EXCHANGE RATES AND EMPLOYMENT CRITICAL ISSUES

Stewart Ngandu

Senior Researcher
Centre for Poverty, Employment and Growth (CPEG)
Human Sciences Research Council (HSRC)

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Produced by: Stewart Ngandu
Contact: Dr Miriam Altman
Executive Director: CPEG, HSRC
E-mail: maltman@hsrc.ac.za
Tel: +27 12 302 2402

Contents

Tables

Figures

Executive summary

The analysis of exchange rates has received very little attention in development economics; this is surprising given that there are a number of well defined channels through which exchange rate shocks are transmitted to employment. In the case of South Africa the need to look at this precarious relationship is necessitated by several factors:

- The high volatility of the rand relative to other emerging countries,
- The exchange rate as an important price in the economy,
- The strong influence of commodity prices on the exchange rate,
- The need to inform sector strategies on the impact of exchange rates on sectoral employment, and
- Strong global evidence that points to the importance of exchange rates in influencing employment dynamics and in enhancing a country's growth potential.

In all, it is worth remembering that minerals economies are special since an appreciation will often be caused by a commodity boom, and not a secular expansion in value-added exports such as manufactures. An appreciation that is caused by an expansion in manufactured exports can indicate a successful and sustainable growth path. An appreciation caused by a commodity boom can simply reflect successful extraction of resources to feed global demand, to the detriment of more value-adding exports.

This report starts with a discussion on the mechanisms through which exchange rate shocks are transmitted to employment. Industry specific channels highlight important mechanisms through which the impact of exchange rate movements on employment can either be dampened or amplified. The economy wide channels highlight the need for an integrated industrial and development policy that can coordinate and influence these broad based transmission channels.

The international evidence suggests that the impact of exchange rate volatility on trade is insignificant. However, there is evidence that shows that in the case of South Africa variations in the exchange rate seem to be mirrored by variations in exports. This is important from an employment creation perspective since the demand for labour is a derived demand. Increases in the demand for exports imply increases in the factors, labour included, that are used in the production process. Though the evidence on exchange rates and employment is limited the overall conclusion from existing studies is that exchange rates do exert a significant influence on employment. In an attempt to overcome this limitation, an HSRC study was framed to better understand the link between exchange rates and employment. Two exploratory studies were prepared.

The first was a small firm survey to examine how importing and exporting firms in different sectors and operating at different scales responded to changes in the exchange rate. The second study uses an economy wide experiment to ask how, at one point in time, an exchange rate shock impacts on employment, output and trade.

The economy wide exercise represents a novelty in the analysis of exchange rates and employment. This is because most empirical studies use partial equilibrium frameworks that focus on the manufacturing sector without an attempt to quantify economy wide impacts. The need to use CGE models is also underscored by the poor quality of employment data in South Africa. CGE models rely on the use of strong assumptions about the economy being modelled to replace missing historical data. The advantage of this characteristic of CGE models is that these assumptions can be interrogate and therefore makes the process transparent.

An appreciation in a minerals economy might have some unexpected effects on unemployment. Our economy-wide modelling experiment found that an appreciation caused by a commodity boom can have a positive impact on employment and GDP. This can create exuberance, which is not necessarily sustainable. In such cases, domestically oriented services sectors are favoured over manufactured exports. The positive growth impetus from the appreciation masks strong Dutch Disease effects which lead to the poor performance of the manufacturing sector. When the commodity boom is over, there is concern as to whether manufacturing sectors that have shrunk or remained stagnant during the boom will be able to recover sufficiently to replace the earnings lost during the appreciation. The most worrying development in the case of an appreciation caused by a commodity boom is the fall in the rate of return of capital in the tradeable sectors; this has implications on the sector distribution of investment. It will have an impact on the future investment response of the sector since capital might move out or future investment might be directed towards other sectors. The inability of this sector to attract investment in the future will hamper its capacity to compete internationally. The bias that is created by the resource boom has important welfare effects since the total wage for unskilled labour falls as it shifts from high wage sectors to low wage sectors.

The responses from our survey suggest that though volatility does not impose significant constraints in the short run, its long run impact are considerable.

The survey showed that the appreciation at the time would have been expected to encourage capital investments with imported investment goods becoming cheaper: however, firms did not respond by making increases in investment. This could be the result of uncertainty, since the volatile exchange rate makes it difficult for firms to plan for the future.

On the other hand, a depreciation will not necessarily have the expected impact on stimulating investment either, even where exports do expand. Again, volatility may hinder long-term investment, where firms are simply shifting between domestic and foreign sales depending on the exchange rate at the moment. Moreover, capital and equipment which often sourced overseas become more expensive. Poor infrastructure or lack of belief in a sustained depreciation may constrain business response to a depreciation. A weak private sector response will likely result in a depreciation having an inflationary impact, rather than a growth inducing one.

The extent to which the exchange rate can be used as an incentive depends on industrial structure, quality of services, back bone infrastructure and the perceived likelihood of reversions in the currency's future trend. The recent electricity crisis highlights the fact that efforts to promote sectoral performance through the exchange rate will be hampered by the shortage of basic production inputs such as energy.

These results pose a challenge to policy aimed at promoting appropriate growth paths for South Africa. Is it sensible that the sectors producing value-added goods are subject to fluctuations in world mineral prices? This question is important if the economy is to move to a higher labour-absorbing growth path on the basis of growth in higher value goods and services for global markets. Can SA afford stagnation or reversal in growth every time there is a commodity boom? To what extent is the growth seen in the model value-adding and sustainable? Is there an alignment to an overall economic strategy as was found in successful sustained high growth economies? To what extent can we expect greater diversification in the South African economy given the challenges faced by the manufacturing sector following the appreciation? This is especially important given the dominance of resource based exports in the country.

