

South Africa's growth paradox

By

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Abstract

South Africa has achieved a lot since 1994, when ANC-led government took office. The Performance of the economy since 1994, as measured by the growth rate, has been encouraging with an average growth rate of approximately 2.8% per annum. The inflation rate has been recently under control at between 3% and 6% per annum, the inflation target set by the South African Reserve Bank (SARB). Despite this success problems of unemployment and poverty are still very much with us and have not yet begun to diminish unambiguously. Poverty is around 45% to 50% while broad unemployment rate is somewhere around 26% to 40%. This paper attempts to reexamine the debate on whether SA is experiencing jobless or job creating growth in the context of Okun's law. Making use of the Structural Vector Autoregressive (SVAR) technique to characterize the dynamics of employment in response to output shocks, this study concludes that while an increase in output increases total employment in general; nevertheless there are some sectors (such as primary and secondary sectors) where the impact of output shocks has been negligible.

1. Introduction

A man willing to work, and unable to find work, is perhaps the saddest sight that fortune's inequality exhibits under this sun
- Thomas Carlyle

Has South Africa experienced job creating or Jobless growth¹? This astonishingly simple question has generated more heat than light: at one extreme is Schussler (2004) claiming

¹ Jobless growth and jobless recovery are used interchangeably in this paper.

that the employment figures for the September 2003 and March 2004 Labour Force Surveys show employment creation at 60 000 jobs per month (about 5% per annum) and that the June 2004 survey of Employment and Earnings shows employment creation for the previous 12 months to have been at a rate just over 3%-which he claims to have been the highest employment growth rate since March 1981 to March 1982. On the other hand Mahadea (2003:23) argues that while theory assumes a positive correlation between employment and economic growth, "In reality, however, positive economic growth rates in South Africa have been associated with shrinking job opportunities in the formal sector during the past few years". Loots (1998) agrees with Mahadea: South Africa has produced a remarkable case of jobless growth. Against this background this paper will be mainly concerned with critically evaluating these views through the lens of Okun's Law, which postulates an inverse relationship between unemployment rate and growth rate of GDP. As a way of setting the scene to the above investigations, section 2 will provide snapshots of the literature review to the topic. Section 3 will re-examine the debate on whether South Africa is experiencing Job creating or Jobless growth in the light of Okun's law. Finally section 4 will provide an empirical evidence of the growth rate and employment relationship in South Africa.

2. Literature review

In the period since Okun's original paper the notion of unemployment-economic growth relations has been a central facet of macroeconomics. Indeed his ideas do provides valuable insight regarding the nature of the relationship between employment, unemployment and economic growth (see the appendix for a brief description of the Okun's law). In this section an attempt will be made to review the trends in the employment intensity (or employment elasticity) of economic growth. Most studies have shown that employment elasticities vary within countries over time and from country to country. For example while German and Japan experienced an increase in employment elasticities from the late 1970s to the mid 1990s, France and Sweden witnessed a decrease in their employment elasticities. Other countries such as Italy, UK and US experienced very little changes. In contrast negative employment elasticities were

detected for Italy and Sweden for the period 1990 to 1995. Using a cross-country analysis of EU countries Walterskirchen (1999) found employment elasticities in the neighborhood of 0,65 for the period 1988-98. It is not uncommon to interpret a decrease or negative employment elasticities such as in Italy, France and Sweden as implying jobless growth/jobless recovery. To many observers jobless growth should reflect a structural change and plus increasing capital intensity of production (Khemraj, Madrick and Semmler (2006), Terreblanche (2002). But what exactly underpin this structural shift? Studies based on the US economy such as Khemraj and his colleagues (2006) suggest that it is due to the “relative position of the US in the international economy”. Freeman and Rodgers (2005) present similar argument: structural change maybe attributed to the US performance in the international economy. Reaching similar conclusion, Bernanke (2003) the Governor of the Federal Reserve Board argues that this phenomenon is due to trade and other macroeconomic factors such the US current account deficit.

