

# South Africa's Post-Apartheid Two-Step: Social Demands versus Macro Stability

Brahima Coulibaly\*  
Board of Governors  
Federal Reserve System  
Division of International Finance  
Mail Stop 24  
Washington, D.C. 20551  
brahima.coulibaly@frb.gov  
Tel:(202) 452-2609

Trevon D. Logan  
Department of Economics,  
The Ohio State University  
410 Arps Hall  
1945 N. High Street  
Columbus, OH 43210  
logan.155@osu.edu  
Tel: (614) 292-0762  
and NBER

January 6, 2009

## Abstract

During Apartheid, there was little need for redistributive policies or to borrow for public works since the vast majority of the population was undeserved. With the arrival of a representative democracy in 1994, however, South Africa faced a unique problem— providing new and improved public services for the majority of its citizens while at the same time ensuring that filling this void would not undermine macroeconomic stability. Over the past fifteen years, policy makers have achieved macrostability, but progress on social needs has been below expectations and South Africa continues to lag behind its peers. This paper reviews the progress made so far and examines the challenges ahead for the incoming new administration. The results from this study suggest an increase in skill formation as a solution to the policy dilemma of fulfilling social demand while maintaining macrostability.

**Keywords:** apartheid, social needs, stability, welfare.

**JEL classifications:** D6, E6, H1, I0, O2

**Session Title:** Macroeconomic Narratives from Africa and the Diaspora

**Session Chair:** Peter Blair Henry, Stanford University

**Discussants:** Susan Collins, Neville Francis, and William A. Darity, Jr.

---

\*Corresponding Author. The views expressed in this paper are those of the authors and do not necessarily represent those of the Board of Governors or the Federal Reserve System. We thank Sudarshan Sampath and Nathan Wodfork for research assistance.

Macroeconomic policy prescriptions for a typical emerging market economy generally include a monetary policy consistent with low and stable inflation, a well-aligned exchange rate, sustainable current account and fiscal balances, and debt levels. When successfully implemented, these policies help the country achieve macroeconomic stability, raise its solvency, and allows low-cost access to foreign capital. In practice, however, implementation of some of these policies conflict with pressing domestic needs for social services. How policy makers strike the right balance between satisfying social needs while ensuring macroeconomic stability remains a constant challenge in emerging economies' development strategies.

The tension between the social needs and policies conducive of macroeconomic stability is particularly evident in South Africa, owing largely to the unique legacy of Apartheid.<sup>1</sup> During Apartheid (1948-1994), most of the social spending catered toward needs of the minority white population while black citizens were under-served. With the end of the regime in 1994 South Africa's new democracy faced a formidable challenge: dramatically increasing the government's role in the provision of social needs to its citizens in a way that would not compromise macroeconomic stability. By most measures, post-apartheid policy makers were successful in maintaining macroeconomic stability, but progress on meeting the social demands has been slower. The discontent with the slow pace of social progress gave rise to a new tone in public policy spearheaded by Jacob Zuma (standing president of the African National Congress (ANC)) who has signalled that South Africa may tilt its policy priorities toward social spending programs in the following years.<sup>2</sup> In September of 2008, South Africa's president Thabo Mbeki, who presided over South Africa's longest period of economic growth, resigned under pressure from the ANC. Market responses were swift when it was rumored that senior cabinet officials, notably Finance Minister Trevor Manuel, would resign. Markets subsequently rebounded when it was later clarified that he would stay.

Indeed, the sad story of South Africa's neighbor, Zimbabwe, is a particularly ominous example of what can go wrong when the delicate balancing act goes awry. After independence and the establishment of democracy, Zimbabwe pursued a program of social and economic moderation. Social indicators improved, limited landholdings were redistributed, and mass schooling led Zimbabwe to have above average literacy rates for a developing country. Zimbabwe shifted policy to cut back on

---

<sup>1</sup>Apartheid was a political system in South Africa between 1948 and 1994, during which the white minority population controlled the political process and the economy, and the majority black population was acutely underserved.

