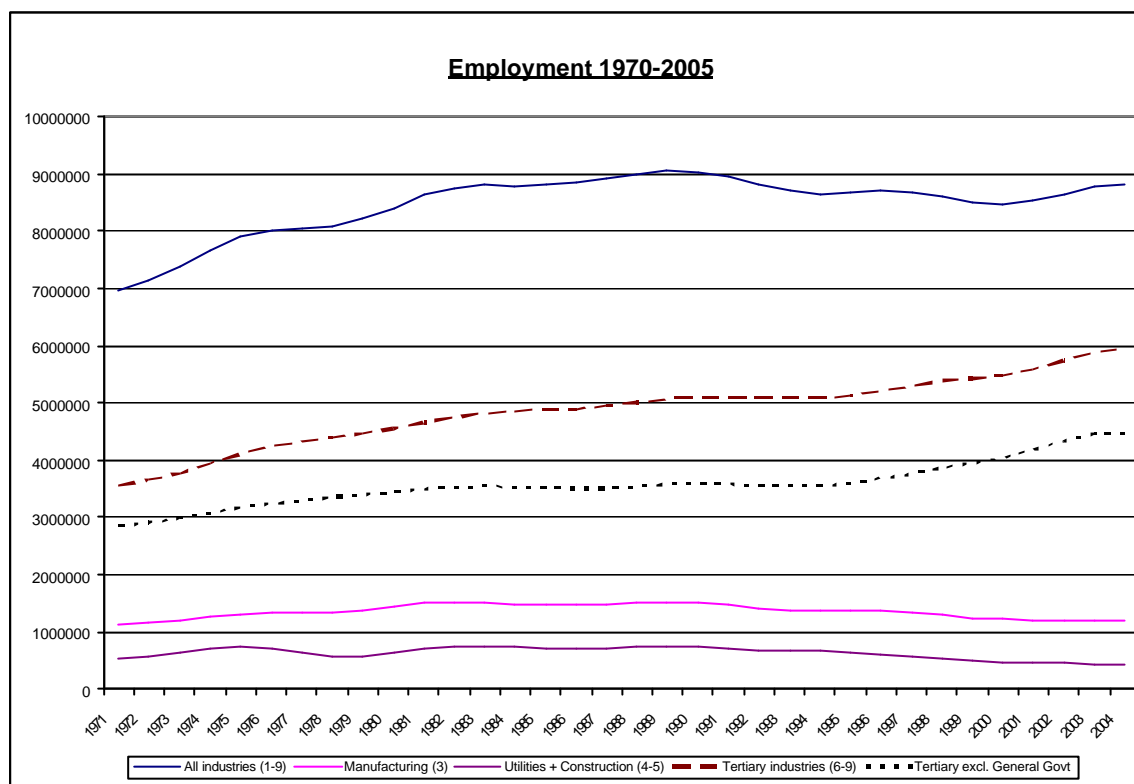
**Figure 1 – Total output, 1970-2005 (Rm 2000 prices)**



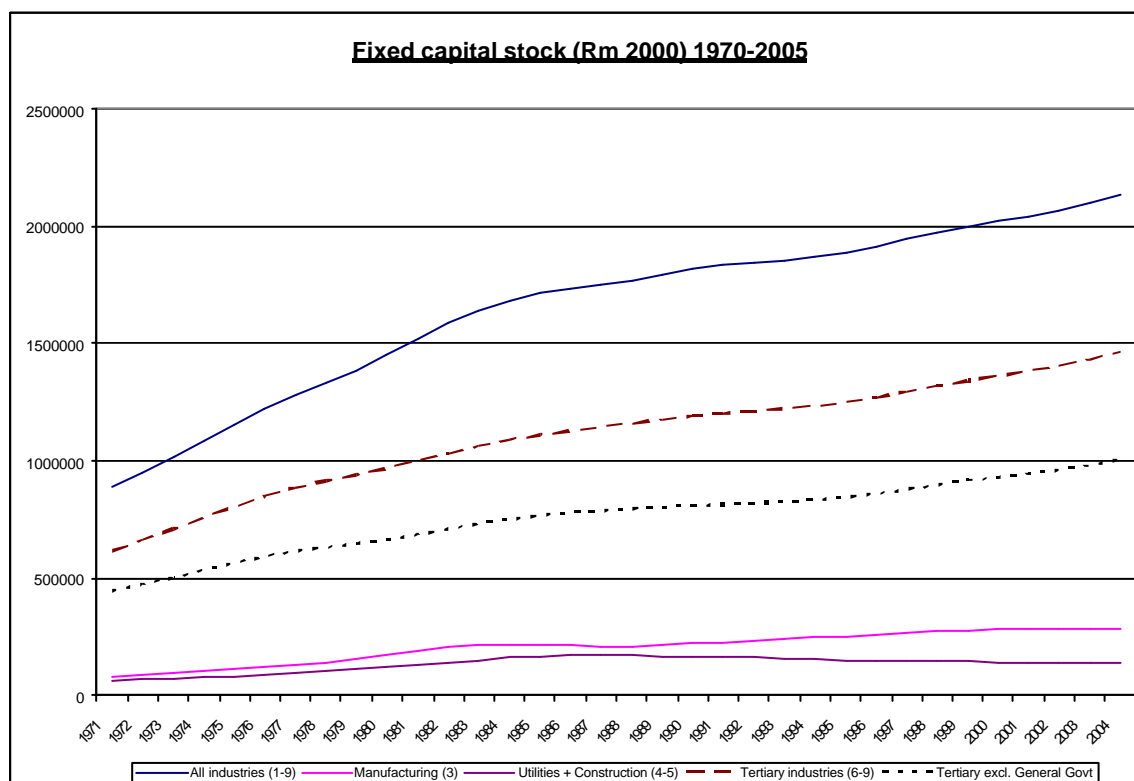
**Figure 2 – Value added at basic prices (Rm 2000), 1970-2004**



