STRUCTURAL CHANGE, PRODUCTIVITY AND THE MIDDLE INCOME TRAP: SOUTH AFRICA IN COMPARATIVE PERSPECTIVE

David Fryer
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ABSTRACT

This paper discusses the problems faced by middle-income countries in the process of catch-up and development, with a focus on the tendency for these countries to fall into a ‘middle income trap’. It examines the usefulness of the middle income trap concept for the BRICS economies, as well as how it relates to competing explanations of structural change, productivity growth and development. The paper explores the characteristics and drivers of productivity growth in South Africa and its BRICS partners, focusing on the role of structural change. The paper finds that growth in labour productivity in South Africa has been associated with labour shedding, rising informality and an increase in low value-added service sector employment. This pattern of growth and structural change shares some similarities with the experience of India but less so with Brazil. South Africa should continue to develop a coherent nexus of trade, industrial and technology policies to facilitate learning-by-doing in increasing returns activities. This should be coupled with a stronger alignment to a decent work agenda within a macroeconomic framework that addresses increasing global financialisation and its threats.

INTRODUCTION

Broadly speaking the middle income trap is “the phenomenon of ... economies stagnating at middle-income levels and failing to graduate into the ranks of high income countries” (Aiyar et al., 2013: 3). Most studies support the existence of
this phenomenon and agree that it is associated with difficulties middle income countries have in shifting the structure of production to more productive sectors and in increasing productivity across sectors. Furthermore there is at least some agreement about the kinds of countries that may be affected. However, there is considerable disagreement over definitions (including the thresholds used to distinguish the middle income category), causes and the associated policy implications. With regard to causes (and hence policy inferences), there are very different explanations of why middle income countries may stagnate rather than converge with high income countries. These competing views are associated with conventional and heterodox development theory respectively.

Most of the BRICS countries have been characterised as either being in the ‘trap’ (South Africa, and in most studies, Brazil) or being vulnerable to it. For example there is concern about what will happen to the global economy if Indian and Chinese growth rates decelerate significantly. Others argue, however, that China and India are unlikely to stagnate to the extent of being caught in a middle income ‘trap’. In view of the controversy surrounding the issue and its conceptualisation, it is therefore important to gain more clarity about the idea, including whether it is a useful way of thinking about development.

This paper explores patterns of structural change and productivity growth in the BRICS countries with a focus on South Africa and the concept of a middle income ‘trap’. The paper is structured as follows. Section 1 investigates how the middle income trap phenomenon has been defined and which countries are affected. Section 2 considers the literature on competing explanations of patterns of structural change and productivity growth. Section 3 focuses on the productivity debate in South Africa from a comparative perspective. Section 4 concludes with a discussion of policy implications and directions for future research in the BRICS countries.
1. DEFINITIONS: WHAT IS THE TRAP AND WHICH COUNTRIES ARE IN IT?

The way that the concept is defined has a significant effect on which countries are classified as in the trap or at risk. The most common definition is in terms of growth decelerations: middle income countries slow down or stagnate before they have converged with high income countries. Eichengreen et al. (2013: 1) define a growth deceleration as an instance “where GDP per capita had been growing for seven or more years at an average annual rate of 3.5 per cent” but the growth rate then “stepped down by at least two percentage points between successive seven year periods”. They exclude ”low income countries – those with a per capita GDP of less than $10000 US at purchasing power parity” but fail to indicate the upper limit of their ‘middle income’ range. The base income of $10000 leads to Brazil and South Africa just being excluded from their middle income definition (the year for which the criterion must hold is not specified, but the data-set ends in 2007). China’s PPP per capita income was well below the $10000 threshold up until the end of the 2000s, so it is classed as ‘low income’ in the paper. The authors find a significant spread of per capita incomes at which slowdowns occur (within their ‘middle income’ category), but identify two per capita income levels around which slowdowns tend to group, namely $15000 and $11000.