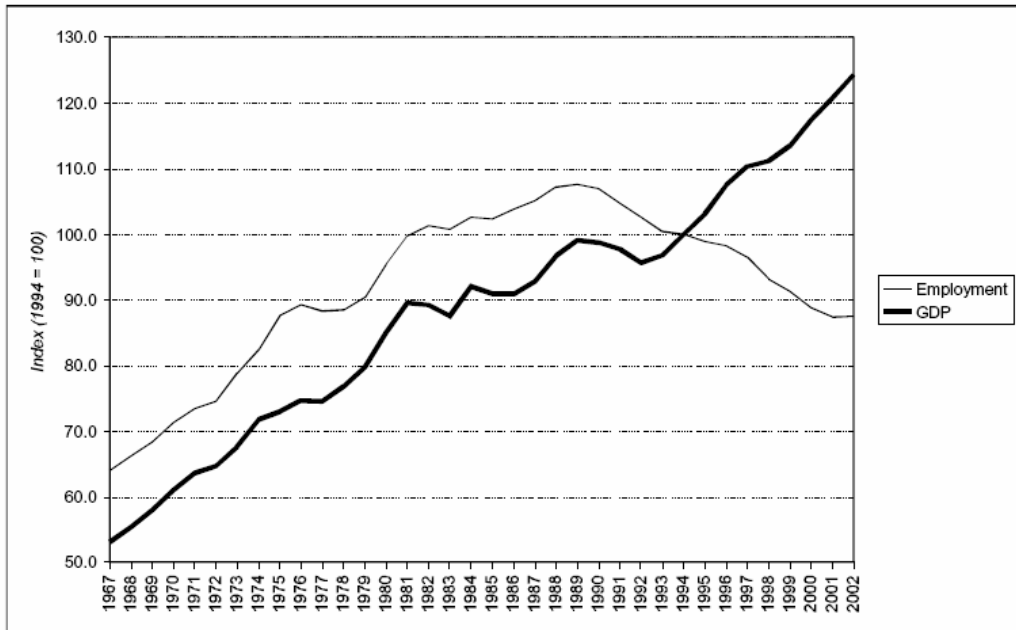
Whatever the explanation, the relationship between unemployment and growth rate of GDP remains an important macroeconomic issue to most economists and policy makers.

3. Growth and employment in South Africa

Following the recession in the early 1990s (1990-1993), South Africa’s economic growth rate has been edging upward. Real GDP growth averaged 2.7% p.a. for the 1994-99 period and 3.9% pa for the 2000-2005 period –with a revised estimate of 4.9% for 2005 (the highest rate since 1981). We know that in a typical recovery, an improvement in economic growth should be accompanied by increase in employment and a decrease in unemployment. Yet South Africa’s growth experience has been ‘paradoxical’: An increase in economic growth is accompanied by increase in both unemployment and employment. There has been some disputes over the interpretation of this phenomenon – with some economist tagging it jobless growth, while others stressing job creating growth. It is however not difficult to see why this has been termed jobless growth. For the period 1993 to 2002 economic growth was associated with unemployment in SA, as Borat and Oosthuizen (2006:158) on whose study we shall rely heavily put it “It is

however impossible to dispute the existence of jobless growth in South Africa in the sense of positive economic growth accompanied by rising unemployment...” The basic evidence on which the claim of jobless growth is based is shown below:

Figure 1, Non-agricultural formal employment and real GDP, 1967-2002



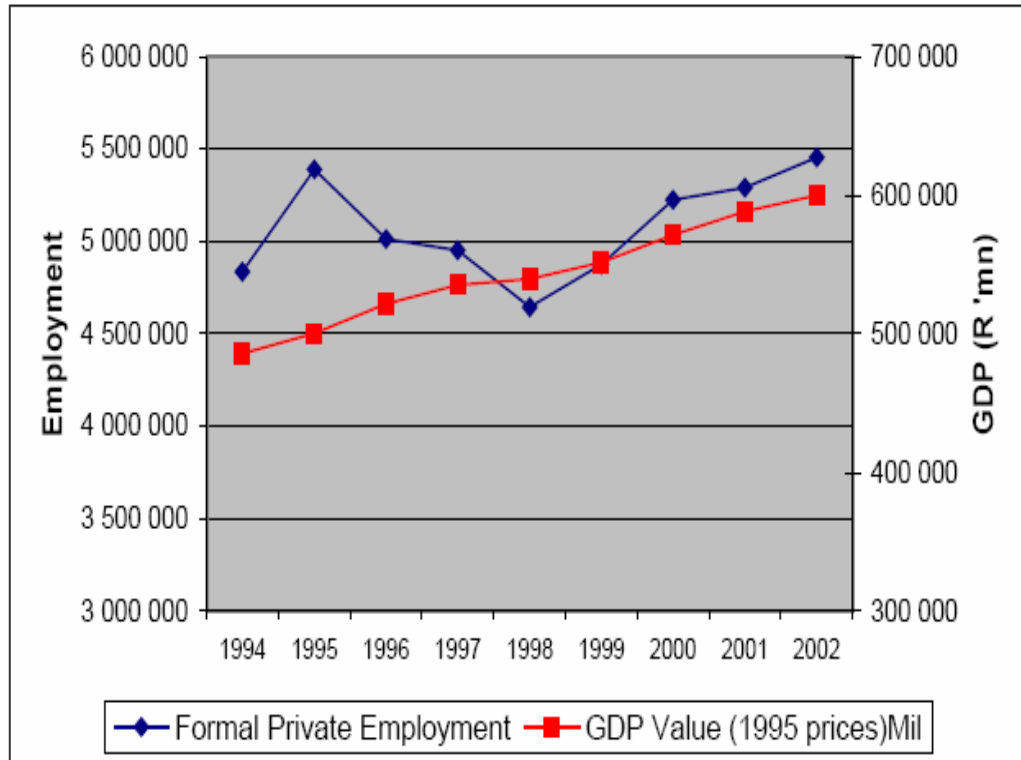
Source: South African Reserve Bank, 2003

