

The Employment Intensity of Output Growth: A Comparison of BRICS Countries

By Dr Njabulo Mkhize

The writer is Senior Lecturer in the Department of Economics at UNISA



Dr Njabulo Mkhize

The relationship between growth, productivity and employment is not always as plain as we would like to think. In this comparative analysis of employment in the BRICS countries, the writer shows how different sectors in a country perform with regard to job creation: some sectors show growth but fewer jobs are created while others record both growth and an increase

in employment. He explains these differences according to “employment elasticities” – the percentage change in employment that results from the degree of capital or labour intensive production and how this affects productivity in different sectors.

INTRODUCTION

A number of studies have investigated and analysed the empirical relationship between economic growth and employment. Most of these studies are a response to the immediate challenge of employment creation faced by a number of countries. In these countries, it seems that growth, generally regarded as the creator of employment, is not able to create adequate employment opportunities for the growing unemployed population. Therefore, both growth and employment creation have become imperatives that resonate in most countries today. Following the aftermath of the 2008/09 financial crisis, a number of countries have been faced with the challenge of strengthening

their weak recoveries and creating more jobs. There is a further recognition that even in countries that have experienced exceptionally high rates of economic growth, employment creation has declined. The reasons for this phenomenon are still not fully understood. These facts suggest that there is a strong need to better understand the employment-growth relationship.

During the past two decades Brazil, Russia, India, China and >>



Despite the declining employment levels, production in the agricultural sector continues to serve as the backbone of Brazil’s economy, with approximately 70 per cent of the country’s land being suitable for cultivation.



The economic transition achieved by Russia, from a command to a more market-oriented economy, resulted in vast regional differences in growth rates.

South Africa (the BRICS countries) have become important players in the globalisation process. Although some regard them as a highly heterogeneous group of countries with different sizes, populations and weight in the global economy, these countries enjoyed long and sustainable growth paths from 1990 to 2008, with the exception of South Africa.

The discussion below examines some of the BRICS country-specific estimates of employment elasticities for the main economic sectors, i.e. agriculture, mining, manufacturing, construction, wholesale trade and transport. However, India is excluded due to the lack of available data on employment and growth per sector. Hence, the purpose of this paper is to give a comprehensive review of the sectoral employment intensity of growth trends since the early 2000s in Brazil, Russia, China and South Africa, highlighting the periods during which these countries initiated important reforms that affected employment. In this light, it further examines the effectiveness of labour market and macroeconomic policies supporting sustainable employment creation.

BRAZIL

During the early 1990s, the Brazilian economy experienced a number of socio-economic transitions marked by significant macroeconomic reforms and a number of global and regional financial crises. One of these reforms was aimed at fighting hyperinflation, which only managed to stabilise in the mid-1990s at around 8% per annum (OECD, 2010).

Like most BRICS countries, the main challenge for Brazil has been to increase employment rapidly enough to cope with the high rates of growth in the labour force.

In Brazil there were three instances of negative employment elasticity or jobless growth. These were in the agricultural sector (-0.51), mining sector (-7.03) and construction sector (-8.05). The negative employment elasticity in the agricultural sector can be associated with structural changes away from agriculture into the services sector, as the country experienced a decline in employment in agriculture, despite positive growth in agriculture value-added. The economic reforms that were initiated in the 1990s were aimed at achieving greater economic stability by shifting labour from low productivity agriculture to the higher productivity industry and services sectors (OECD, 2010). Despite the declining employment levels, production in the agricultural sector continues to serve as the backbone of Brazil's economy, with approximately 70% of the country's land being suitable for cultivation. The production of sugarcane, for instance, increased from about 390 million tons in 2003 to more than 690 million tons in 2008.

In the mining sector, the relatively low employment elasticities and high value-added growth rates between 1999 and 2005 indicate that value-added growth has been driven more by gains in productivity than gains in employment. Although this sector employs fewer workers than in

agriculture, technological advances have greatly increased its productivity over time. The manufacturing sector, being the third largest employment sector, accounted for more than 13 million workers in 2007, from 10.6 million workers in 2002 (OECD, 2010). This sector contributed more than 13% to GDP in 2008 (Central Bank of Brazil, 2010). Although it was perceived as an important sector in terms of employment, the low employment elasticities, together with high value-added growth rates, particularly between 2002 and 2008, also indicate that Brazil experienced robust growth in labour productivity in manufacturing during this period.