The problem with the Eichengreen et al. approach is twofold: both the requirement of a sustained growth rate for seven or more years in excess of 3.5 per cent prior to the slowdown and the exclusion of countries that are in the $7000 to $10000 PPP per capita income range limit the study by omitting significant developing countries that may be affected by the ‘middle income’ trap, particularly those in Latin America. The justification that the bottom threshold of $10000 is applied “to rule out growth crises in not yet successfully developing countries” (Eichengreen et al., 2013: Table 1) seems unsatisfactory.
Aiyar et al. (2013) adopt a different approach to identifying growth slowdowns, based on “large sudden and sustained deviations from the growth path predicted by a basic conditional convergence framework”. Growth rate decompositions suggest that sharp and sustained decreases in total factor productivity (TFP)\(^2\) growth have been important in past growth slowdown episodes (Aiyar et al., 2013: 6-8). Their methodology finds a major role for TFP slowdowns in sustained deviations from predicted growth paths in the countries under study. The methodology used by Aiyar et al. (2013) is an improvement on the approach of Eichengreen et al. (2013). By considering slowdowns across all income levels, Aiyar et al. are able to examine whether slowdowns are more common in middle income countries in particular (see Figure 1 below). The focus of Eichengreen et al. on only those countries with a PPP per capita income of $10000 and above restricts their identification of growth slowdowns largely to developed and oil-exporting countries. In this way they miss, for example, the extended slowdown in Latin America in the 1980s (Aiyar et al., 2013: 10). The definition of income categories adopted by Aiyar et al. differs significantly from that of the Eichengreen et al. study and is more in line with the 2010 World Bank classification (see Aiyar et al., 2013: 12).

An alternative approach is provided by Felipe (2012), who investigates the period for which countries have been categorised as ‘middle income’ as well as the growth rate that has to be attained by both lower- and upper-middle income countries to avoid the ‘trap’. He identifies “the threshold number of years for a country to be in the middle-income trap” as 28 and 14 years respectively for lower and higher middle-income countries. A new entrant at the lower middle-income level needs to grow at 4.7 per cent per annum to avoid the ‘lower middle-income trap’ while a new entrant at the upper middle-income level needs to grow at 3.5 per cent per annum to escape the ‘upper middle-income trap’. By 2010, for example, countries like South Africa and Brazil had been in the lower-

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\(^2\) As McCarthy (2005: 8) explains, the traditional growth accounting approach decomposes changes in real GDP growth into the contributions due to labour and capital accumulation, with the residual (that which is not explained by changes in factor accumulation) taken to represent TFP (denoting ‘technological progress’). TFP growth (the ‘Solow residual’) is then the difference between GDP growth on the one hand and labour and capital growth on the other.
middle income category for well over 50 years. The income category thresholds used, however, are once again very different to those of the studies above.

Wade (2010: 151-152) examines “state mobility matrices” for the periods 1960-78 and 1978-2000, drawing on the work of Milanovic (2005). This approach divides countries into four income categories based on purchasing power parity dollars per capita. It is found that while most states remain in the same category over each two-decade period, there is more stability at the top and bottom ends of the distribution. Very few of the rich countries moved downwards to a lower income category and only a few of the poorest moved upwards. Despite greater mobility in the two middle categories, the movement that did take place was largely downwards. Of the so-called 1978 ‘contenders’ (the middle group with average incomes down to two-thirds of the bottom of the ‘rich’ category), over 80 percent had fallen into a lower category by 2000, while only 13 percent rose to the ‘rich’ country level. In addition, over 65 percent of the lower middle group (countries with average incomes between one-third and two-thirds of the bottom of the ‘rich’ category) moved downwards into the lowest income group to join those with average incomes of less than a third of the base of the rich category.