<sup>2</sup>The discontent with the lack of satisfactory progress on social demand have often given rise to violent anti-immigration protests as well as protests by various labor unions in recent years.

its social spending to re-assure foreign investors of the government's commitment to macrostability. The lack of spending on the poor caused political pressure that eventually led to massive land reforms which in turn led to the complete collapse of foreign investment. This destabilization led to the rise of an opposition leadership that threatened the power of the central government, and the economic situation deteriorated significantly. Inflation rose to the highest levels ever recorded, foreign investment vanished, social spending is now non-existent, mass emigrations are common, and the very institutional structure of the nation is in flux. If the policy makers in South Africa fail to strike the right policy balance, there are concerns that it could meet a similar fate.

While there are no clear answers to South Africa's policy dilemma, our paper reviews the situation and presents a policy option with the goal of stimulating reasoned policy discussions. In the next section we summarize the position of South Africa at present. We use this summary to estimate, roughly, the size of the spending on social programs that it would take for South Africa to catch up with its economic peers.<sup>3</sup> Expenditures on social programs would raise government expenditures by nearly 140% over a ten year period in order to achieve social indicators similar to those of other upper-middle income countries. Such a high level of spending is clearly not sustainable, and could threaten macrostability. In the following section, we simulate a simple two-capital growth model calibrated to the South Africa economy. The results from the exercise suggest that higher, but sustainable, spending focused on skill formation can help the country achieve its social demand target while maintaining macroeconomic stability.

## 1 Macroeconomic and Social Indicators

### 1.1 Macroeconomic Indicators

For the past fifteen years, South Africa appears to have successfully achieved a stable macroeconomy. Figure 1 shows some key economic indicators. Economic growth rose consistently over the past decade to about 5 percent in recent years, and inflation fell consistently from double digits historically to roughly 5 percent. The budget, which had been in deficits for several years, was reigned in to a surplus and government debt levels fell consistently from a peak of 50 percent of GDP in 1995 to under 30 percent. The exchange rate strengthened and has remained stable in

---

<sup>3</sup>We define economic peers as other upper-middle income countries. "Upper-middle income" classification follows the World Bank classification in the World Development Indicator database. It includes countries such as Bulgaria, Turkey, Poland, Malaysia, Mexico, Brazil, Gabon, and Botswana.

recent years. Foreign exchange reserves as a percent of imports as well as the reserves-to-debt service ratio have both increased dramatically since 1995. The bond market responded with lower yields; the yield on South Africa's 15-year bond fell consistently from 16 percent in 1995 to roughly 8 percent.<sup>4</sup> The significant improvements in the macroeconomic framework has been praised by foreign investors and has earned former President Mbeki and his government, notably Finance Minister Trevor Manuel, the reputation of a market friendly administration.

On domestic social issues, however, the Mbeki administration has not been praised by South Africans primarily because the improvement in macroeconomic management has not translated into social progress at a satisfactory pace for a large fraction of the South African society. The rate of unemployment remains elevated, averaging about 25 percent in recent years, significantly higher than the rate of 10 percent for upper-middle income countries. Also, South Africa has retained the income inequality of the Apartheid regime with a Gini coefficient currently over 60, little changed from the level in 1995. The top 20 percent of the population earns over 60 percent of the country's income, and it is estimated that around 50 percent of the population continues to live in poverty. These macroeconomic indicators provide insights into the growing discontent within the South Africa over the benefits of the macroeconomic policies of the Mbeki administration for the social welfare of a large segment of the population. The following section reviews the state of social indicators and assesses whether the social demand gap can be closed with large government expenditures.

## 1.2 Social Demands Indicators

We use the trends in social indicators from the *Community Survey 2007* published by Statistics South Africa and *Towards a Fifteen Year Review*, a comprehensive government progress report which looks at how far South Africa has come in achieving post-apartheid goals. The surveys reveal that South Africa has made progress in the provision of basic services. For example, more than two thirds of households now live in formal dwellings as of 2007, a 10 percent increase from 1996. The government now regularly removes trash from 60 percent of the households in South Africa, a 20 percent increase from 1996. From 1996 to 2007, the percentage of households with electricity has increased by more than 30 percent. The number of households with internal plumbing has

---

<sup>4</sup>In fact, the decline in yield rates since 1993 is larger for South Africa than for the United States, which pursued an aggressive deficit reduction strategy during the Clinton administration.

increased by over 40 percent from 2001 to 2007, and the number of households with access to a flushing toilet increased more than 10 percent between 2001 and 2007. Over 70 percent of households now have access to cellular phones, 40 percent have access to postal facilities, and over 15 percent of the population have access to the internet.