In the construction sector, negative employment elasticity accompanied negative growth in value-added output between 1999 and 2002, implies that the falling employment could be attributed to a decline in output growth. However, 2002 to 2005 saw a gradual increase in value-added growth, together with a slight recovery in employment. In the most recent period, between 2005 and 2008, sector output grew by over 18% and the employment elasticity of 0.71% was high enough to translate into employment gains by the sector.

RUSSIA

The economic transition achieved by Russia, from a command to a more market-oriented economy, resulted in vast regional differences in growth rates. Between 1993 and 1997, annual average growth rates in real per capita income across the different regions ranged from -9.0 to 15.7% (Berkowitz and DeJong, 2001). A number of regions maintained barriers against inter-regional trade and opposed the adoption of economic reforms (Berkowitz and DeJong, 1999).

A weak response in the dynamics of employment to changes in output is an important feature of the Russian labour market. This legacy of low labour

elasticity was mainly responsible for the slow absorption of excess labour in post-Soviet Russia (Wolnicki, 2006). A number of studies on firms in transition economies have found low employment elasticity in the initial stages of the transformation process.

Despite a dramatic growth in value-added output in most sectors, the low employment elasticities are indicative of firms' failure to adjust employment levels commensurate with increases in sector output. During the period 1999 to 2002, the negative employment elasticity of -0.73, combined with high value-added growth rates of 28.1 in the agricultural sector, showed clearly how this sector experienced jobless growth alongside robust productivity gains. According to Linz (1998), the unsustainably low employment elasticities in Russia's manufacturing sector were as a result of inherited socialist production and employment patterns. The elasticity coefficient was found to be very low compared to other transition economies at a similar stage in the transformation process.

CHINA

China has enjoyed a long period of sustained economic growth since the late 1970s. Since 1978, when it began to



As with other BRICS countries, China's challenge has been to increase employment fast enough to cope with the high growth rate in the labour force.

implement its major macroeconomic reforms, real GDP growth has averaged around 11% per annum. From 1990 to 2008, China recorded an impressive economic performance, with its share of total world GDP increasing from 1.6% in 1990 to 7.1% in 2008, outperforming some of the G-7 countries such as Canada, France, Germany and the United Kingdom (World Bank, 2012). As with other BRICS countries, China's challenge has been to increase employment fast enough to cope with the high growth rate in the labour force.

Examining the historical sectoral employment elasticities, together with value-added growth rates, can be a useful indicator for measuring structural economic changes and labour market compositions. During the period from 1999 to 2008, the agricultural sector realised very low negative employment elasticities and rapid value-added growth rates. The negative employment elasticities, combined with high value-added growth rates, imply that the agricultural sector experienced a decline in the employment intensity of output growth and robust productivity growth. Because of the rapid urbanisation process, labour migration led to an expansion of low labour cost non-agricultural sectors, while increasing productivity in the agricultural sector.

The manufacturing sector showed a tremendous increase in value-added growth, coupled with positive yet very low employment elasticities during the entire period under review. In other words, in spite of the large influx of low-skilled labour surpluses from rural areas, growth in manufacturing has also resulted mainly from labour productivity growth, rather than employment growth. In fact, according to Ghose (2005), during the initial periods of labour productivity gains in manufacturing, particularly from 1996 to 2002, manufacturing employment declined at a rate of more than 3% per annum, while growth in



... the acceleration in migration of rural surplus workers as well as the process of rapid technological change in industry, have led to increased labour productivity growth and the worsening of employment conditions in urban China.

labour productivity was nearly 12% per annum. This suggests that the low employment effect of growth in the manufacturing sector was largely due to a rapid technological change involving a significant increase in the capital and skill intensity of output.

A similar pattern is also evident in all other sectors (i.e. construction, wholesale and transport), as these also show positive but low employment elasticities and high value-added growth rates. Given the effects of transformation from a dual economy to an industrialised country, multiple factors, such as the acceleration in migration of rural surplus workers as well as the process of rapid technological change in industry, have led to increased labour productivity growth and the worsening of employment conditions in urban China.

SOUTH AFRICA

Previous studies on employment and growth in South Africa have ➤

taken several forms. Some of these studies have adopted a narrative (or qualitative) approach (Nattrass, 1998; Loots, 1998; Mahadea, 2003; Strydom, 1996; Hofmeyer, 1996; Abedian and Schneier, 1987; Kingdon and Knight, 2005; Altman, 2008). Others have adopted a more quantitative and statistics-based methodology (Mahadea and Simson, 2010; Hodge, 2009; Bhorat and Oosthuizen, 2008; Simkins, 1977; Bhorat and Leibbrandt, 1998).