According to Wade (2010: 152), these shifts are illustrative of the difficulties that middle income countries face in moving to higher value added activities within global value chains: “[t]he mainstream view tends to presume that middle income countries’ continued advance is assured...expressed, for example, in alternatively rosy or worried talk about the BRICs (Brazil, Russia, India, China) or the BIMCs (Brazil, India, Mexico, China) ascending to developed country status”. An analysis of the state mobility matrices suggests otherwise, however, and Wade characterises the difficulties faced by middle income economies as a ‘middle-technology trap’, in which these countries’ firms fail to break out of low value-added activities and into more innovation-intensive segments of the value chain, or into branded product markets in which returns are much higher.
It is evident from the discussion above that the definition of the ‘middle income’ category is somewhat arbitrary, with a wide range of category boundaries and per capita income measures used across different studies. Nonetheless, Aiyar et al. (2013: 11-12) show that middle income countries are more likely to experience slowdowns than poor or rich countries, and that this is robust for a wide range of thresholds for ‘middle income’, ranging from $1000-$16000 to $3000-$12000 (see Figure 1).

Figure 1: Is there a middle income trap?

Source: Aiyar et al. (2013: Figure 6)

2. COMPETING EXPLANATIONS: STRUCTURAL CHANGE, PRODUCTIVITY GROWTH AND DEVELOPMENT

Two divisions in development thinking characterise thinking about these issues. The first concerns the role of industrialisation in development, poverty reduction, and social upliftment. On the one hand, both orthodox and heterodox development economists (despite the differences discussed below) have tended to stress industrialisation (and more generally, the expansion of the leading
economic sectors)\(^3\) as the engine of development. This contrasts with what might be called a ‘social democratic’ realisation of the developmental importance of the ‘social’ sphere. For example, Morel et al. (2012) refer to the ‘social investment welfare state’. This question, which is becoming increasingly prominent in the face of jobless growth, burgeoning cash transfer programmes (Lavinas, 2013), and an increasing recognition of the importance of investments in human capability, is unfortunately beyond the scope of this paper.

The second division concerns the most prominent debate in development economics, namely the role of the state in fostering industrialisation. ‘Orthodox’ development economics emphasises the market as the primary agent of industrialisation, whereas ‘structuralists’ (in the so-called heterodox Schumpeterian-Keynesian approach) emphasise the primacy of the developmental state.

In the orthodox view, the core expectation is of convergence driven by market forces. The poorer the country, the greater the ‘advantages of backwardness’ (Lin, 2009: 16). This view has three elements. Firstly, economies operating well within the global knowledge/technological frontier are assumed to be able to reap significant unexploited opportunities for technological and human capital upgrading. Secondly, another supposedly ‘easy’ source of upgrading is the correction of ‘inefficiency’ (particularly through exposure of inefficient firms to competition) (Page, 2012: 93).

Thirdly, in the neoclassical (Solow) growth model, rich countries with high capital/labour ratios experience decreasing returns unless innovation pushes out the technological frontier. In developing countries with low capital/labour

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\(^3\) Two points of clarification are necessary here. Firstly, heterodox economists typically take structure ‘more seriously’ than orthodox economists, particularly with the Kaldorian emphasis on manufacturing. However, ‘new structuralists’ within orthodoxy are now claiming to ‘take structure seriously’ (see Lin, 2009). Secondly, as Page (2012: 94) puts it: “[c]hanges in the global economy … have created a class of economic activities in agriculture and services that more closely resemble manufacturing than the sectors to which they are assigned in economic statistics”. Countries that can specialise in ‘tasks’ in global value chains in agricultural products, for example, can experience ‘industrialisation without smokestacks’ based on their natural resource endowments. See also Kucera et al. (2012) and Cattaneo (2011: 7-9) for discussion and critical analysis of possible ‘new’ propulsive sectors, in particular, high value services.
ratios, returns to investment will be high. This generates rapid ‘catch up’ as high rates of capital accumulation fuel high rates of output growth which in turn increases the amount of saving available for investment. The standard decomposition based on a constant returns Cobb-Douglas production function (Gordon, 2000: 5n) is

\[ y-h = m + (1-b)(k-h) \] (1)

Labour productivity growth (growth in output per worker: \( y-h \)) can be decomposed into multifactor productivity growth (m) and productivity growth due to capital deepening (Gordon, 2000: 5n). In rich countries, growth depends largely on innovation (reflected in m). For developing countries the expectation is that both components will be high: \( m \) because of technological catch-up and efficiency gains and \((1-b)(k-h)\) because of rapid capital deepening.