There has also been progress in education. Today, roughly 17 percent of South Africans are enrolled in primary education, much greater than Brazil (11 percent), Romania (6 percent), or Poland (8 percent), but close to Mexico's (15 percent) percentage. Part of these enrollment statistics reflects the demography of Southern Africa, which has a young age structure. Primary education enrollment increased 60 percent since 1980 (36 percent since the end of Apartheid), and the average adult has 6.1 years of education. The number of South Africans with at least some secondary education increased over 30 percent between 2001 and 2007, and the number graduating from secondary school increased by more than 10 percent. Even with this progress, less than half of the population has completed secondary education in 2007, and more than 10 percent had no schooling at all.

However, given how far behind South Africa was, this progress has not been enough to close the social demand gap. For example, the story of South African progress is less favorable when using aggregate measures such as the UN's Human Development Index (HDI), which combines measures of life expectancy, literacy, education, and GDP. South Africa once compared quite favorably to its economic peers: in 1985 South Africa HDI was 0.70, while Turkey had an HDI of 0.65 and Brazil had an HDI of 0.70. South Africa was also far ahead of its regional neighbors: Kenya's HDI was 0.53 in 1985, and Botswana's was 0.62. Ironically, South Africa's HDI score began to decline after Apartheid ended, and today South Africa lags behind its economic peers: South Africa's HDI in 2005 was 0.67, Mexico's is 0.83, Brazil's is 0.80, and Poland's is 0.87. While some would argue that HIV-related mortality would explain the trend, South Africa's HDI has also declined relative to its regional peers: in 2005 HDI in Botswana and Namibia was 0.65.

We use education and health expenditures to estimate the spending needs on schooling and health care that South Africa would need to reach the middle of its economic peers, which we define as nations of similar GDP per capita in 2006. Our estimate is necessarily back-of-the-envelope, since we use it as a starting point for the simulation described in the following section.<sup>5</sup>

---

<sup>5</sup>Our calculation is based on estimates from the UN Human Development Report. It supposes that South Africa's expenditures on health and education should approach the proportional expenditures of their economic peers. In addition to bringing South Africa's real social expenditures in line with its economic peers, we also took (rough)

Our estimates suggest that the expenditures on health care and schooling could raise government's expenditure anywhere from 125 to 140 percent over a ten year period. Clearly, such a large need cannot be financed through government without compromising macrostability.

## 2 Macroeconomic Policy, Macroeconomic Stability, and Social Demands

From the preceding analysis, it appears that South Africa's government would be unable to meet the country's social needs within the budgetary constraints that are consistent with macroeconomic stability. However, there are unique (and related) features of the South African economy that suggest that investment in skill formation can allow the country to significantly close its social development gap within the next ten years while maintaining macroeconomic stability. South Africa's economy is very intensive in physical capital. Studies on international comparison of physical capital intensity find that South Africa has one of the highest levels in the world (see M. Samson, Kenneth Quene, and Ingrid van Niekerk (2001) and Raphael Kaplinsky (1995)). At the same time, the country has historically maintained one of the highest unemployment rate as alluded to previously. Findings by Zvi Griliches (1969) and others that physical capital is complementary with skilled labor, but is a substitute for unskilled labor, can rationalize the persistent unemployment rate in South Africa. Indeed, there is a shortage of skill labor and an excess supply of unskilled labor in South Africa. This is evidenced in the inconsistency between the country's factor endowments and its production. South Africa tends to export goods that are skill and capital intensive, a pattern that generally characterizes industrial economies, despite its abundant labor (Jeffrey Lewis (2002), T. Alleyne and A. Subramanian (2001)). This unique feature of South Africa's economy is a legacy of apartheid era policies which had favored capital intensive sectors and capital intensity of production with