Within the construction sector it is clear that this sector experienced diverse employment outcomes. Between 1999 and 2005, the employment elasticity reflects the sector's very poor employment generation. This sector experienced employment losses, largely due to the contraction in activity with regard to residential construction, as financing costs increased and the weak housing market translated into fewer building plans being approved (SARB, 1999). During the period 2005 to 2008, the sector witnessed accelerated value-added growth rates alongside an increase in employment intensity. The recovery of employment performance



... South Africa has increasingly specialised in capital-intensive products, after having shifted production in favour of capital-intensive sectors to the detriment of labour-intensive ones.

was evidenced by the large number of jobs that were created as non-residential building activity countered the depressed situation in residential building activity (SARB, 2008).

The finance sector shows an almost opposite pattern to those of the construction sector. The employment elasticity values in the finance sector exceeded those in the construction sector during the initial periods. The sector experienced overall increases in value-added growth ranging between 3.23 and 7.65% throughout the entire period under review. During these four periods, growth in the finance sector averaged 5.6% per annum, thereby making a substantial contribution to real gross domestic production.

This is the largest and fastest growing segment of the South African economy (Altman, 2006). According to O'Connell (1999), developed economies that have succeeded in dealing with the challenge of high unemployment have relied on the expansion of high-value services such as finance, business and professional services. This is indicative of the sectoral shift that characterised the output structure of the South African economy from primary and secondary sector activities to tertiary sector activities (Bhorat and Oosthuizen, 2008). This dispels the concerns that the South African economy is overly resource-based.

Manufacturing has experienced low and declining employment elasticities. The issue of low employment elasticity amplifies the significance of the intensification of the changing structure of the economy, which is shifting away from both the primary and secondary sectors towards tertiary or service-based output. Between 2002 and 2005, value-added growth in the manufacturing sector declined from 3.66 to 3.10%, before rebounding to 5.13% during the period 2005 to 2008. The decline in manufacturing output growth between 2002 and 2005 coupled



... sectors that experience favourable economic conditions and increased output are more likely to create jobs than sectors that face less favourable economic conditions and falling output.

with an increase in employment elasticity of 0.18, implies that this sector experienced low productivity growth in this period. Also, it is important to note that even though the sector maintained positive value-added growth during the periods 1999-2002; 2005-2008 and 2008-2012, employment elasticity remained negative. This reinforces the fact that South Africa has increasingly specialised in capital-intensive products, after having shifted production in favour of capital-intensive sectors to the detriment of labour-intensive ones (Samson et al., 2001).

Based on the above discussion, it is clear that the response of employment generation to changes in value-added growth has been fairly heterogeneous across sectors. Changes in the level of employment creation could be related to general and sector-specific factors prevalent during a given period (Oosthuizen and Bhorat, 2004). Therefore, sectors that experience favourable economic conditions and increased output are more likely to create jobs than sectors that face less favourable economic conditions and falling output.



SUMMARY AND CONCLUSION

Most studies that have investigated the empirical relationship between employment and growth are based on estimates of the output elasticity of employment. While some of these studies were a response to the immediate challenge of employment creation, others were aimed at addressing fears regarding reforms that may have weakened or even eliminated the positive correlation between growth and employment.

The employment elasticity trends among the BRICS countries have been heterogeneous across sectors, reflecting country-specific factors, such as the labour market structure and composition, as well as labour market regulations and policies.

In South Africa, the differences in employment elasticity outcomes identified in the studies reviewed shed some light on the country's production. The low and deteriorating employment elasticity reported by most studies indicate that production may have shifted in favour of capital-intensive sectors, to the detriment of

labour-intensive ones. Other studies were able to show that the challenge of joblessness in South Africa, was attributed to factors such as the comparatively weak long-term growth, globalisation and labour legislation, crime and corruption, as well as increasing capital intensity.