In this analysis, structural change is endogenous and comparative advantage conforming. Low income economic growth in labour-intensive activities in the modern sector draws labour (and other resources) from the traditional sector. The simple transfer of labour from low to high productivity sectors can by itself have a large growth-generating effect (see Page, 2012: 93 and below). Further, as the capital-labour ratio increases, the country’s comparative advantage changes, and it moves up the value chain and specialises in progressively more capital and knowledge intensive goods. This will lead to both ‘within’ sector productivity increases (due to capital deepening, emulation, and efficiency improvements) and further structural change as the economy shifts towards more capital and knowledge intensive sectors (including high value services) (Lin, 2009: 17-18).

The question that arises is why countries fail to meet this expectation and get ‘stuck’ (whether in a low income trap or in the middle income trap). There is increasing acknowledgement of ‘market failures’ in the conventional literature. For example, as economic growth eventually causes tightening labour markets
middle income countries may experience reduced competitiveness with low income countries in labour intensive industries, and yet may not have achieved sufficient upgrading to compete with high income countries. The recognition that ‘market failures’ can impede upgrading has led to a fairly wide acknowledgment that some industrial policy is important.

However, in this account, the main reason countries ‘get stuck’ is that they resist market-conforming structural change. On the one hand authors like Lin (2009: 24-5) and World Bank (2008: 46) argue that countries may be tempted to over-ambitiously break out of the ‘flying geese’ pattern and defy their comparative advantage by jumping ‘prematurely’ up the value chain. On the other hand, countries may resist upgrading because ‘rent seeking’. This is often represented in this literature as being the result of ‘weak institutions’: i.e. governments being unable to resist ‘special interests’ or ‘populist policies’ (Acemoglu, 2003). In Acemoglu and Robinson’s (2013) view, ‘bad policy’ tends to be ‘endogenous’ and ‘path dependent’. A common orthodox argument (particularly for South Africa and Latin America) is that protectionist policies, which tend to ‘lock in’ a particular structure, are themselves locked in politically because they create and empower groups (such as industrialists who grow rich and powerful on monopoly profit and state subsidies, and trade unions in protected industries) that ‘align themselves against pro-market reform’.

Despite the apparent moderation of ‘neoliberalism’ by these ‘new structuralist’ and ‘new institutionalist’ elements, the orthodox view remains that the primary

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4 The assumption that a) low income countries are labour surplus economies (in the Lewisian sense), b) specialising in labour intensive industries is a viable development option and c) countries begin to face tightening labour market (roughly when they graduate to middle income status) remains prominent amongst orthodox development economists (see Lin, 2009: 14-15 and World Bank, 2008: 45; 83). For criticism of (a) see Austin (2010), Arrighi et al. (2010) and Amin (1972). (b) and (c) are discussed below.

5 This is often put forward as an explanation of the slowdowns experienced by the first tier NICs in the 1980s and early 1990s (e.g. Lui and Chiu, 1999; Lindauer, 1984) and more recently by China (Lardy, 2012; Hung, 2009).

6 The notion that the ‘interventionist’ periods in Latin America and Africa were associated with poor economic outcomes is being increasingly challenged. For example, Astorga et al. (2005: 54) provide a ‘cautious vindication’ of the period of ISI in Latin America. Compared to the less interventionist periods before and after, 1939-80 saw not only much greater structural adjustment (especially towards manufacturing) but also higher productivity growth, life expectancy improvements, etc (see also de Medeiros, 2009).
engine of growth is ‘the market’ responding to the ‘advantages of backwardness’ (see Lin, 2009: 18, for example). The role of the state is merely to smooth the passage of the economy along an existing path (by correcting market failures in a piecemeal fashion and avoiding the traps of over-ambition and rent-seeking). The primary criticism of neoliberalism from the left is precisely that it smooths obstacles to unfettered capital freedom, and that aspect of ‘poverty alleviation’, regulation, and industrial policy are ‘adaptations’ of this (Cammack, 2002; Fine, 2002; Streeck, 2012).