---

account of the additional expenditures needed to equalize the level of service. For example, in our schooling expenditure estimates we account for the fact that South Africa would need to spend more to lower its national pupil per student ratio. While other lower middle income nations have average class sizes of 24, South Africa's were higher than 36 in 1995, and still greater than 30 today. We also adjust for age structure, which in South Africa requires increased investment due to its young age structure. We also include an adjustment for the fact that South Africa would need to significantly increase expenditures on post-secondary education to reach parity with its economic peers. In our health expenditure estimates we purposefully downplay the role of HIV, so that our estimates are comparable to South Africa's economic peers who do not face such a pressing health crisis. Even with this omission, South Africa's government health expenditures would need to increase dramatically to deliver the quality of service seen by its economic peers (David Evans, Ajay Tandon, Christopher Murray, and Jeremy A Lauer 2001). For example, nearly 60% of total health expenditures in South Africa are provided by the private sector (much of this targeted to HIV), while the average for economic peers is less than 40%. As such, bringing South Africa's health expenditures in line with economic peers requires large increases in government health expenditures.

the objective of reducing dependence on unskilled labor. At the same time, the apartheid policies made education inaccessible to the majority of the population, mostly blacks, many of which were in the struggle against apartheid (see for example Samson, Quene, and van Niekerk (2001)).<sup>6</sup>

The mismatch between labor demand which is for skill labor and excess supply of unskilled labor contributes to persistence of the rate of unemployment, which in turn contributes the lack of significant progress in social development. In the theoretical analysis that follows, we build a two-capital growth model and analyze whether a shift of resources to human capital development can allow South Africa to make significant progress toward its social demand objectives while maintaining macroeconomic stability.

## 2.1 A Simple Two-Capital Growth Model

The model of reference is motivated by the Solow growth model augmented with human capital in the spirit of Greg Mankiw, David Romer, and David Weil (1992). The social planner maximizes output  $y_t = Ak_t^\alpha h_t^\beta$  to the following constraints:  $y_t = c_t + i_t^k + i_t^h$ ,  $\dot{k}_t = i_t^k - \Delta k_t$ , and  $\dot{h}_t = i_t^h - \Delta h_t$ . Where  $\alpha > 0$ ,  $\beta > 0$ , and  $\alpha + \beta < 1$ .  $y_t$  is output,  $k_t$  is the stock of physical capital,  $h_t$  is the stock of human capital,  $A$  is a fixed technology parameter. All variables are in effective units of labor, that is, they are normalized by  $L_t E_t$  where  $L_t$  is the quantity of raw labor, and  $E_t = E_0 e^{gt}$  is labor-augmenting technological progress. Raw labor and labor-augmenting technology grow at constant rates  $n$  and  $g$ , respectively.  $\delta$  is the rate of depreciation for physical and human capital, which is assumed to be the same. This is a one-sector production technology in which physical capital, human capital, and consumable goods are perfect substitutable uses of output. Households own both types of capital as well as labor. Let  $s^k$  and  $s^h$  denote the fractions of income invested in physical and human capital, respectively. Hence,  $i_t^k = s^k y_t$ ,  $i_t^h = s^h y_t$ ,  $c_t = y_t - i_t^k - i_t^h = (1 - s^k - s^h) y_t$ , and  $y_t = (1 - s) y_t$  where  $s$  is the national saving rate (see Appendix for details on the theoretical model and derivations).

$$\dot{k}_t = s^k y_t - \Delta k_t \tag{1}$$

---

<sup>6</sup>Such apartheid-period policies include stringent exchange rate policies that made import of capital goods more affordable, tax distortions (e.g. skewed depreciation rules, investment allowances, payroll levies, and registration fees) that lowered the user cost of capital and made labor relatively more expensive.

$$\dot{h}_t = s^h y_t - \Delta h_t \quad (2)$$

## 2.2 Calibration and Dynamics

The model is calibrated to the South African economy using the following benchmark parameters:

$$g = 0.007 \quad n = 0.005 \quad \delta = 0.060 \quad \alpha = 0.3 \quad \beta = 0.3 \quad s^k = 0.2 \quad s^h = 0.06$$