These questions have very compelling implications with respect to South Africa's ability to meet its employment targets. The implications emanate from an exchange rate that is driven by commodity prices creating sectoral biases that have far reaching consequences on the economy. The importance of the latter is especially true if the traded sector is a source of growth through backward and forward linkages and learning externalities. This shows why it is important to seriously look at the challenges being faced by the manufacturing sector as a result of the appreciation in the exchange rate since the economy loses the benefits of the external economies to manufacturing as this sector shrinks. Contraction might create a situation where even in subsequent periods of depreciation the sector might fail to respond in a way that is growth inducing.

Looking at recent growth successes we find that behind their impressive growth was a system of managed exchange rates which created significantly undervalued currencies. Together with an abundance of cheap labour and labour intensive export manufacturing their outward oriented growth strategies led to significant reductions in unemployment. However, the question of an export led growth in South Africa is complicated by a number of factors.

- First, there is the issue of a highly volatile currency that not only shows short term volatility but is also characterized by fluctuations in the long term trend of the level. Some argue that Rand volatility is the central concern which may imply a macroeconomic misalignment of the exchange rate, together with longer-term volatility or swings in the real exchange rate. If the argument that export manufacturing has a prominent role to play in the absorption of unskilled labour, do such movements in the currency create a bias against the ability of the traded sector to reduce unemployment?
- Second, the South African economy appears to do well when the currency appreciates as a result of a commodity boom, even though exports are negatively affected. Judging from the performance of the manufacturing sector

it is very doubtful whether this growth is sustainable. In contrast, where appreciations are caused by expansions of manufactured exports, associated growth might well be sustainable. However, this has not been the SA experience to date.

- Third, South Africa might not have the ability to build up the kind of foreign currency reserves to offset an appreciation of the exchange rate.
- Fourth, a depreciation of the currency to stimulate exports needs an economic environment with few supply constraints; otherwise the weaker currency can only prove to be inflationary.

The sensitivity of the traded sector to changes in the exchange rate makes it difficult to frame an employment generating industrial policy in the context of a volatile currency. There is therefore a need to find strategies that are effective in stimulating the traded sector and foster employment creation that can overwhelm the negative impact of currency volatility. The role of industrial policy may be to identify sectors of the economy that are more vulnerable to changes in the exchange rate and find ways of insulating them from the volatility.

It is indisputable that resource dependent countries face a unique set of challenges such as increased vulnerability to external shocks, the risk of 'Dutch disease' type effects, and the risk of developing specific institutional pathologies. These can however be overcome or avoided by implementing, the right economic policies. The rents from resources can be used to diversify the rest of the economy together with supportive industrial policies; this has been done in countries such Norway, Australia and Canada. One way of achieving this diversity is through tax incentives to assistant non-resource based sectors. To reduce vulnerability from the countries main resource exports, good fiscal policy becomes very important and the objective should be to keep the budget in balance across the commodity-price cycle. It should be based on conservative assumptions for the major export commodities; this means a budget that balances only because of high commodity prices is not necessarily in balance. The increased revenues accruing to government during the commodity boom can also be used to import capital goods that cannot be made locally such as computer equipment for schools, medical equipment for public hospitals, and backbone communication infrastructure. The advantage with this kind of investment is that it improves the competitive position of the economy and generates little exchange rate appreciation.

We hope this study encourages more research and policy attention to the complex question of how exchange rates impact on employment. This is a particularly important question in a minerals economy with high unemployment, characterised by a persistently volatile currency. In order for government's industrial policy to achieve its goal of a job creating impetus the impact of the exchange rate on traded goods and services needs to be addressed.

1 Introduction

The value and stability of the currency can have an important impact on trade orientation and industrial outcomes and therefore on employment. The currency is clearly a central price in the economy. However, the link between employment, unemployment and the exchange rate is poorly understood, partly because the relationship is so indirect. It is surprising that more research is not done to elucidate these links, particularly in developing country contexts.

There are a number of well defined channels through which the exchange rate impacts on employment. The exchange rate is an important price in the economy; changes in the currency imply changes in relative production costs. Changes in relative prices influence the pricing, output and employment decisions of the firm, the relative incentive to export, produce for the domestic market, or import. This has a significant impact on the allocation of factors of production which alter patterns and levels of employment across industries.

Understanding these links is particularly important for SA policy-making at this juncture, when Government has committed itself to halving unemployment. The Rand has been highly volatile, thereby reducing the ability of exporters to plan long-term with any certainty. There is strong evidence to show that currency appreciations can raise unemployment rates in minerals-exporting economies, even in the context of positive GDP growth. There is considerable information showing that successful high growth economies devalued and/or undervalued their currencies, in combination with policies to reduce "supply constraints" such as rapid improvements in the quality of infrastructure. The choice of exchange rate policy in any country naturally depends on the room for policy manoeuvre. Its impact depends considerably on the institutional context and policy regime.

The exchange rate policy regime in South Africa and its link to employment outcomes is hardly researched or debated. In this light, the HSRC established a project to initiate thinking about these relationships. This involved the preparation of a number of background papers looking at global experience particularly of resource economies, trends in and research on SA exchange rates, economy wide modelling of the impact of an appreciation and depreciation, and a small survey of importers and exporters to explore their responses to exchange rate movements. This report offers an overview of the central findings of this research. It is preliminary thinking that will hopefully stimulate further interest. The learning can influence policy, whether simply by raising awareness for policy makers involved in industrial promotion, in designing policies that might offset some of the downside risks associated with exchange rates, or at the other extreme in influencing those involved in setting monetary policies.

2 The link between the exchange rate and employment

Exchange rate fluctuations are transmitted to employment through a number of well-defined channels. Changes in the currency translate into changes in relative production costs which in turn have a strong influence on the pricing, production and employment decisions of the firm. This has a significant impact on the allocation of factors of production which alter patterns and levels of employment across industries. As the relationship between exchange rate movements and employment or unemployment is indirect, the channels through which they link must be understood in the first instance. There are essentially two main channels. The first channel relates to industry specific contexts. The second channel relates to economy-wide behaviours.