In the heterodox view, this path does not exist a priori and must be created by the ‘developmental state’. In its absence, the economy languishes in what Huang (2002) calls ‘coordinated failure 1’ (CF1). This is the familiar Keynesian coordination failure: because profitability is low, investment is low, and because investment is low the economy remains weak and profitability remains low. ‘Market conforming’ reforms, may come at the price of deindustrialisation if CF1 problems are not addressed. Chibber (2005) puts a slightly different light on ‘institutional’ problems middle income face, arguing that vested interests (but not organised labour) are particularly adept avoiding and subverting state planners in their attempts to discipline capital. This is why very few genuinely ‘developmental’ states have emerged.

In the heterodox approach, catching up depends on “laggard” countries “moving towards increasing return activities, not on decreasing returns in the leader countries” (Cimoli et al., 2011: 28). Such increasing returns activities, whether in manufacturing (see Reinert, 2008) or other sectors (see Footnote 3) have two properties. These can be summarised in ‘Thirlwall’s law’:

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7 In Latin America and South Africa (and in the periphery of the Eurozone) a particular pattern of growth has emerged based on ‘premature de-industrialisation’ and ‘financialisation’ and, in Africa and Latin America, reliance on external sources of growth (capital flows, commodity prices) (see Ashman et al, 2012; Grinberg, 2013; Hadisi and Fryer, 2014; López and Rodríguez, 2011).
Firstly, the higher is \( \pi \) (the import elasticity of domestic income) the lower the rate of output growth that can be sustained without incurring balance of payments disequilibrium. The 'Schumpeterian' (or Kaldorian) properties of increasing returns industries lead to a reduced \( \pi \): rapid productivity growth means fewer inputs (including imported inputs) are required per unit of output; strong backward linkages mean that a larger share of inputs will be domestically produced and will lead to ‘external economies’: other sectors experience increased demand and hence expand, which will in turn boost the propulsive sector. Increasing returns activities are also associated with a large \( \varepsilon \) (a high elasticity of exports to global demand). This is the demand side (or ‘Keynesian’) property.

This Keynesian consideration highlights that, regardless of how upgrading is brought about, an important consideration is the level of aggregate demand. In the Keynesian model, aggregate demand acts as a limit on the expansion of output. Orthodoxy by contrast tends to assume that all that is produced can be sold. There is ample evidence that such demand limits are important, particularly in the form of global overcapacity in many industries. Unless output growth exceeds productivity growth, output growth will be 'jobless' or 'labour shedding'. Indeed, in the absence of adequate aggregate demand, rapid productivity growth can become problematic. An important issue facing emerging markets is ‘adverse’ structural change, with labour shed by high productivity sectors spilling over into low productivity sectors (including the informal sector) and unemployment. Kucera and Roncolato (2012) provide a good account of this 21st Century paradox, which relates back to the first ‘division’ raised at the beginning of this section.

\[
y^* = \frac{\varepsilon}{\pi} z
\]
3. THE SOUTH AFRICAN PRODUCTIVITY DEBATE IN COMPARATIVE PERSPECTIVE

This section explores the characteristics and drivers of productivity growth in South Africa, including some comparative analysis of the BRICS countries, focusing on the role of structural change. Two measures of overall (economy-wide) productivity are presented in Figures 2 and 3. These represent productivity levels, and changes in the levels correspond with the terms in expression 1. What is most noticeable is the contrast between the three richer countries and China and India. China and India experience smooth productivity growth by both measures. South Africa and Brazil experience dramatic decreases in output per worker from the beginning of the 1980s, and then recoveries in the early 1990s. The very early date at which total factor productivity decreases and the extent of this decrease in South Africa is puzzling, and may reflect more on the problematic nature of the measure than on very early in both countries. From about 1996 TFP stabilises but shows no significant increase. This would suggest that, contrary to Arora (nd: 14), the main driver of the productivity recovery in the post-apartheid period in South Africa was capital accumulation. This argument is supported by Figure 4, which demonstrates that capital/labour ratios in South Africa started to increase in the 1990s. However, the marked dip in the capital/labour ratio is questionable. It is driven by implausible increases in employment at a time when most commentators document a process of capital deepening and labour shedding (Fallon and da Silva, 1995; McCarthy, 2005).8