A number of features stand out in this diagram – from the late 1960s to the early 1990s employment and economic growth moved together. That is an increase in economic growth led to an increase in employment. While a decrease in economic growth (recession) was associated with a decrease in employment. In contrast, for the period 1994 to 2002 things looked very different – higher economic growth was accompanied by decrease in employment (jobless growth). More particularly, between 1994 and 2002 employment decreased by 12% (Bhorat and Oosthuizen, 2006:158). However one should not take these figures at face value given the uncertainties and controversies surrounding the employment data on which these figures are based. As Oosthuizen (2006:9) put it “...the underlying employment data renders the conclusion of jobless growth problematic. These problems lie not in the deduction made on the basis of the data presented, but rather more in the coverage and reliability of the underlying data” The first

problem has to do with comparability: while the real GDP represent output of the economy as a whole, the employment surveys Manpower surveys and Surveys of employment and Earnings exclude certain sectors such as agricultural and informal sectors. Furthermore (Bhorat and Oosthuizen, 2006:156) list a whole range of other sectors not covered by the SEE. These include water and air transport, telecommunication services, real estate and business services, ect.

Is there evidence which support the job-creating hypothesis? Indeed there is some evidence based on Labour Force Survey and October Household Survey which suggest that between 1995 and 2002 there has been some net growth in employment. More particularly, South Africa registered an increase in employment of 1.5 million for the period 1995 to 2002, from 9.5 million to 11.5 million (Bhorat and Oosthuizen, 2006:158). Reaching similar conclusion, Altman (2003: 14) who is the Executive Director of Employment and Economic Policy Research Programme Human Sciences Research Council recalculated the relationship between employment and growth using LFS & OHS. His results are presented in figure 2, which shows that for the period 1998 and 2002 employment was growing at about the same rate as economic growth. Although these Surveys (OHS & LFS) are perceived to be better than SEEs and MPSs they are not without problems. As Simkins (2004:15) put it: "...there are breaks in the employment and unemployment series between the October Household Survey up to 1999 and the Labour Force Survey from 2000 onwards, and there was also a breakdown in the Survey of Employment and Statistics in the late 1990s. That has been changed, so we're unsure of what's happening". There are various examples that can be produced which show the difficulties that are created for sensible interpretation of the unemployment trend (or fluctuations) by deficiencies, or oddities, in the figures (see Standing, Sender and Weeks (1996), Schlemmer and Levits (1998:71).

Figure 2, GDP and employment Growth (Formal Private, Non- Agriculture



Source: October Household Survey and Labour Force Survey

The estimates of employment elasticity which are in the spirit of the Okun's law have also shed more light on the relationship between employment and economic growth in South Africa. Oosthuizen (2006:10) produces a table (see table 1 below) of simple employment elasticity where he shows that for the period 1995-04 employment elasticity was 0.76. That is a one percent increase in economic growth is associated with 076 percent increase in employment. UNDP report (2003:10) also shows a diagram of employment elasticity for different periods (1970-2002). The diagram indicates that for the period 1970-94 employment growth was associated with economic growth while for the period 1994 onwards employment growth lagged behind economic growth. Geldenhuys and Marinkov (2006:2) found employment elasticity for South Africa of 0.45 for the period 2001-05. But they stresses that employment growth has become less responsive to changes in economic growth since the mid-1980s. All in all these estimates

and the evidence based LFS and OHS data indicate that the notion of jobless growth is misplaced in South Africa.

Table 1, Simple elasticity of employment in South Africa

	<i>Annual Percentage Change in:</i>		$\frac{\Delta \text{Employment}}{\Delta \text{GDP}}$
	<i>Total Employment</i>	<i>GDP</i>	
1990-1995	0.13	0.8	0.16
1995-2004	2.27	3.0	0.76

Source: For 1990-1995 figures, Loots (1998). For 1995-2002 figures, Borat (2003) and Oosthuizen (2006).