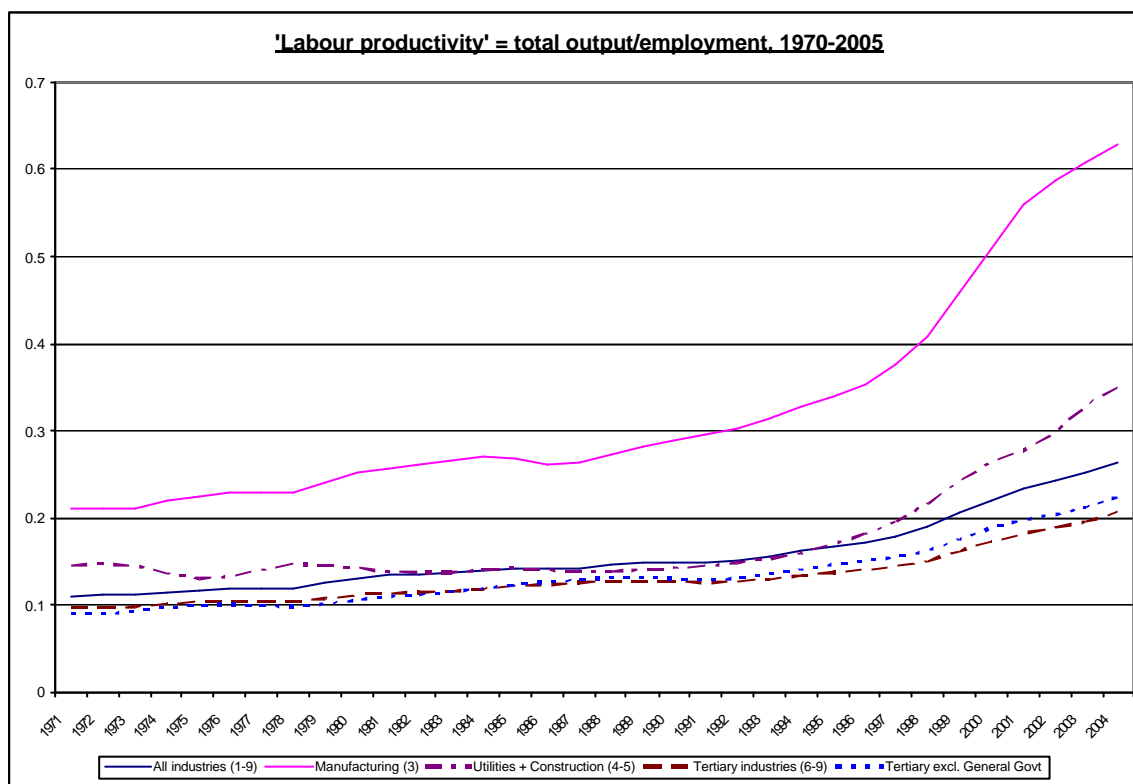
**Figure 3 – Employment 1970-2005**



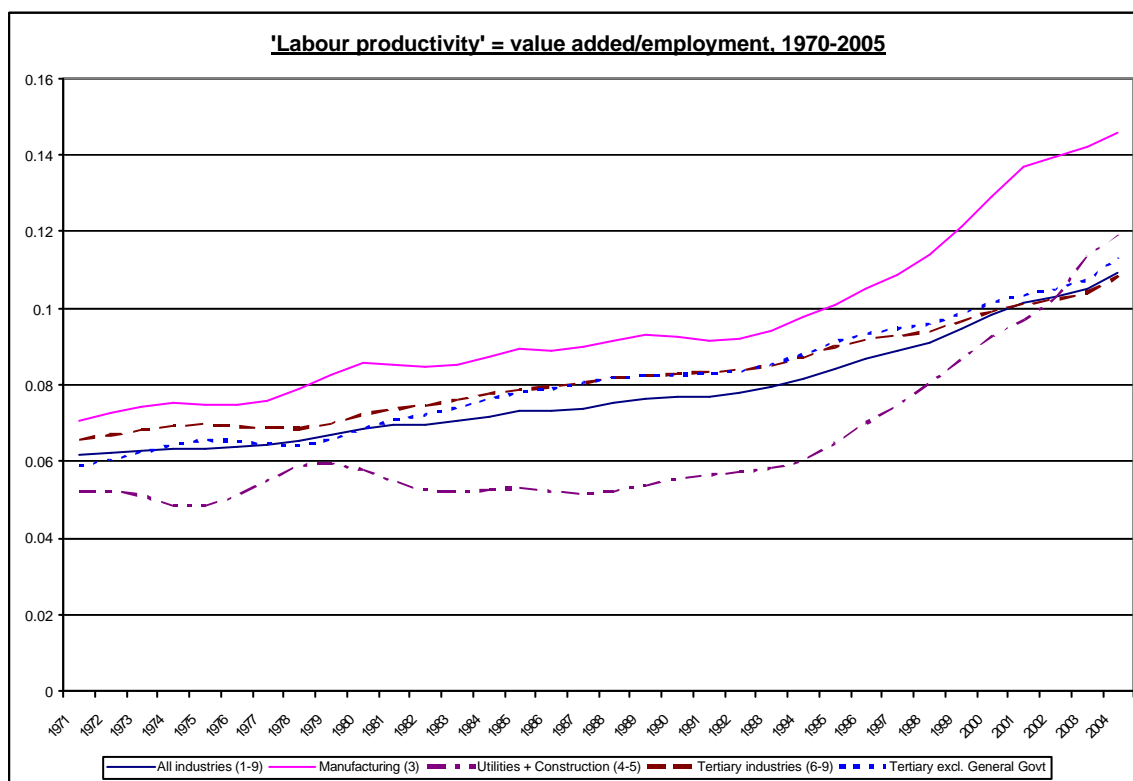
**Figure 4 – Fixed capital