The growth rate of labor ( $n$ ) is consistent with the South African average annual labor growth between 1970 and 2001.  $g$  is the average multifactor productivity and  $\delta$  is measured as the average annual rate of depreciation for physical capital from 1970 to 2001. Annual depreciation is the ratio of capital consumption to the previous year's capital stock. The data used for the calibration are obtained from the South African Trade and Industrial Policy Strategies database (TIPS).  $s^k$  is the average investment to GDP ratio and  $s^h$  is the ratio of government expenditures on education, both measures are over 1970-2006 period. For  $\alpha$  and  $\beta$ , we use an average of various measures in previous studies Mankiw, Romer, and Weil (1992) and Ben Bernanke and Guykaynak Refet (1992).<sup>7</sup> The initial value of human capital is set to the initial value of capital adjusted by the average rate of investment in physical capital relative to the average rate of investment human capital  $h_0 = k_0 * s^h / s^k$ . Initial value of physical capital is chosen so that average output growth in the model matches the average growth of 4.7 percent seen in the data over the past five years. With the parameters, we can solve the following dynamic system given by equations (2) and (1).

$$\overset{.lin}{k}_t = \left[ s^k f_k - \Delta \right] \cdot (k_t - k^*) + s^k f_h \cdot (h_t - h^*); \quad \overset{.lin}{h}_t = s^h f_k \cdot (k_t - k^*) + \left[ s^h f_h - \Delta \right] \cdot (h_t - h^*)$$

Use initial conditions to solve for  $c1$  and  $c2$ . Figure 2 plots the path of physical capital, human capital, investment in physical capital, investment in human capital, output and consumption. An efficient allocation of resources based on the production technology dictates an equal rate of investment in physical and human capital. However, South Africa's investment in human capital has fallen well short of the investment in physical capital resulting in some economic inefficiencies.

---

<sup>7</sup>Bernanke and Refet (1992) and Mankiw, Romer, and Weil (1992) estimate the share of human and physical capital based on a production function similar to our specification. For the group of non-oil countries and intermediate countries. Bernanke and Refet (1992) estimated these parameters using both versions 5.6 and 6.0 of the Penn World Tables. The values of  $\alpha$  and  $\beta$  used in this study is the average six estimates for each parameter.

Owing to high physical capital investment relative to the investment in human capital, model results indicate that a one percentage point increase in physical capital investment would raise output growth by just to 0.18 percentage points, much lower than the 0.58 percentage points obtained from the same unit of investment in human capital.

The skills mismatch was recognized by the government's Accelerated and Shared Growth Initiative for South Africa (AsgiSA) report of last year.<sup>8</sup> According to the report, the government needs an growth rate of 6 percent between 2010 and 2014 in order to half the unemployment rate. This suggests a more sustained 6 percent growth rate over a ten year period can cut the unemployment rate to about 7 percent, low enough to allow the population to provide social services for themselves.

Over the past five years, growth of South Africa's economy averaged 4.7 percent, 1.3 percentage point short of the AsigSA objectives. Because a one percentage point investment in human capital raises growth by 0.58 percentage points, a 2.5 percentage point increase in the rate of investment in human capital will raise growth by 1.3 percentage points of GDP, unemployment should be cut by half in the next by 2014, and likely cut the unemployment rate to single digits of under 7 percent by 2020. To achieve the same growth objective through physical capital, it would require nearly 8 percentage point of GDP.

The budget deficit for the government averaged 0.8 percent of GDP over the past five years. Funding the additional investment in human capital out of the government budget could push the deficit to a larger, but sustainable 3.3 percent of GDP. Alternatively, the additional investment in human capital can be financed by a combination of higher government budget and reduction in defense spending, which averaged over 5 percent of GDP in the last five years, roughly 3 percentage points higher than share of GDP allocated by upper-middle income countries to military spending.