However the fact that Employment elasticities are significantly positive does not necessarily mean that South Africa is coping well with the backlog of the unemployed and underemployed. As Oosthuizen (2006:10) put it "...these figures should not be used to lighten the severity of the unemployment problem in South Africa". Indeed the number of jobs being created for every one-percentage growth in economic growth is very small. This means that economic growth will have to grow at higher rate in order to significantly reduce unemployment.

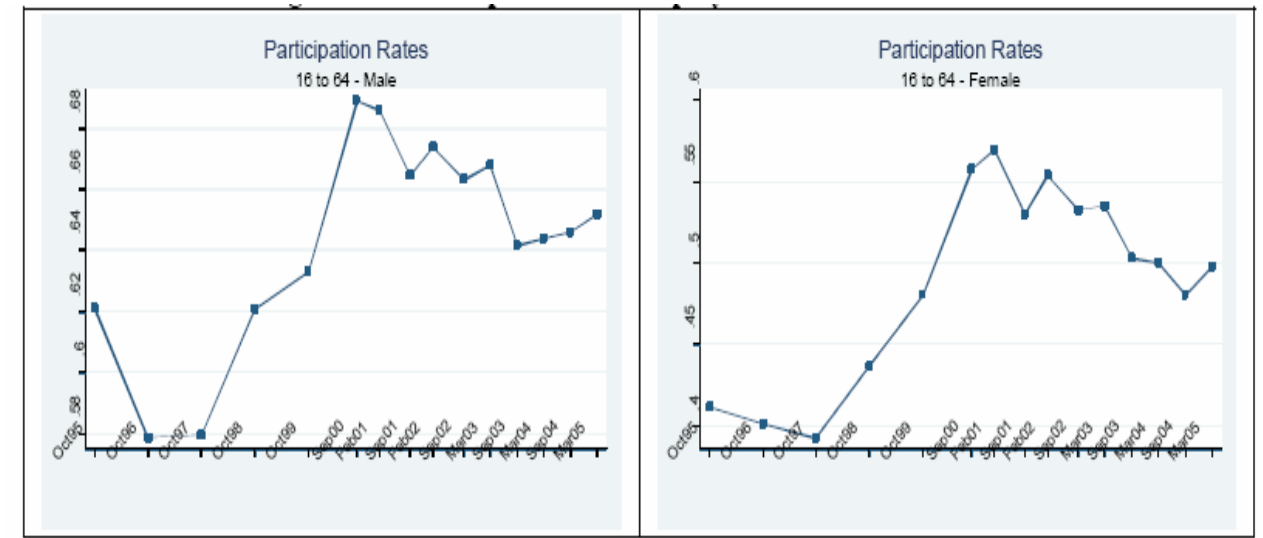
3.1 Explaining the growth paradox

As pointed out earlier on that although unemployment increased between 1995 and 2002, the number of unemployed increased as well. Hirsch (2003; 2004), who was Chief Director: Economic Sector, the Presidency, has emphasized what he call a "jobs paradox" : the root of the problem is not "jobless growth" but rather that unemployment rises even as jobs are being created – and this is partly the result of the rate of increase of the economically active population² . This in turn is the result of an increasing labour force participation rate (see figure 3). – linked to urbanization, an increased degree of social liberation for women and to the fact that a significant proportion of jobs created since 1995 were open to , and attracted, African women. According to Hirsch (2004:31)

² Economically active population comprises people who are either working or who are looking for jobs aged between 15 and 65.

during 1996-2001 “the population grew only moderately by about 2 per cent a year, or 11 per cent over the whole period.

Figure 3: Participation and employment rates



Source: Banerjee, Galiani, Levinsohn and Woolard, 2006

However the number of households increased by 30 per cent! This has various effects – including a bigger burden on the state to deliver services – but it is also contributing to the demand for employment (i.e. the growth of the economically active population). In a nut shell the figures show very clearly that the increase in unemployment prior to 2005 was primarily due to increase in participation (Banerjee, Galiani, Levinsohn and Woolard, 2006:18).

4. Empirical Analysis

In assessing the impact of economic growth on employment in South Africa, this study uses the structural vector autoregressive (SVAR) model to assess the response of employment to economic growth shocks in South Africa.

4.1 The SVAR technique

The “traditional” VAR approach to modeling dynamic behaviours of economic variables was widely used and provided interesting insights in forecasting the dynamic of variables through its impulse response function analysis. Nevertheless since there are little economic inputs in a VAR modeling, it should not be surprising that there is a little economic content in the results provided from the IRF or the variance decomposition analysis. To emphasize the shortcoming of the VAR model, Cooley and LeRoy (1985), cited by Lutkepohl *et al* (2004) argued that VAR have the status of “reduced form” models and therefore are only vehicles to summarize the dynamic properties of the data as they lack any reference to a specific economic structure.