2.1 Industry-specific channels

2.1.1 External orientation

The exchange rate affects industries differently depending on their external orientation. This particularly refers to the extent that they sell products to foreign markets (*export orientation*), use foreign-made inputs (*imported input channel*), and, more indirectly, compete with foreign manufacturers in domestic markets through imports (*import penetration channel*)[1].

Export orientation

Labour demand in export oriented industries will generally be more sensitive to exchange rate movements than those that are inward oriented. The exchange rate affects the local price of production and the output price received in foreign markets. Normally, exports will be stimulated by currency depreciations and discouraged with currency appreciations[2]. In relation to labour demand, a currency appreciation will raise the real price of labour, potentially making labour intensive tradeables less competitive. There are a number of potential ways that a sustained appreciation might impact on labour use. First, all things being equal, the capital intensive producer is favoured over the labour intensive one, since the ratio of the more expensive non-traded input (i.e. labour) in the former. Second, producers may replace local inputs with cheaper foreign inputs to maintain global competitiveness: this may entail replacing labour with imported capital.

[1] Campa and Golberg (1997) look at the evolving external orientation of manufacturing in four countries.

[2] Campa and Goldberg (2001).

Imported inputs

Firms that import most of their inputs are affected by changes in the currency relative to firms that source inputs locally. Currency appreciations lower the price of imported inputs, and depreciations raise the price of imported inputs. It is the overall proportion of imported inputs in the firms total output that matters. The higher this proportion the greater the employment elasticity to exchange rate movements.

Import penetration

Industries that face significant foreign competition will be more sensitive to exchange rate movements than industries that are insulated from foreign competitors. When the exchange rate appreciates, domestic consumption will be directed toward cheaper foreign substitutes.

2.1.1 Factor intensity channel: the use of capital or labour

Changes in the exchange rate influence the relative price of capital and labour. In the event of an appreciation, all things being constant, the price of imported capital goods will fall in domestic currency terms. Depending on the ease of substitution, producers might substitute labour with imported capital or inputs. If the appreciation is sustained over the medium to long term, the impact on employment may be large. Permanent or transitory changes in the exchange rate have different impacts. It might be assumed that permanent shifts in the exchange rate will have more substantial impacts on employment relative to transitory changes.

2.1.2 Regulatory channel: market structure and regulation

Market and regulatory forces can also determine the magnitude of the response of output and employment to an exchange rate shock. Competitive industries will be more responsive to changes in foreign prices whereas imperfect markets which are characterized by product differentiation and market power will experience smaller changes. Domestic market regulation will also exert a strong influence on the response of prices to changes in the exchange rate, with protected markets showing smaller changes in price and import penetration. These regulatory forms range from import controls or tariffs to labour market regulation that may slow hiring and firing,

2.2 Economy-wide channels

Changes in aggregate demand have a big impact on a country's growth potential. Under normal circumstances, a depreciation will make domestically produced goods cheaper. This will lead to an increase in the demand for a country's exports [a component of aggregate demand]. As more exports are produced the demand of factors of production needed to generate the additional output will also increase. In a case where there is unemployment, output can among other things, be increased by hiring more labour and the opposite is true in the case of an appreciation. To have a net increase in employment from a depreciation, the employment that is generated by the expansion of exports needs to be greater than the amount that is lost from contracting import substituting industries. The underlying assumption behind the

aggregate demand channel is that the depreciation will be expansionary. The question does arise as to whether a depreciation of a currency will always lead to a rise in employment and the extent to which the outcome changes between the short-run and the long run (see Ngandu and Gebreselasie, 2006). In an economy wide context the impact of exchange rate changes is important since a depreciation can introduce inflationary dynamics, such as through increases in fuel and imported inputs, that can dampen the level of domestic economic activity.

Table 1 – Exchange rate regimes in economies experiencing growth accelerations since 1980

Country	Period	Average	Exchange rate regime
Poland	1995 - 97	6.7	Crawling band
Chile	1991 - 93	9.1	Crawling band
Chile	1995 - 97	8.4	Crawling band
Indonesia	1988 - 96	7.9	Crawling peg
Chile	1987 - 89	8.2	Crawling peg
Argentina	1991 - 94	8.5	Currency board
Hong Kong	1986 - 89	10.7	Currency board
China	1982 - 88	11.3	De facto peg
China	1991 - 97	11.2	De facto peg
Peru	1993 - 96	9.0	Float
Uganda	1993 - 96	8.9	Float
India	1994 - 96	7.6	Managed float
Malaysia	1988 - 97	8.8	Managed float
Turkey	1995 - 97	7.3	Managed float
South Korea1	1981 - 89	9.1	Managed float1
Taiwan	1986 - 89	10.1	Managed float
Taiwan	1991 - 95	6.6	Managed float
South Korea	1994 - 96	8.2	Managed float
Angola	1995 - 97	10.2	Pegged
Cameroon	1981 - 86	9.0	Pegged
Egypt	1982 - 86	7.5	Pegged
El Salvador	1992 - 96	6.8	Pegged
Mozambique	1987 - 89	9.8	Pegged
Myanmar	1992 - 96	7.3	Pegged
Nigeria	1988 - 91	8.4	Pegged
Pakistan	1980 - 83	7.9	Pegged
Rwanda	1995 - 97	19.8	Pegged
Slovak Republic	1995 - 97	6.7	Pegged
Syria	1990 - 95	7.5	Pegged
Thailand	1987 - 95	9.9	Pegged
Uganda	1988 - 90	7.0	Pegged
Venezuela	1990 - 92	7.4	Pegged
Vietnam	1991 - 97	8.4	Pegged

Source: Williamson 2000 (World Bank)

A competitive exchange rate aligned to an appropriately specified outward oriented industrial strategy can induce a labour absorbing growth process. Most high growth countries especially the East Asian economies grew faster than countries with flexible exchange rates largely because of their system of managed currencies (see Ngandu, 2005). According to Ito and Krueger (1999) the exchange rate is a crucial variable

linking a nation's domestic economy to the international market. Thus choice of an exchange rate regime is a central component in the economic policy of developing countries and a key factor affecting economic growth. Many East Asian nations maintained exchange rate regimes designed to achieve an attractive climate for exports. The result was rapid and consistent economic growth over the past few decades.