An alternative policy option to achieve the 1.3 percent growth target could be to re-allocate investment from physical capital to human capital. This can be achieved through various policies that raise cost of capital with transfers to subsidize human capital development. Model simulations indicate, indeed, that the growth objective can be achieved with a reallocation of 5 percentage

---

<sup>8</sup>The AsgiSA was launched by Deputy

President Phumzile Mlambo-Ngcuka in February 2006. After research and discussion with stakeholders, government identified the "binding constraints on growth" that needed to be addressed so as to progress in order to achieve its target of halving unemployment and poverty between 2004 and 2014. This could be achieved if the economy grew at an average rate of at least 4.5% in the period to 2009, and by an average of 6% in the period 2010 to 2014.

point of GDP from physical capital to human capital and no increases in the government's budget. This can be achieved through policies that tax capital with transfers to skill formation.

To be clear, the share of South Africa's GDP devoted to education is in line with the 5 percent by other upper-middle income countries, and the 18 percent of government expenditures allocated to education exceeds that of other upper-middle income countries by 4 percentage points. However, because of the legacy of apartheid that led back skill formation, South Africa needs to further increase investment in human capital in order to make up for past under investment. Skill formation alone would not guarantee a reduction in unemployment unless it is also accompanied by some flexibility in the labor market that allows absorption of the new human capital. World Bank index on labor market rigidity put South Africa at 44, much higher than the 33 average for upper-middle income countries.<sup>9</sup>