What eventually the SVAR model attempted to achieve is to deduce a structural form relationship from the reduced form VAR, and in this way a VAR can be viewed as the reduced form of a general dynamic structural model. To understand the link between a reduced form VAR and SVAR, let us consider equation (1) below, representing a dynamic structural model. The reparametrisation of equation (1) leads to reduced form relationship represented by equation (2).

$$\Gamma Y_t = B(L)Y_t + e_t \quad (1)$$

$$Y_t = \Gamma^{-1}B(L)Y_t + \Gamma^{-1}e_t \text{ or } Y_t = B^*(L)Y_t + u_t \quad (2)$$

We can infer from the two equations that:

$B^* = \Gamma^{-1}B$ (3) and $u_t = \Gamma^{-1}e_t$ (4). Equation (4) is the core representation of the SVAR model whereby the reduced-form disturbance u_t is related to the underlying structural shocks e_t .

Furthermore because we are interested in our analysis on assessing the response of structural variables (Y_t) to a unit structural innovation (e_t), equations (2) and (4) are reparameterized to obtain the followings:

$$Y_t = (I - B^*(L))^{-1} u_t \text{ or } Y_t = C(L)u_t \quad (5) \text{ where } C(L) = (I - B^*(L))^{-1}.$$

And in the form of structural innovation one obtains:

$$Y_t = C(L) \Gamma^{-1}e_t \text{ or } Y_t = C(L)^* e_t \quad (6) \text{ where } C(L)^* = C(L) \Gamma^{-1}.$$

The parameters $C(L)^* = C(L) \Gamma^{-1}$ contain the IRF of the structural variables to the structural innovations e_t and because the structural innovations have an economic interpretation, therefore the IRF obtained from this representation can be interpreted in a meaningful way. The IRF obtained from equation (5) is atheoretic and devoid of any economic meanings.

Among the important challenges in a SVAR modeling is to recover the structural shocks (e_t) from the observed reduced form innovation (u_t). This refers to the identification problem which is done by imposing some restrictions on equation (4). Two types of restrictions need to be done, first, to assure that structural innovations are uncorrelated and independent from each other, the orthogonality restriction is applied where the covariances of the structural innovations or shocks are restricted to zero. The second restriction is imposed on the parameter matrix Γ , just as it is done in traditional dynamic simultaneous models using the order and rank conditions of identification with the only difference that in SVAR models the parameter matrix Γ models the contemporaneous relationship between the reduced form and structural form innovations, whereas in the simultaneous equation models, the parameter matrix Γ models relationship between variables in the model. As far as the number of restriction in the system is concerned, for a k -dimensional system, $k(k-1)/2$ restrictions are necessary for orthogonalising the shocks because this corresponds to the number of instantaneous covariances given such a dimension (Lutkepohl et al., 2004:162).

It is essential to note that SVAR model deals only with modeling unexpected changes in the variables. This can be seen when subtracting the expected value of Y_t , conditional on information in time $t-1$ from equation (1). In doing so, one also obtains the relationship, $u_t = \Gamma^{-1}e_t$, as in relation (4).