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8 Part of the discrepancy is caused by the inclusion of informal sector and ‘subsistence agriculture’ employment in the series shown in Figure 5 and the questionable nature of estimates of the informal sector. The Penn World Tables (Feenstra et al. 2012) (showing the deepest and most sustained dip in the capital-labour ratio and the higher employment estimate for South Africa), put South African employment in 2011 at over 18.5 million, which is out of line with other estimates (except for discredited ADGORP estimates—see Wittenberg and Kerr, 2012 and Forslund, 2012). However, the increase in employment in the 1980s even in the South Africa 2 series, raises questions. Figure 7 (which is based on the same data as the South Africa 2 estimate in Figure 5) shows increasing agricultural employment from the mid-1980s, for example. This may be due to the ‘reclassification’ of people as subsistence farmers during apartheid.
Notwithstanding these statistical uncertainties (see for example, Forslund, 2012), South Africa’s growth and productivity slowdown has been well documented (see Tregenna, 2012). Debates about the slowdown echo those discussed in Section 2. ‘Liberal’ authors tended to emphasize the ‘distortions’ in the apartheid economy (i.e. heavy state involvement and anti-export bias during
apartheid, and inflexible labour markets in the post-apartheid period). Moll (1993) argues that South Africa did not take advantage of the world trade boom in the post-war period. Although South Africa’s diversification was dramatic, its share of world manufactured exports fell from 0.62 to 0.25% between 1955 and 1992. Its share of developing countries’ exports of manufactures fell from 11.6 to 1.5% in the same period (Moll, 1993). Other authors have emphasised the failure to consolidate the process of industrial diversification, associated with strong industrial policy and state involvement in the economy that had begun in the 1930s and 1940s (Freund, 2013; Bell and Farrell, 1997).

The failure to diversify in the 1980s and post-apartheid period is reflected in the emphasis placed by heterodox authors on the continuing dominance of the minerals-energy complex and finance (Ashman et al., 2011). Growth has tended to be generated by external demand (especially of primary exports) and domestic demand (particularly in 2000-2007) (Tregenna, 2012). The picture with productivity is complex. Although output per worker has increased (but not in the most labour intensive subsectors) (Tregenna, 2012), the picture with economy-wide labour productivity is less clear because of increasing informalisation. A similar picture emerges in India, whereas in Brazil it is likely that declining informalisation may conceal productivity increases (McMillan and Rodrik, 2012).
With respect to measurement, various methodologies exist for decomposing productivity growth and its sources. The shift-share decomposition methodology has been used in recent work on the BRICS countries to explore the role of structural change in particular both at the broad sector level and within
manufacturing (see for example UNIDO, 2012; Cimoli et al. 2011; de Vries et al., 2012). However most of the BRICS comparative work to date either does not include South Africa or does not have up to date South African data.

The shift-share methodology decomposes productivity changes as follows (Cimoli et al., 2011: 37):

\[
\frac{\Delta P}{P_0} = \sum \left[ \frac{P_{10} \Delta S_i}{P_0} + \frac{\Delta P_i \Delta S_i}{P_0} + \frac{S_{00} \Delta P_i}{P_0} \right] \quad \text{...(3)}
\]

The left-hand side of expression (3) reflects the change in labour productivity for the whole economy (\(P_0\) is output per worker for the initial year). The right-hand side decomposes this change as follows:

I: Productivity growth due to structural change (i.e. changes in employment shares), with labour productivity in each sector held constant;
II: an ‘interaction’ term;
III: Productivity growth ‘within’ each sector, with employment shares held constant.