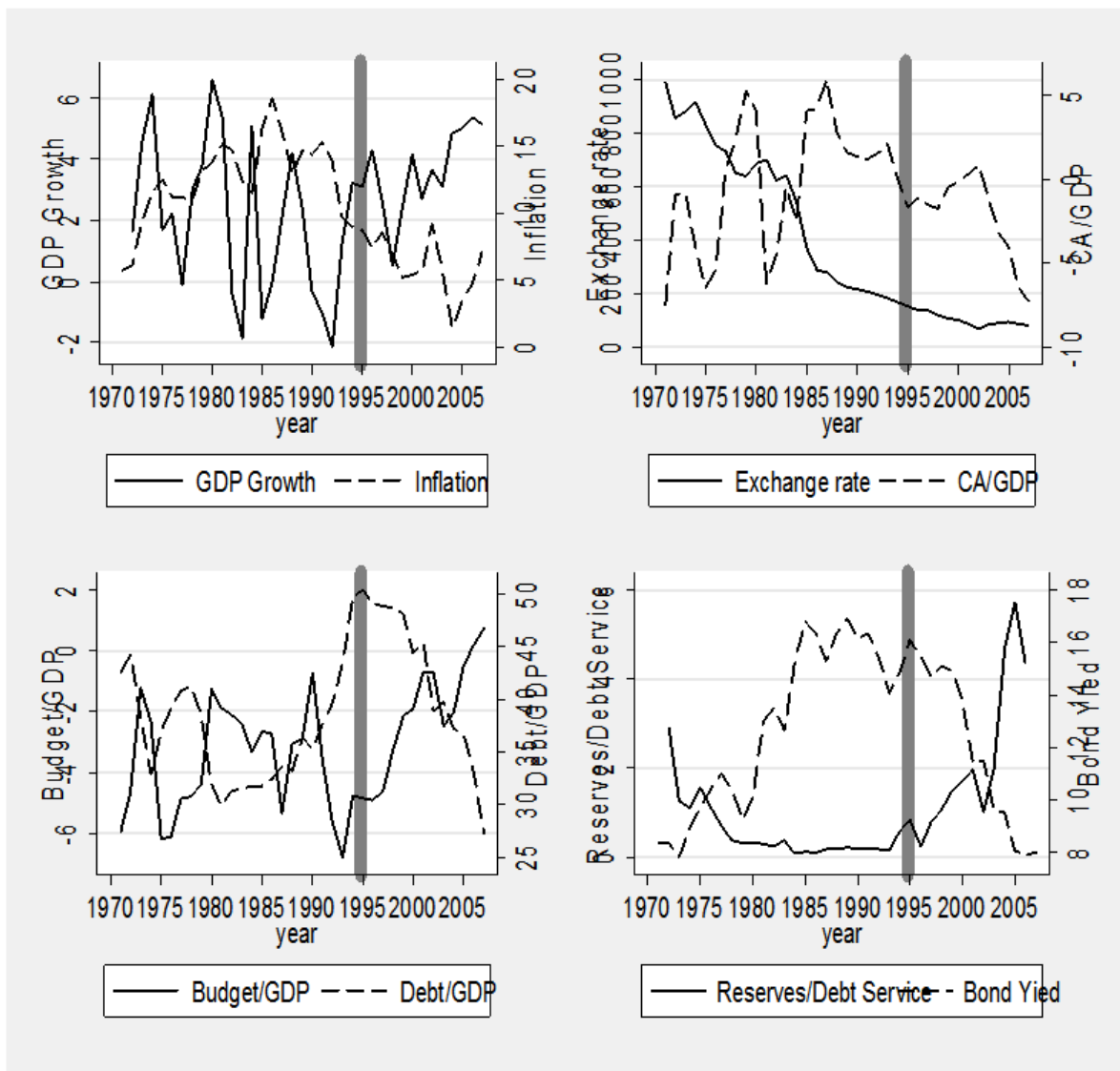
### **3 Conclusion**

The balance between macrostability and social demand has been a constant policy dilemma for post-apartheid policy makers. The macro stability objectives have generally been achieved, but progress on social demand has been slow and below the expectations of South Africans. Social demand indicators for South Africa are generally below those of its economic peers. The slow progress to eradicate the social needs has tilted the balance of power in public policy in favor of Jacob Zuma, portrayed as a populist who will increase spending on public works and social demands. As Zuma is likely to assume power, the main question looming over his mandate would be whether he will shift the balance of these two policy objectives. The analysis in this paper suggests that both objectives are attainable over the course of the next ten years if policy is geared toward increasing skill formation. Higher human capital will allow the labor market to absorb a significant portion of the excess supply of labor. With lower unemployment, a large fraction of the population will be able to afford its social needs. However, continued attention should be given to the scourge of AIDS/HIV, which could decimate labor and have offsetting effects on the formation of human capital stock.

---

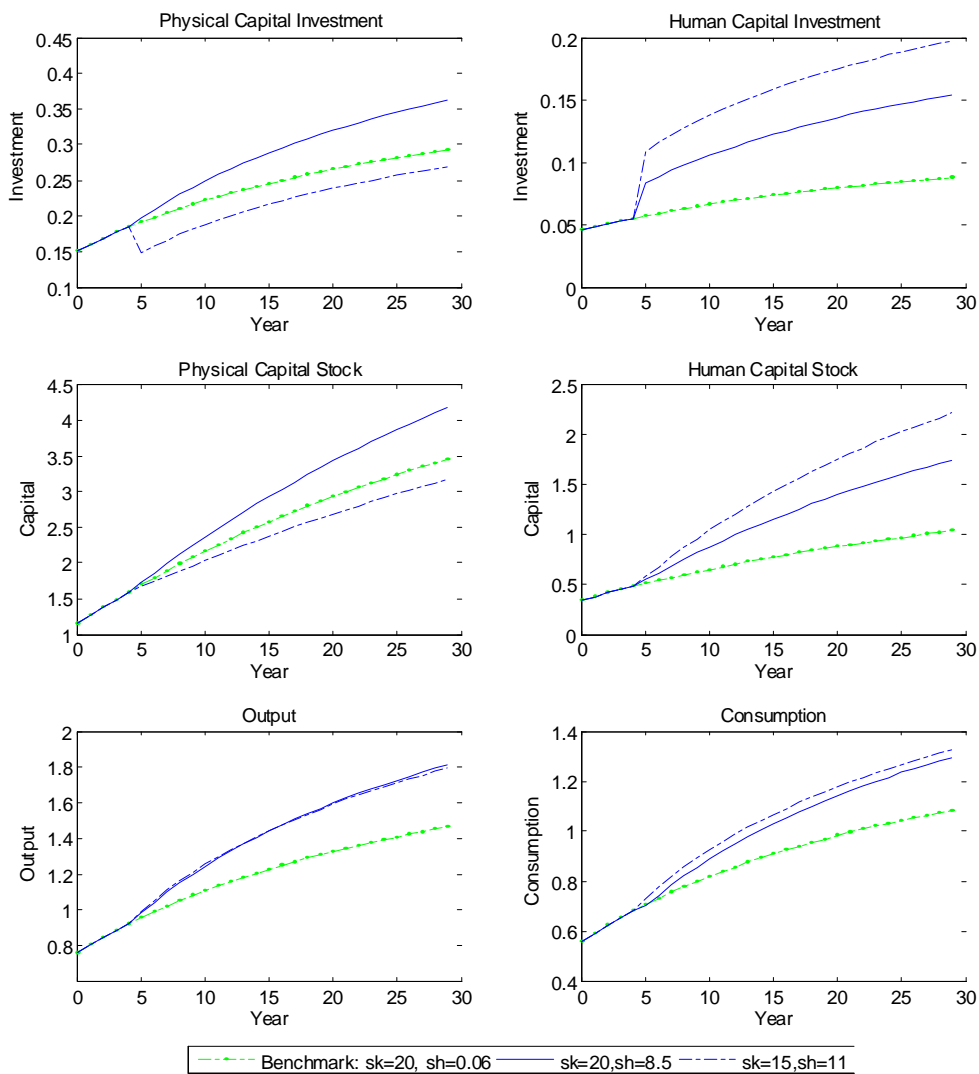
<sup>9</sup>0=least rigid, 100=most rigid