stock (Rm 2000), 1970-2005**



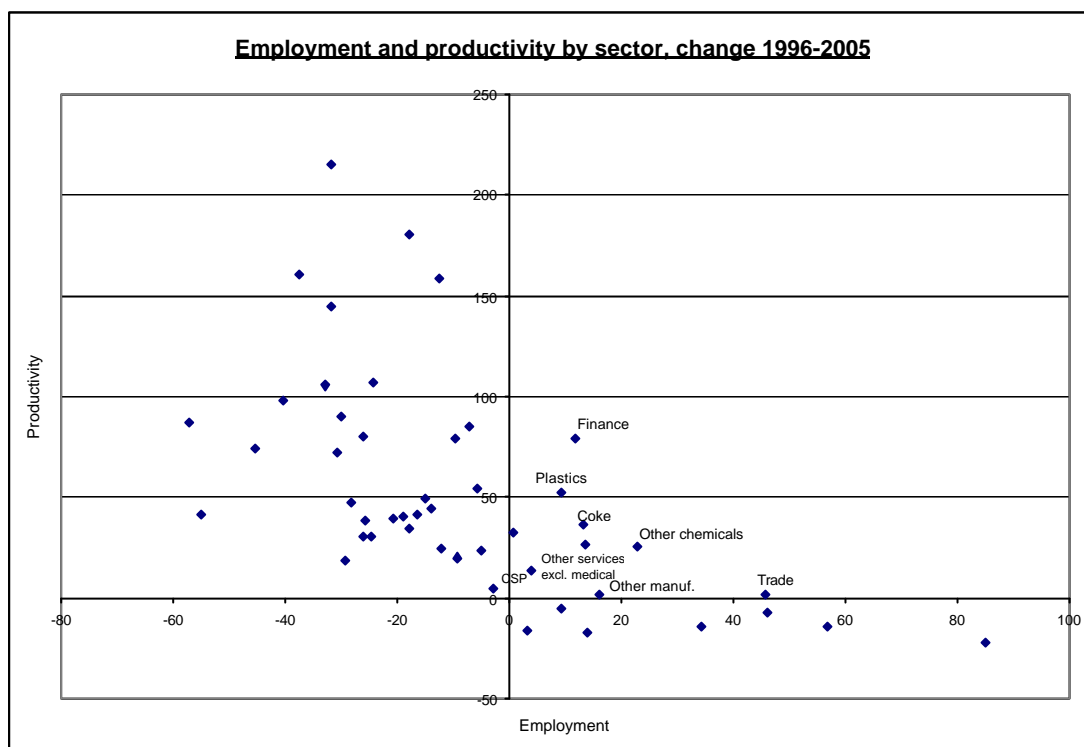
**Figure 5 – ‘Labour productivity’ = total output/employment, 1970-2005**