The interaction term captures the effect on labour productivity of labour moving into or out of sectors with changing productivity levels, regardless of the level of productivity in each sector. This is often called the ‘dynamic’ component because it is associated with Kaldorian increasing returns (i.e. the movement of labour into propulsive sectors driving productivity growth and returns to scale are achieved) (see Kucera and Roncolato, 2012). However, the interaction term would also be positive if labour moved out of decreasing productivity sectors.
Figures 6 and 7 show the evolution of labour productivity and employment in 10 sectors of the South African economy for the period 1960 to 2010. In recent years, labour productivity was high (relative to productivity in the total economy) in three ‘industrial’ sectors (mining, utilities, and manufacturing) and two services sectors (business services and transport services).\(^9\) It was consistently low in construction, agriculture, trade services and personal services. Thus the dramatic increase in the share of employment in trade services would have had a large negative effect on productivity (via component I in expression 3) whereas the decline in agricultural employment would have had a positive effect in the 2000s. The increase in productivity in mining would have a strong ‘within’ effect (because productivity is higher than average) but the interaction effect would be negative because of the shift of labour out of an increasing productivity sector.

\(^9\) The decline in labour productivity in business services is probably primarily driven by the heterogeneity of the sector (and in particular, outsourcing of low value added services such as cleaning and security from manufacturing and mining). For further discussion on sub-sectoral issues see Tregenna (2008).
Table 1 presents the results of the shift-share decomposition run for various periods. From 1960 to 1972, strong labour productivity growth (4.18% per annum, 63.4% for the whole period) breaks down as follows. Within-sector productivity growth accounts for about half of total economy labour productivity growth. The ‘shift’ component accounts for a slightly smaller part, and the interaction term is small but positive and non-negligible. In all other periods, the interaction term is negative. This is particularly so for the post-1994 period.

Table 1: Decomposition of labour productivity growth, South Africa

<table>
<thead>
<tr>
<th>Period</th>
<th>I (shift)</th>
<th>II</th>
<th>III (within)</th>
<th>ΔP/Po overall</th>
<th>ΔP/Po annualised</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994-2010</td>
<td>0.107</td>
<td>-0.137</td>
<td>0.430</td>
<td>0.400</td>
<td>2.13%</td>
</tr>
<tr>
<td>1994-2000</td>
<td>0.033</td>
<td>-0.066</td>
<td>0.111</td>
<td>0.078</td>
<td>1.26%</td>
</tr>
<tr>
<td>2001-10</td>
<td>0.017</td>
<td>-0.012</td>
<td>0.216</td>
<td>0.221</td>
<td>2.24%</td>
</tr>
<tr>
<td>1982-93</td>
<td>0.127</td>
<td>-0.067</td>
<td>-0.246</td>
<td>-0.186</td>
<td>-1.85%</td>
</tr>
<tr>
<td>1973-81</td>
<td>0.162</td>
<td>-0.005</td>
<td>0.067</td>
<td>0.224</td>
<td>2.56%</td>
</tr>
<tr>
<td>1960-72</td>
<td>0.263</td>
<td>0.066</td>
<td>0.306</td>
<td>0.634</td>
<td>4.18%</td>
</tr>
</tbody>
</table>

| 3 sectors   |           |     |             |                |                  |
|-------------|-----------|-----|--------------|------------------|
| 1994-2010   | 0.051     | 0.000 | 0.349       |                  |
| 1982-93     | 0.071     | -0.030 | -0.227      |                  |
| 1973-81     | 0.097     | 0.005  | 0.121       |                  |
| 1960-72     | 0.267     | 0.066  | 0.302       |                  |

Source: Own calculations from de Vries et al. (2013)
A similar pattern was observed in Brazil for 1995-2009, where a positive ‘shift effect’ was partially offset by a negative dynamic effect “resulting from the declining share of fast growing sectors in total employment” (UNIDO, 2012: 37). However, in Brazil, unlike in South Africa, the shift effect tends to be larger than the ‘within’ effect. For similar results, see Kucera and Roncolato (2012), who find that the structural change and shift components tend to both be positive, with the ‘within sectors’ effect much larger for Asia than for Latin America.