Williamson argues that of the 33 cases of developing economies that achieved some form of growth acceleration 17 had *de jure* or *de facto* pegged exchange rates (see table 1), two (Argentina and Hong Kong) had a hard fixed exchange rate backed up by a currency board. Two (Chile, 1987-89, and Indonesia) had crawling pegs, and three (Chile, 1991-93 and 1995-97, and Poland) had crawling bands. Leaving 9 cases of floating rates, of which in at least 7 (India, South Korea, 1981-89 and 1994-96; Malaysia; Taiwan, 1986-89 and 1991-95; and Turkey) the rate was heavily managed. The two cases of economies with a reasonably freely floating exchange rate achieving rapid growth were Peru in 1995-97 and Uganda in 1993-96. Based on Calvo and Reinhart (2000) even these latter cases are questionable cases of free floating.

These channels are broad generalizations and will only materialise under certain conditions. For example, the employment impact of an exchange rate via the factor intensity channel might not materialise if changes in relative prices are not maintained long enough to act as a signal to producers to substitute one factor for another. Improved growth and employment as a result of an export-oriented industrial policy can only be realised if the depreciation succeeds in undervaluing the country's currency.

In all, it is worth remembering that minerals economies are special since an appreciation will often be caused by a commodity boom, and not a secular expansion in value-added exports such as manufactures. An appreciation that is caused by an expansion in manufactured exports can indicate a successful and sustainable growth path. An appreciation caused by a commodity boom can simply reflect successful extraction of resources to feed global demand, to the detriment of more value-adding exports.

3 Evidence on the relationship between exchange rates and employment

The purpose of this section is to highlight some of the empirical evidence on exchange rates and employment. It is clear that exchange rates do exert a significant influence on employment. It will be seen that exchange rate volatility matters, more so in South Africa where there are studies that show the significant influence of currency movements on trade. The studies on the US and Latin America will also show that exchange rates have a direct and significant impact on employment.

3.1 Exchange rate volatility and trade

The demand for labour is a derived demand, that is, it occurs as a result of the demand for its output. This means that the demand for labour will also be affected by changes in the quantity demanded of exports which arise from changes in the exchange rate. By looking at the impact of exchange rate volatility on trade, and the impact of trade on employment, it is possible to anticipate the impact of exchange rate volatility on employment. However, if the currency is volatile, exporters may not rely on the signal given by the change in price, and may instead focus on minimising risk or on making best use of relative prices at the moment. This means that exports may rise with a depreciation, but will soon contract as the currency appreciates again. In this context, it would be difficult to promote a secular expansion in exports, particularly in labour intensive ones. In the theoretical literature, differences in assumptions have meant that there is considerable ambiguity in the predictions made by various models. This is particularly so in a general equilibrium setting where other variables are changing as the exchange rate shifts. This ambiguity is also reflected in the empirical literature. One IMF report (2004), which surveyed and tested for the link between exchange rate volatility and trade, found the relationship between the two was found to be relatively insignificant. Côté (1994) shows that the link between exchange rate volatility and trade is ambiguous. A number of empirical studies find that the economic effects of exchange rate fluctuations differ across industries and within industries (Fouquin et al, 2001; Mckenzie, 1999). The impact of exchange rate volatility varies both in the short-run and in the long-run. De Vita and Abbott (2004) found that United Kingdom (UK) exports to countries in the European Union (EU) are largely unaffected by short term exchange rate volatility both at the aggregate and sector level. However, when they used a long term measure of volatility, they found evidence that supports the hypothesis that exchange rate uncertainty has a negative and significant influence on UK exports to EU countries. The evidence on South Africa shows a very strong relationship between exchange rates and exports, as will be shown in section 4 of this report.

3.2 Exchange rate movements and employment

It is recognised that research on employment and exchange rates is limited (Campa and Goldberg, 2001; Kim, 2005). Most of the available studies have focused on high income countries, with very little attention devoted to developing economies. Kim (2005) argues that since the country and industry characteristics in developing countries are very different from developed ones, the effects of real exchange rate fluctuations on employment will also differ.

3.2.1 Early studies on deindustrialisation and the exchange rate in the US

Most of the earlier studies on exchange rates and employment focused on the United States (US). The main concern was the possible deindustrialisation of the US economy, with attention drawn to the impact on manufacturing employment of the dollar appreciation in the first half of the 1980s. The findings from this body of work shows that exchange rates have significant effects on US manufacturing employment (Branson and Love, 1988; Branson and Love, 1987; Branson and Love, 1986 and Branson and Marstson, 1989). There is evidence to show that the impact of exchange

rates on employment was sector specific with sectors such as durable goods, primary metals, fabricated metal products, and non-electrical machinery responding negatively to exchange rate appreciations. The biggest losers of employment when the dollar appreciated where the stone, clay and glass products, transportation, instruments, textiles and apparel, chemicals, rubber and leather goods. There was also evidence to show that certain regions in the US were more sensitive to exchange rate movements more than others. For example, exchange rate movements where found to have a much larger impact in the areas outside of New York City than in the metropolitan area. This result was consistent with earlier work that found employment in management or research to be less sensitive to exchange rate movements relative to that in manufacturing. For the country as a whole, it is estimated that about one million manufacturing jobs were lost as a result of the appreciation of the dollar in the 1980s (Branson and Love, 1987).