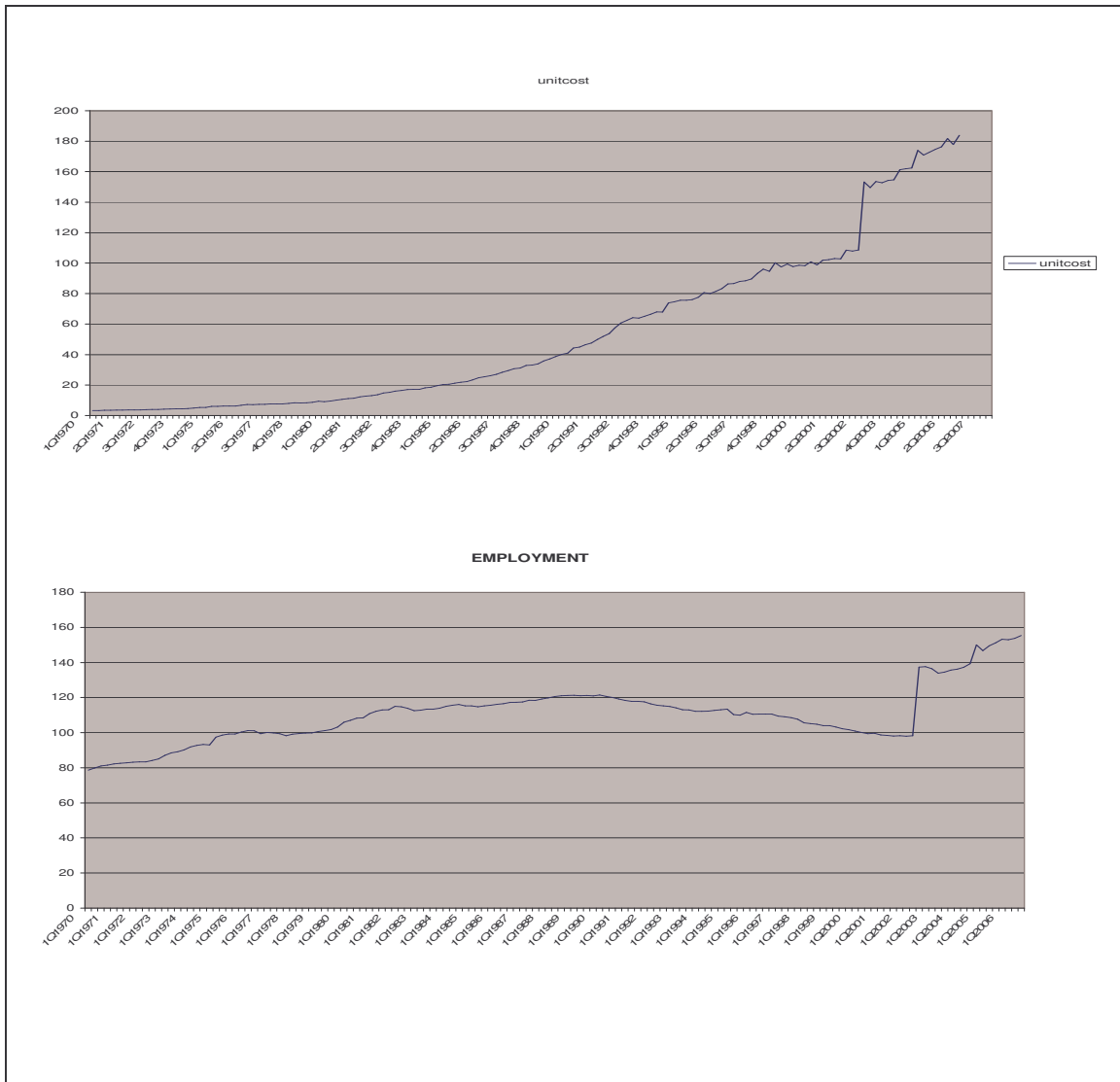
4.2 Data Analysis

In assessing the response of employment to output growth, this study makes use of a vector constituted of three variables: Total Employment (employment), Unit labour cost

(UNITCOST) and GDP growth rate (GROWTH). The data are collected from the South African Reserve Bank quarterly bulletin.