McMillan and Rodrik (2011) and McMillan et al. (2013) present results differ from those of UNIDO and Kucera and Roncolato. In particular, they find that ‘structural change’ has a negative impact in Latin America and Africa (albeit they find some evidence of reversal of this trend for Africa After 2000). The variation in the results of shift-share analyses reflects differing methodologies, levels of aggregation, and datasets, and suggests that far more research is required in this area. Growth accounting, both that using Solow style and shift share style decompositions, is notoriously fraught with difficulty. This is so even in the much-studied US case (see Field, 2003).

Nevertheless, the suggesting that structural change may be adverse is suggestive (see also de Vries et al. 2012: 213). De Vries et al stress that the results are sensitive to the level of aggregation and that aggregate results are affected by shifts between the formal and informal employment within sectors. Thus, in India, increasing informality following liberalisation reduces productivity growth. This may be concealed to the extent that informal activity is not enumerated. In Brazil, where the trend is towards increasing formalisation, the opposite is the case.

These considerations reinforce the argument that a conventional interpretation of increasing labour productivity (i.e. that it is ‘good’) needs to be challenged.

4. CONCLUSION: POLICY IMPLICATIONS AND FUTURE RESEARCH
The paper emphasises at the outset that conventional and alternative perspectives on what drives economic growth and development have led to very different policy prescriptions and emphases regarding catch-up. However, while there is continued dominance of the mainstream orthodoxy, such dominance is becoming harder to detect. This is exemplified by the writings of Lin (2010) and the 'new structuralist' school. Wade (2010: 159) refers to “a new ambiguity” that has emerged in development policy since the global financial crisis, with more policy experimentation by states and renewed discussion of industrial policy in particular. In this regard, Lin’s (2010) writings on industrial policy, while emphasising “the role of government in helping firms exploit the country’s existing comparative advantage...[say] little about the role of government in creating comparative advantage” (Wade, 2010: 159; emphasis added).

The continuing divide on the role of the state in development is reflected in debates about productivity growth and structural change in middle income countries. It is evident from the discussion in this paper, however, that the trade liberalisation and associated policies of the late 1980s and the 1990s had important consequences for economy-wide productivity in Latin American and some African countries, leading to productivity-reducing structural change and, in some BRICS countries, premature deindustrialisation (Palma, 2008). It is clear that increasing labour productivity can be associated with rising unemployment and increasing informality, or low value-added service sector jobs. An important policy lesson for South Africa in particular is that sectors and sub-sectors important for growth and those important for employment may not be the same (Tregenna, 2012).

The heterodox approach emphasises a coherent nexus of trade, industrial and technology policies to facilitate learning by doing and productivity-enhancing structural change within a national system of innovation. Cimoli et al. (2011: 30) and Khan (2009) highlight the effort that needs to be deployed in order to facilitate technological learning, and how ensuring that the capabilities exist to
produce this effort should be a policy priority for learning and technology acquisition. Khan (2009) argues that the effectiveness of policies for such learning and technology acquisition will depend on the suitability and interaction between governance agencies, firm structures and the political settlement in the country. Active industrial and technology policies are required in order to foster appropriate structural change. In addition, labour market policies that move towards a decent work agenda and a macroeconomic framework that addresses stability concerns arising from volatile financial flows are needed.

Research in the BRICS countries should focus on the following:

- There is a need to study the impact of structural change and productivity growth on employment, poverty AND inequality: the inequality aspect has been more neglected in the recent literature (but see Palma, 2011b).
- It is necessary to study sectoral and sub-sectoral patterns of change alongside the broader macroeconomic/development/comparative analyses to facilitate the development of industrial and technology policy ‘in context’.
- There is a need to interrogate the usefulness of the productivity concept as an indicator of progress: as noted above, increasing labour productivity can be associated with rising unemployment and increasing informality, or low value-added service sector jobs.

REFERENCES


Astogra et al. 2005