3.2.2 Recent studies on price adjustment and industry specific characteristics

Recent studies have shifted the focus from deindustrialisation (simply looking at job losses in manufacturing as a result of the exchange rate) to the analysis of how firm specific pricing decisions and industry characteristics are influenced by the exchange rate. Most of the research has been concerned with price adjustments that arise as a result of movements in the exchange rate. This work has focused on business pricing, output and employment decisions in response to exchange rate fluctuations, given their external orientation, the proportion of imported inputs and the level of import penetration. Panel econometrics[3] has been used extensively since it has the advantage of blending inter-individual differences and intra-individual dynamics between sectors. This allows greater capacity to capture the complexity of industry behaviour than a single cross-section or time series data could ever do[4]. The only difference between studies has been on the choice and focus of transmission channels. Campa and Goldberg (2001) highlight four industry features that either magnify or reduce the importance of the three external orientation transmission channels:

i. When production is labour intensive and domestically focused, labour demand is less responsive to exchange rates.
ii. Greater import penetration of domestic markets raises the sensitivity of labour demand to exchange rates.
iii. Higher export orientation of an industry increases the sensitivity of its labour demand to exchange rates.
iv. Industries that rely heavily on imported inputs show greater sensitivity of labour demand to a currency depreciations which raise the cost of factors of production.

The importance of export orientation and imported input shares in the firms' response to exchange rates is highlighted by Goldberg and Tracy (2000). They find

[3] An econometric technique that analyses data sets containing observations on multiple phenomena observed over multiple time periods.

[4] See Hsiao (2007) for a full discussion of advantages and challenges of using panel data.

that exchange rates have statistically significant wage and employment implications in local US labour markets. With the importance and size of dollar induced effects varying considerably across industries and being more pronounced in some US regions. On balance dollar appreciations (depreciations) are associated with employment declines (increase) for high and low profit margin industry groups. As industries increased their export orientation, the adverse consequences of appreciations for employment also increased. Some of these adverse effects are counteracted as industries increase their reliance on imported inputs. Dollar appreciations against export partners are associated with employment declines while appreciations against input providers are associated with employment expansion.

Kim (2005) uses a similar approach to Campa and Goldberg (2001) to analyse the relationship between exchange rates and employment in Korea. He finds that Korean employment responds positively to exchange rate shocks especially for those industries with high openness and low imported input ratios. Industries with middle or low openness showed a negative response in employment to the shocks. Employment in Korea was found to be more sensitive to exchange rate shocks than was US employment. Hua (2007) uses a similar approach to analyse the impact of the real exchange rate on employment and its channels for manufacturing employment in China. Using an extended labour demand function, three channels through which the real exchange rate affects employment are identified. He finds that the real appreciation of the renminbi exerts a statistically significant negative effect on Chinese manufacturing employment.

In the event of exchange rate fluctuations the impact on employment will largely be determined by the pricing and output decisions of the firm. Branson and Marston (1989) find that in the case of Japan prices change rapidly in response to changes in the exchange rate. This rapid change in prices shows that there is substantial pricing to market[5]. This means that in Japan, it is mark-ups that change in response to exchange rate fluctuations and not output and employment. Burgress and Knetter (1998) find that there is no evidence of pricing to market in US manufacturing such that employment and output tends to be more sensitive to the exchange rate. In the same study, they also found that generally employment in Europe on aggregate is much less influenced by the exchange rate and is slower to adjust to long run steady states, whereas for the US, Japan, Canada, UK and Italy adjustment happens quickly. The significance of mark-ups in Italy is further confirmed by Nucci and Pozzolo (2004) who find that exchange rate fluctuations have a significant effect on employment and hours worked on Italian manufacturing employment. The effect of the RER on labour inputs is stronger for firms with low price – cost margins than firms with a high mark up. They also find that depreciations cause an expansion in the number of hours worked in the subsequent year through the revenue side and a contraction through the cost side.

There will be winners and losers in the event of an exchange rate shock due to different industry characteristics and their ability to adjust. Thus exchange rate

[5] Pricing to market occurs when an exporting firm adjusts its destination specific mark-ups in reaction to exchange rate shocks. This adjustment is meant to prevent any changes in the price of its exports.

movements are bound to lead to inter and intra sectoral job reallocations. Gourinchas (1999) studied the impact of exchange rate fluctuations on inter- and intra sectoral job reallocation in France between 1984 and 1992. He found that movements in the exchange rate affect the profitability of production units and the pattern of entry and exit with traded industries being very responsive to real exchange rate movements with a 1% appreciation of the real exchange rate leading to the loss of 0.95% of tradable jobs in two years.

Filiztekin (2004) shows that in cases where an industry relies heavily on imported inputs exchange rate depreciations which have been associated with positive employment responses in countries such as the US can actually lead to negative impacts on employment. This was the case in Turkey where the reliance of Turkish industries on imported inputs outweighs the benefits of improved competitiveness from an exchange rate depreciation. This study thus highlights the importance of the imported input transmission channel in Turkey where on average a 10% depreciation of the Turkish Lira was found to cause a 1.6% decline in manufacturing employment. There is considerable variation across industries. Clothing, which was the most important generator of manufacturing employment in the 1980s, is most hurt by devaluations,

3.2.3 Trade liberalisation and openness

Other studies have concentrated on openness as a transmission channel. Welfare gains from trade tend to be reduced by adjustment costs associated with factor reallocation. Klein *et al* (2003) estimated the effects of the real exchange rate on labour reallocation and find that trend real exchange rates significantly affect *job reallocation* but not *net employment*. In contrast, cyclical real exchange rates seem to affect net employment through job destruction. Haltiwanger *et al* (2004) argue that openness to international competition can lead to enhanced resource allocation with factor reallocation being essential for the attainment of net benefits from trade liberalization. However this process generates costs both for transitioning workers and for employers undergoing employee turnover. Net welfare gains result if the benefits from higher productivity exceed the costs due to factor redeployment. As inefficient import competing industries contract, the increased openness will also lead to the creation of new export opportunities for other producers. In Latin America tariff reductions and exchange rate appreciations where found to increase the pace of job reallocation within sectors with evidence of declining net employment growth.