Figure 2 represents the plot of these variables

Figure 4, Unit labour cost , Employment and Economic Growth



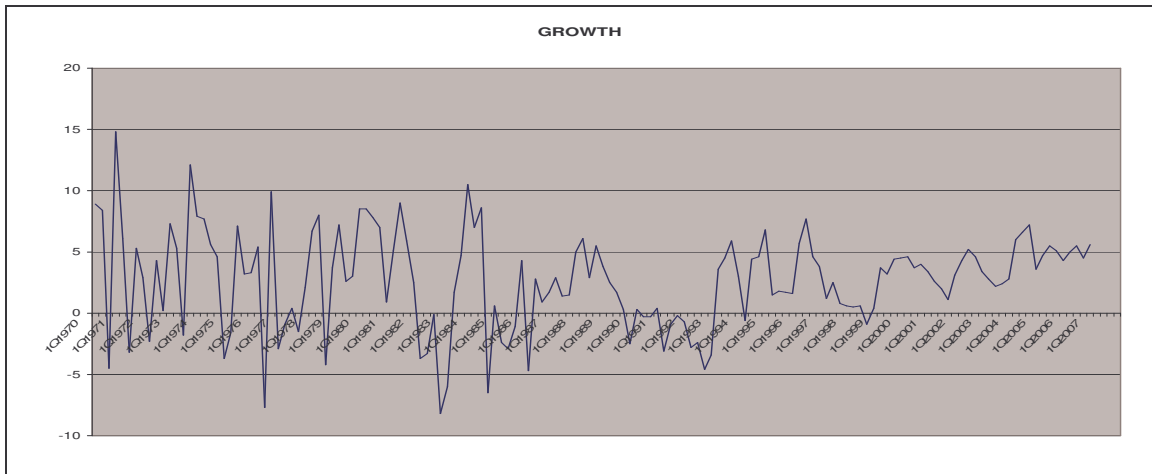
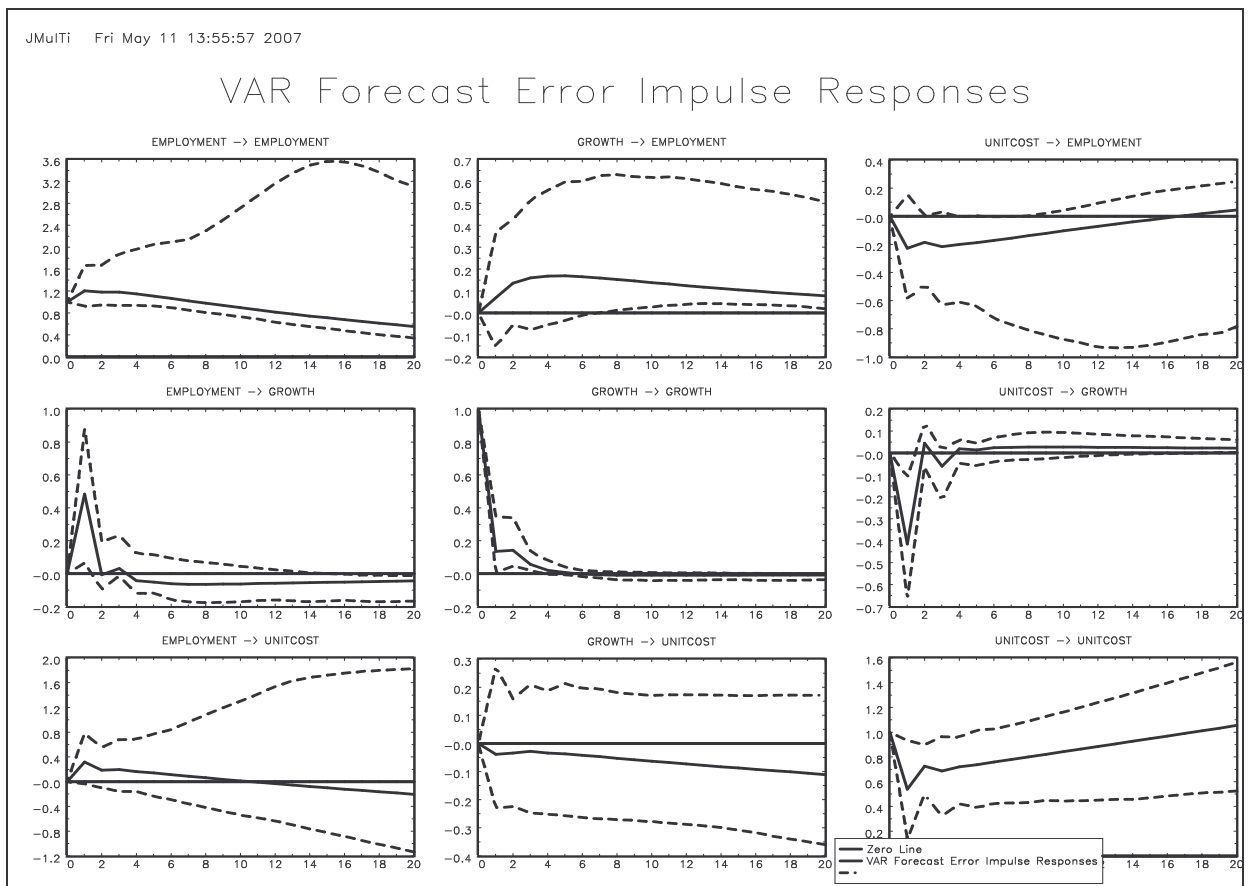


Figure 5, Var forecast error impulse response



To identify the variables, the following restriction is adopted represented by the following matrix:

$$\begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & b_{21} \\ b_{31} & b_{32} & 1 \end{pmatrix} \begin{pmatrix} \mu_{UNITCOST} \\ \mu_{GROWTH} \\ \mu_{EMPLOYMENT} \end{pmatrix} = \begin{pmatrix} a_{11} & 0 & 0 \\ 0 & a_{22} & 0 \\ 0 & 0 & a_{33} \end{pmatrix} \begin{pmatrix} e_{import} \\ e_{GROWTH} \\ e_{EMPLOYMENT} \end{pmatrix}$$

The unit cost is exogenous from price rigidity theory applied in oligopolistic market. We assume oligopolist behaviour in the labour market. Economic growth is dependent on its own shock and a shock from employment. This shows that employment can derive economic growth. Employment is assumed to depend on shocks from economic growth, unit labour cost and its own shock. The vector is just-identified.