REFERENCES

- Abedian, I. and Schneier, S. 1987. An Analysis of Formal Sector Employment in South Africa: Its Implications for Poverty and Future Employment Strategies. SALDRU Working Paper No. 7, Southern African Labour and Development Research Unit (SALDRU), University of Cape Town.
- Altman, M. 2006. Identifying employment-creating sectors in South Africa: the role of services industries. *Development Southern Africa* 23(5): 627-647.
- Altman, M. 2008. Revisiting South African employment trends. *South African Journal of Economics*, 76 (2): 126-147.
- Berkowitz, D. and DeJong, D. 1999. Russia's internal border. *Regional Science Urban Economics*, 29: 633-649.
- Berkowitz, D. and DeJong, D. 2001. Policy reform and growth in the post-Soviet Russia. William Davidson Institute Working Papers Series 405. William Davidson Institute, University of Michigan.
- Bhorat, H. & Leibbrandt, M. 1998. Estimates of wage-employment elasticities for South Africa. Unpublished paper.
- Bhorat, H. and Oosthuizen M.J. 2008. Employment shifts and the 'jobless growth' debate, in *Human Resources Development Review*: 2008. Cape Town: HSRC Press.
- Central Bank of Brazil. 2010. Annual Report, Volume 46, Banco Central do Brasil/Department of Economics (Depec), Brazil.
- Ghose, A.K. 2005. Employment in China: recent trends and future challenges. *Employment Strategy Paper 2005/14*. Geneva: ILO.
- Hodge, D. 2009. Growth, employment and unemployment in South Africa. *South African Journal of Economics*, 77(4): 488-504.
- Hofmeyer, J. 1996. The South African labour market, in Maasdorp, G, 1996: Can South and Southern Africa become Globally Competitive Economies? London: Macmillan.
- ILO. various years. LABORSTA Database. Department of Statistics. Geneva: ILO.
- Johnson, S., McMillan, J. and Woodruff, C. 1999. Property rights, finance and entrepreneurship. Mimeo, Stanford University Business School, 22 June.
- Kingdon, G. and Knight, J. 2005. Unemployment in South Africa, 1995-2003: Causes, Problems and Policies. Paper presented at the "10 Year Review of the South African Economy" conference, Stellenbosch University, Stellenbosch, South Africa.
- Linz, S.J. 1998. Ownership and employment in Russian industry: 1992-1995. William Davidson Institute Working Paper No.138. University of Michigan Business School.
- Loots, E. 1998. Job creation and economic growth. Paper presented at the Biennial Conference of the Economic Society of South Africa, September, Potchefstroom, South Africa.
- Mahadea, D. 2003. Employment and growth in South Africa: hope or despair? *South African Journal of Economics*, 71(1):21-48.
- Mahadea, D. and Simson, R. 2010. The challenge of "Low Employment Economic Growth" in South Africa: 1994 – 2008. *South African Journal of Economic and Management Sciences*, 13(4): 391-406.
- Nattrass, N. 1998. Growth employment and economic policy in South Africa: a critical review. Centre for Development and Enterprise, CDE Focus No. 2.
- O'Connell, P.J. 1999. Astonishing success: economic growth and the labour market in Ireland. *Employment and Training Papers*, No. 44. Geneva: ILO.
- OECD. 2010. Tackling Inequalities in Brazil, China, India and South Africa: The Role of Labour Market and Social Policies. Paris: OECD Publishing.
- Oosthuizen, M.J. and Bhorat, H. 2004. The South African Labour Market 1995-2002. Paper presented at the DPRU/TIPS Forum, 13-15 October, Cape Town.
- QUANTEC. various years. Data retrieved May 21, 2014 from QUANTEC online database.
- Rutkowski, M. 1990. Labour hoarding and future unemployment in Eastern Europe: the case of Polish industry. Discussion Paper No. 6, LSE Centre for Economic Performance.
- Samson, M., MacQuene, K. and van Niekerk, I. 2001. Capital/skills intensity and job creation: an analysis of policy options. Paper presented at the Tips 2001 Annual Forum 10-12 September, Misty Hills, Muldersdrift.
- SARB. 2008. The South African Reserve Bank Quarterly Report. Pretoria: SARB.
- Simkins, C.E.W. 1977. Measuring and predicting unemployment in South Africa. In Simkins, C.E.W. and Clarke, D. (eds). *Structural unemployment in South Africa*. Pietermaritzburg: University of Natal Press.
- Strydom, P.D.F. 1996. Economic growth. AIPA Report, February 1996. Johannesburg.
- Wolnicki, M. 2006. Jobless growth: a new challenge for the transition economy of Poland. *International Journal of Social Economics*, 33(3): 192-206.
- World Bank. 2012. Job Trends. Washington, DC: World Bank. [NA](#)