3.2.4 Exchange rate movements and employment in Latin America

In recent years, Latin America has witnessed an increase in its unemployment rate. What is even more intriguing is that even during the period of stabilisation programmes (1980s) that brought inflation down and saw a resumption in growth, unemployment remained relatively high[6]. Frenkel (2004) gives a review of studies that

[6] For a breakdown of unemployment rates and their determinants in different Latin American countries, see Frenkel and Ros (2006.

have been done on Latin America which analysed the impact of exchange rates on employment and to some extent help to understand the stabilisation-unemployment puzzle. Since some of these studies are in Spanish, this section will give a brief summary[7]. According to Ros (2004), the de-industrialization processes that led to sharp increases in unemployment in several South American countries can be explained by two factors operating in the 1990s, namely the real appreciation of exchange rates and the reorientation of the trade pattern towards natural resources. Damill *et al* (2002) investigated the effects of the real exchange rate (RER) appreciation on the labour market and income distribution for Argentina. The RER strongly appreciated in 1990-91 and the appreciated level remained (comparatively) stable until 2001. They find the change in relative prices that took place in the beginning of the decade and persisted afterwards, induced a contractionary trend in the full-time employment rate of 1.45 percentage points (of total urban population) every 6 months (about 3 percentage points per year). They show that during the period of RER appreciation employment was driven largely by changes in the currency and after the exchange rate stabilised from 1996 on onwards, changes in employment where now being explained by changes in output. In a comparison of the results from three Latin American countries (Argentina, Brazil and Mexico), Camargo (1999) shows that in these countries the combination of RER appreciation and trade opening generated negative trends in labour utilization per unit of output. In Argentina and Brazil, those negative trends were largely higher than the expansionary trends induced by the increase in output, resulting in net contractions of employment.

In Mexico, there was a small net increase in industrial employment since the positive effect on output expansion was higher than the negative trend. Frenkel and Ros (2006) looked at the relationship between the RER and employment in four Latin American countries. According to Frenkel and Ros, the emergence of mass unemployment in several South American countries and the persistence of high unemployment have a variety of causes, including a slow process of capital accumulation, a tendency to real currency appreciation and a pattern of trade specialisation oriented toward natural resource-intensive products. They also note that the pattern of trade, oriented toward primary exports and natural resource intensive manufactures has had a limited capacity for employment absorption.

4 Exchange rate and employment in South Africa

4.1 Exchange rates and exports

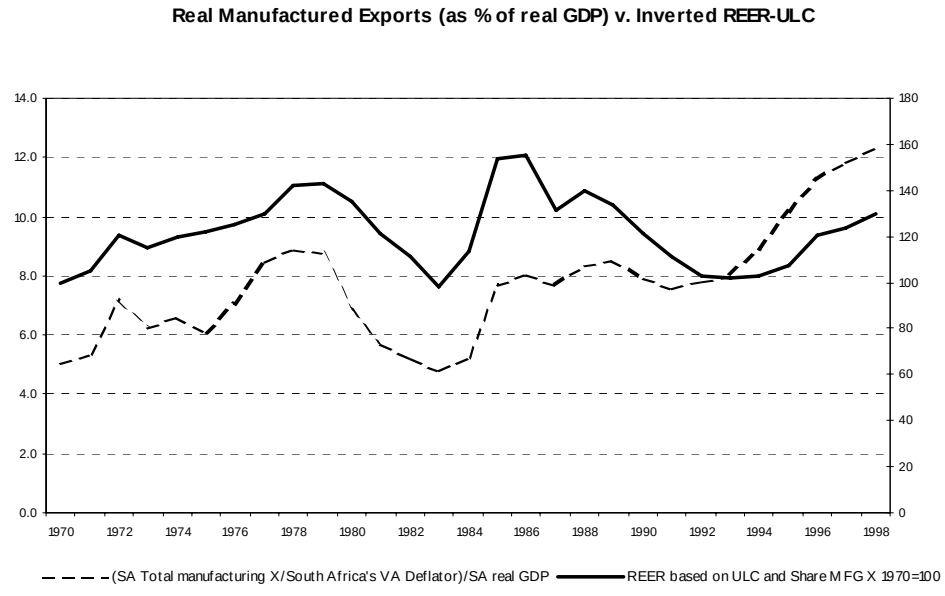
There are very few studies investigating the impact of exchange rates on growth, output and trade. However, the available empirical studies on South Africa do tell a relatively clear story. Bah and Amusa (2003) investigated the impact of real exchange rate volatility on South Africa's exports to the US. They find that volatility of the

[7] For a detailed discussion of the studies, please refer to Frenkel (2004).

Rand's real exchange rate exerts a significant and negative effect on exports in both the long run and short run while a decline in the real exchange rate has a positive impact on exports. The overall policy recommendation from this study emphasizes that a stable competitive exchange rate and sound macroeconomic fundamentals that enhance international competitiveness are necessary to ensure greater market penetration of South Africa's exports.

Golub and Ceglowski (2002) calculate South Africa's real equilibrium exchange rates (REER) and examine the quantitative relationships between these REERs and trade in manufactured goods. They find that price and cost competitiveness has an important and statistically significant effect on both exports and imports of manufactured goods. According to their definition a rise in the REER represents a real appreciation of the domestic currency, which is associated with a loss in competitiveness. The main findings by Golub and Ceglowski indicate that for the REER series as a group, South African competitiveness worsened in the early 1980s then improved dramatically in the mid-1980s. There was a period of real appreciation around 1992. Whilst the rest of the 1990s witnessed a substantial real depreciation, which was associated with an increase in the proportion of exports as a percentage of GDP.