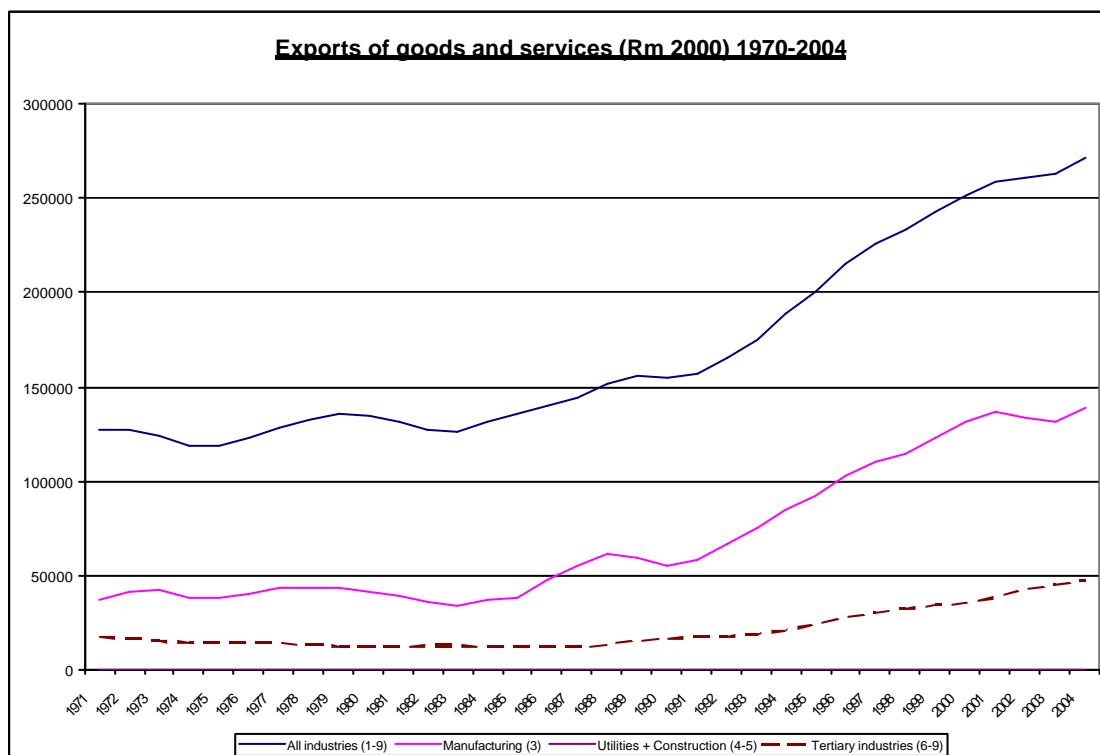
**Figure 6 – ‘Labour productivity’ = value added/employment, 1970-2005**



**Figure 7 – Employment and productivity by sector, change 1996-2005**



**Figure 8 – Exports of goods and services (Rm 2000), 1970-2004**



Note that no series is shown for 'tertiary excluding general government' in this chart as the value of exports in the general government sector is 0.

## **4 Issues for investigation**

The questions that I would hope to engage with in the paper, and provide some direction on if not conclusive answers, include the following; where relevant the proposed methodology is also mentioned.

First, an analysis of the significance of outsourcing in accounting for the apparent shift in employment from manufacturing to services. This is important in getting to grips with the extent to which the changes apparent in the data actually point to real structural shifts in the composition of the economy as opposed to the shifting around of activities.