Figure 1: INDICATORS OF SOUTH AFRICA'S MACROECONOMIC STABILITY



GDP is the gross domestic product. Inflation is the consumer price inflation. Exchange rate is the effective nominal exchange rate. CA/GDP is the current account to GDP ratio. Budget/GDP is the fiscal balance to GDP ratio. Debt/GDP is the gross government debt to GDP ratio. Reserves/Debt service is the ratio of foreign exchange reserves to extern debt servicing. Bond Yield is the yield on bonds with maturity of 15 or more years. Data are obtained from the South Africa Reserve Bank.

Figure 2: Dynamics of South African Economy Under Various Scenarios of Allocation of Saving Between Physical and Human Capital



Data are from from authors' simulation of a two-capital growth model calibrated to South Africa's Economy.

## References

- [1] Alleyne, T., & Subramanian, A. (2001). What does south Africa's pattern of trade say about its labor market? IMF working paper, WP/01/148. Washington: International Monetary Fund.
- [2] Bernanke, Ben S. and Gürkaynak S. Refet (2001). "Is Growth Exogenous? Taking Mankiw, Romer, and Weil Seriously", NBER Working Paper No. 8365 (Cambridge, Massachusetts: National Bureau of Economic Research)
- [3] Evans, David, Ajay Tandon, Christopher Murray, and Jeremy A Lauer (2001). "Comparative Efficiency of National Health Systems: Cross National Econometric Analysis." *British Medical Journal* 323(7308):307-10.
- [4] Griliches, Zvi (1969). "Capital-Skill Complementarity," *Review of Economics and Statistics* 51(4): 465-468.
- [5] Kaplinsky, Raphael (1995). "Capital Intensity in South Africa's Manufacturing and Unemployment, 1972-1990" *World Development*, Vol. 23, No. 2, pp. 179-192.
- [6] Lewis, D. Jeffrey (2002). "Promoting Growth and Employment in South Africa" *Africa Region Working Paper Series*, Number 32.
- [7] Mankiw, N. Gregory, David Romer, and David N. Weil (1992). "A Contribution to the Empirics of Economic Growth," *Quarterly Journal of Economics* 107 (2): 407-437.
- [8] Samson, M., Kenneth Mac Quene, and Ingrid van Niekerk (2001). "Capital/Skills-Intensity and Job Creation: An Analysis of Policy Options," *Trade and Industrial Policy Strategies Forum*, September 2001.
- [9] South Africa Government Communications (2008). *Towards a Fifteen Year Review*. Government Publication. Pretoria, South Africa.
- [10] Statistics South Africa (2007). *Community Survey 2007*. Government Publication. Pretoria, South Africa.