Figure 1 – Real manufactured exports and the exchange rate



Source: Golub and Ceglowski (2002)

The figure below, reproduced from Golub and Ceglowski (2002), plots South Africa's real manufactured export to real GDP ratio against the real effective exchange rate based on unit labour costs, which is inverted for ease of visual inspection (such that an increase in the REER index now represents a depreciation, i.e. an improvement in competitiveness). There is a very close correlation between the two series. The only apparent anomaly is that manufactured exports have grown more rapidly in the 1990s

than competitiveness alone would justify. This is consistent with the ending of sanctions associated with Apartheid and the adoption of more outward oriented economic policies. The above visual correlation was further confirmed by the econometric analysis, carried out by Golub and Ceglowski. The important lesson from this study is that there is a very close correlation between movements in the exchange rate and manufactured exports.

4.2 The link between exchange rates and employment

The two studies on South Africa that where cited above looked at how the exchange rate impacted on trade. Although the empirical link is not made, it is inferred that changes in manufactured exports should have some important impact on employment. In this section, the link between the two shall be looked at explicitly. This is not a simple task in the SA context, due to data limitations which are explained in section 4.2.1. For example, we are unable to perform a study such as that done by Frenkel and Ros (2006) for lack of time series data on unemployment. In an attempt to overcome this limitation, an HSRC study was framed to make a closer link between exchange rates and employment. Two exploratory studies were prepared by the HSRC. The first was a small firm survey to examine how importing and exporting firms in different sectors and operating at different scales responded to changes in the exchange rate. The second study uses an economy wide experiment to ask how, at one point in time, an exchange rate shock impacts on employment, output, and trade.

4.2.1 Data problems

In South Africa, an analysis of the impact of exchange rates on employment is complicated by the unavailability of consistent and regular data on employment and unemployment, which makes it difficult to conduct any work using both time series and panel data analysis. The household surveys, introduced from 1995, are the most reliable source of official data on employment and unemployment. This refers to the October Household Survey (1995 – 1999) that ran annually, and the Labour Force Survey (2000 to present) that ran bi-annually until 2007, and will run quarterly from 2008. Prior to this, the measurement of employment and unemployment was highly imperfect. The new series are more inclusive, but the methodologies change on a regular basis as the statistical agency seeks to improve its quality. Given the recent introduction of the household surveys, and the labour force survey (LFS) in particular there is no long time series data to work with. Some studies have tried to construct a longer series by combining the old OHS with the LFS but this has not been without its problems especially in terms of employment totals. To this end it has been argued that the two sources should only be cautiously compared. The second alternative when it comes to employment data is the unofficial SASID database which is provided by a private company Quantec. The SASID data is based on a number of sources the main one being the Survey of Employment and Earnings (SEE). Companies in this survey are drawn from a register of companies which is updated periodically. The main drawback with respect to the latter is that the register from which the SEE is based has not until recently been representative of the entire economy. Furthermore, it excludes the informal sector, small enterprises with a turnover below R300 000 per annum, new enterprises not yet included in the register and agricultural and domestic work. Services employment also tends to be

underestimated in the SASID data base. This is because services firms fall disproportionately into the categories which are unsampled or under sampled in the SEE.

4.2.2 Exchange rates and employment in South Africa: evidence from a firm survey[8]

To get a better sense of how firms respond to exchange rate movements, we prepared a survey of 40 firms was carried out from four sector clusters (Hawkins, et al, 2007). This was a pilot survey, to give an indication rather than a representative sample. The clusters were Steel and steel products and household appliances; Wood and wood products, including furniture; Construction; and Tourism. The survey also included ten financial service providers, so as to understand the range of services and uptake associated with financial instrument risk management of the currency.

The survey revealed that all firms had been affected by the exchange rate in recent years, impacting on profitability and competitiveness. Of the 40 firms that where interviewed, 37 indicated that their revenue had changed due to the volatility and strength of the currency and 27 said their output had been affected. The impact was felt differently in the 4 sector clusters. Construction firms appeared most affected, with 86% saying that "exchange rate issues have become more important in recent years", as opposed to 75% in Wood and wood products, 71% in Metals and appliances and only 43% in Tourism.

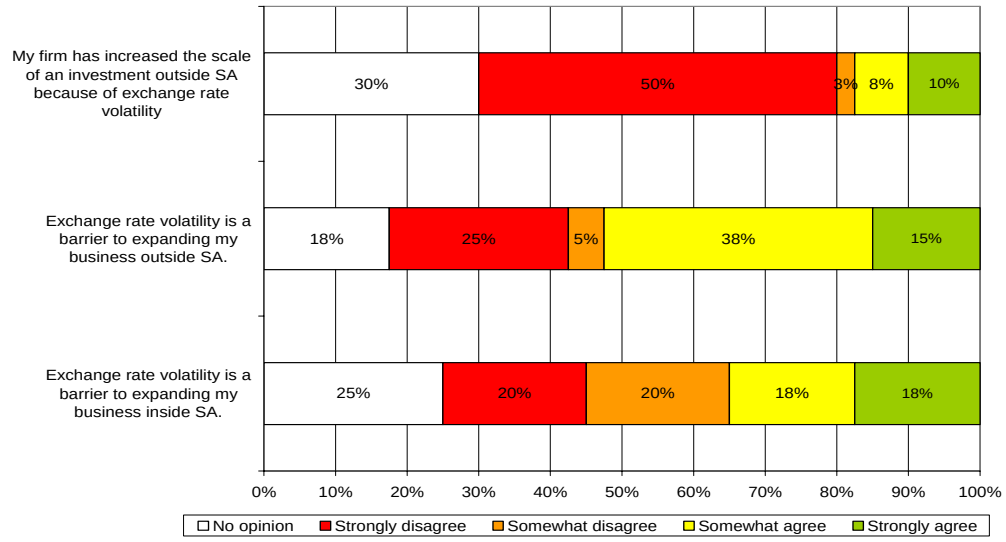
From a policy perspective, it is important to determine whether volatility or the level of the currency has a greater impact on the performance of firms. It is unfortunate that the survey could not shed a clear light on this pertinent question since firms could not separate the influence of volatility from the level. Nevertheless 68% of firms said their profitability would be higher in the absence of exchange rate volatility and 45% said that they had foregone market opportunities due to exchange rate volatility.