The proposed methodology here is based on an interrogation of the data at both sectoral and occupational level: first, to look at which specific categories (at a 2- and 3-digit level) have actually seen a significant rise in employment within services, and second, to quantify shifts over time in employment in functions that were previously within manufacturing and have since shifted to services. For example, a drop in the number of people employed within the manufacturing sector but classified in the cleaning or security occupational codes, and a concomitant rise in the same occupations within services, could indicate that that part of growth in services employment could be associated with outsourcing. This would need to be analysed differently from growth in categories of services employment which appear to be new growth rather than a shifting around of jobs. Thirdly, data permitting, decomposition techniques would be used in order to separate out changes in sectoral employment that are associated with the shifting around of job classification between sectors, and the changes associated with actual growth in particular occupational or sectoral categories. The data necessary for these purposes is currently being processed. While this exercise would not be conclusive, it could potentially shed light on the issue of how much the sectoral changes in employment are associated with outsourcing. Given the dearth of any rigorous analysis of the issue for South Africa at this stage, such work could potentially be an important contribution in this regard.

Second, to what extent is the growth in services employment an offshoot of growth in other sectors (specifically manufacturing), or a broader function of the general state of the economy and aggregate demand, or does the services growth have its own 'independent' drivers? Further, to what extent does the manufacturing sector in South Africa have the types of 'special characteristics' associated with manufacturing which suggest that it has particular properties relevant to sustainable growth. Further, to what extent does the services sector have (some of) these properties?

Where services sectors do not play a particularly important role from a dynamic growth-inducing perspective, they may nevertheless act as an 'employer of last resort' in absorbing labour (in a similar capacity as agriculture may have played earlier or in other developing countries). Where workers gain employment in the services sector because of lack of opportunities elsewhere ('distress-driven' growth in services employment) and the relatively low barriers to entry in services, these subsectors may potentially have low productivity and weak intersectoral linkages and may not be particularly growth-inducing. Such sectors may be important in terms of labour absorption, without substituting for sectors serving as more dynamic engines of economic growth. (Of course, in an economy with such high rates of unemployment as South Africa, the distinction between these roles is not as clear-cut as perhaps elsewhere, given the positive externalities of employment creation).

Specific characteristics to be investigated could include:

- A comparison of the productivity growth of different sectors, as well as the extent to which productivity is a function of output, and at an economy-wide level the effects of the sectoral composition of the economy on overall productivity.
- More broadly, an investigation of economies of scale by sector.
- Critically, an analysis of the extent to which the different sectors ‘pull along’ growth in other sectors and the economy as a whole. This is central to understanding to what extent growth in services ‘feeds off’ manufacturing growth, as well as their respective broader growth-inducing effects in the economy.<sup>12</sup>

I would also hope to conduct the analysis for subsectors of both manufacturing and services, in order to identify which particular sectors are important in this regard. For example, one might have good reason to think that service sectors such as telecommunications may have some of the positive features traditionally associated with manufacturing, whereas personal services might not. This type of disaggregation will be important as there are obviously relevant factors beyond broad sectoral classification.

One method to be employed is analysis of the SAMs, comparing over time where possible, to look at linkages and multipliers between sectors. For example, it will be illuminating to quantify to what extent the business service sector is an input into manufacturing, as this would be relevant to understanding the extent to which the growth in business services is an offshoot of and dependent on manufacturing, as opposed to being independently dynamic. Conversely, the extent to which services generate demand for manufactures (as well as other services) could hopefully be examined through this exercise.

Third, to what extent is South Africa experiencing a ‘premature deindustrialisation’ or a premature expansion of its services sector, to the potential detriment of its growth objectives? Some services industries, in promoting product diversification, innovation, foreign exchange earnings, etc., may be beginning to offer a credible additional avenue to growth in developing economies. Nevertheless, if South Africa is shifting ‘prematurely’ towards a greater share of services in the economy, before going through a range of manufacturing stages and before exhausting the benefits of this (of course, this is phrased simplistically here and is not to suggest a crude teleology of development), this might suggest that there is not sufficient basis in the economy for sustainable growth in employment and GDP from the composition towards which we might be moving.

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<sup>12</sup> There are some econometric complications in this regard which hopefully can be overcome. Basically, the ‘pulling effect’ of the growth of manufacturing or other sectors on overall economic growth is usually tested at the level of cross-sectional averages of the variables across countries or across sub-national units such as states. The difficulty of testing these relationships in time series data for a country, as we would like to do for South Africa, is that it is difficult to distinguish between evidence that supports the hypothesis and that which supports Okun’s Law concerning the relationship between unemployment and growth (which, as an aside, might also be of interest to us). One way of dealing with this would be to smooth out the data, for example using 10-year moving averages instead of annual data. The problem with this is that one cannot then meaningfully test for or deal with unit root problems, which are highly likely to exist in the data of interest, and without doing this any apparent results could be spurious. Another possibility would be to control for unemployment in the regression, but we don’t have reliable time series for this rate.