The impulse response function is represented in figure 5. An important interpretation comes from the impulse from growth and response by employment (growth \rightarrow employment). The figure shows that though there is a positive relation between growth and employment in South Africa, the relation is not one to one. A one standard deviation shock from economic growth leads to 0.2 standard deviation of employment in period 4, for example. Using a 95% confidence intervals obtained from Hall's bootstrap method using 2000 replication, it is shown from figure 5 that the relationship between economic growth and employment is significant from period 8 (after 8 quarters). Although significant the employment is less responsive to changes in economic growth in South Africa. These results are similar but not identical³ to those of Geldenhuys and Marinkov (2006:2), which confirms that the characterization of the period in question (1995-2002) as jobless growth is inaccurate. However the fact that South Africa did not experience any jobless growth during the period in question should not as Oosthuizen (2006) correctly pointed out "... lighten the severity of the unemployment problem in South Africa".

³ The discrepancy in these results may be attributed to the fact that we used different techniques.

5. Conclusion

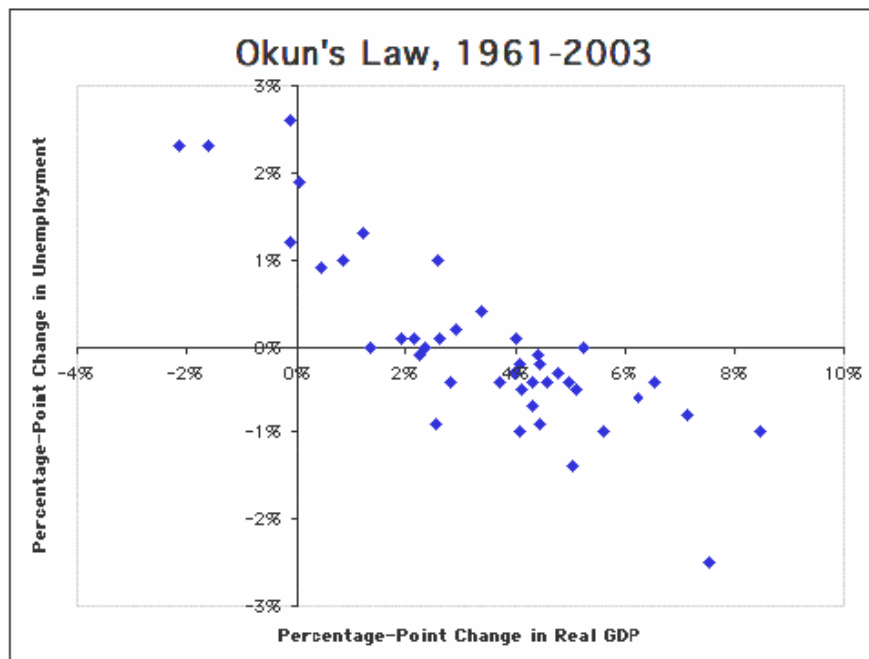
This paper discussed the issue of job-less growth in South Africa and tested the hypothesis of job-less growth using an econometric analysis of the SVAR technique. In particular our result rejects the notion of Jobless growth – shows that a 1% increase in output lead to 0.2% increases in employment. While these results sound ‘promising’, they should not be interpreted to mean that South Africa is coping well with the backlog of the unemployed and underemployed. Unemployment remains very high by historical and international standards. Thus halving unemployment by 2014 as stated in Asgisa document is possible but only with much higher GDP growth – double the current rate or even more⁴.

⁴ See Schussler (Sunday Times 4 February 2007).

Appendix A

Okun's law postulates an inverse relationship between growth rate of GDP and unemployment rate – an increase in GDP of say 3% bring about a decrease in unemployment rate of 1%. This relationship is further illustrated by the following diagram:

Figure 6, Real GDP and growth in unemployment



The diagram based on updated US data set (1961 to 2003) demonstrates that there is negative relationship between unemployment and growth rate of GDP.

In algebraic terms, Okun's Law takes the following two forms:

The Gap Model

$$Y_t - Y^*_t = -\beta (u_t - u^*_t) + e_t \dots\dots\dots 1$$

Where:

Y_t = actual output

Y^*_t = measure of potential output

U_t = unemployment rate

u^*_t = natural rate of unemployment

β = Okun's coefficient

e_t = error term

The Difference Model

$$\Delta y_t = \beta_0 - \beta_1 \Delta u_t + e_t \dots \dots \dots 2$$

Where:

Y_t is actual output

Y^*_t = measure of potential output

By interchanging the growth rate of u and y , we get the the Okun's coefficient.

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