Most firms felt that at R6 to the dollar the exchange rate was too strong and that from R7.50-R9.00 to the dollar the currency was competitive.

Although, the appreciated exchange rate in this period made imports of capital goods cheaper, there was not a corresponding increase in investment. The strong currency undermined firm expectations regarding a buoyant export or domestic market which would have justified such investment (see figure 2 and 3).

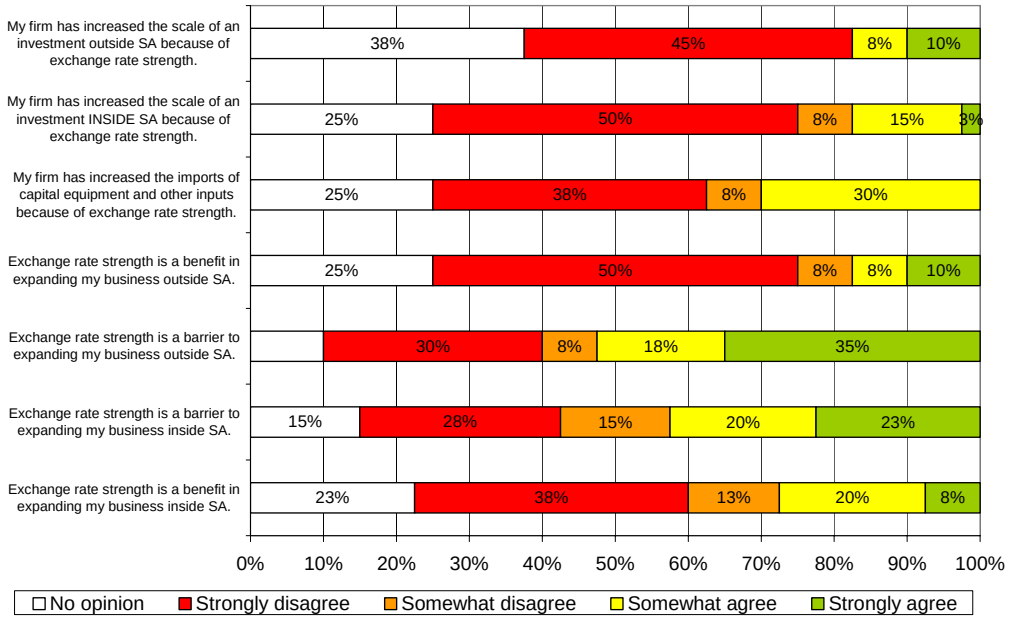
[8] The full survey report can be downloaded from the HSRC website (www.hsrc.ac.za/egdi.phtml).

Figure 2 – The impact of the volatility of the exchange rate on investment decisions



Source: Hawkins et al (2007)

Figure 3 – The impact of the strength of the exchange rate on investment



Source: Hawkins et al (2007)

Theoretically, exchange rate volatility offers firms with an opportunity to arbitrage. However, most firms surveyed 'strongly disagreed' or 'disagreed somewhat' with the statement that "the ability to manage exchange rate risk provided firms with a strategic advantage" (see figure 4). While firms could see the potential of the management of exchange rate risk to generate competitive advantage, their ability to do so was limited.

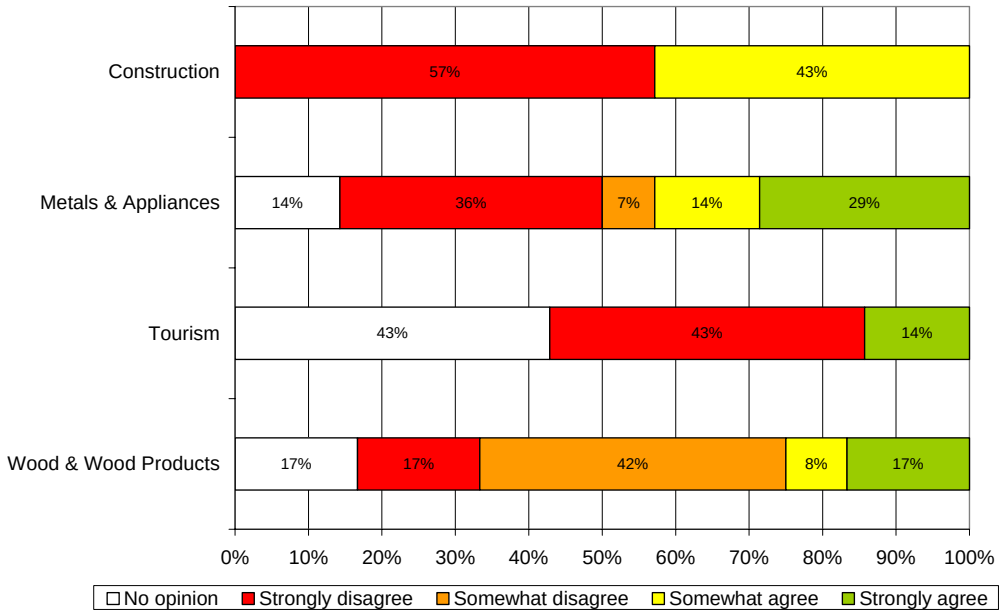
One of the key questions asked of firms was to rank the importance of a number of possible influences on their growth and employment decisions. Among these were exchange rate volatility and exchange rate strength (See figure 5). Taken for all firms, the results show that economic growth or market opportunity was the key influence for firms' investment and growth decisions, followed by wage levels. More than three-quarters of the firms interviewed said that exchange rate strength and exchange rate volatility influenced their employment decisions.

Areas that were ranked as less important included the depth and strength of financial markets, the availability and cost of foreign currency derivatives for hedging and tax incentives. With regard to the latter, firms pointed out that there were no tax incentives for their industries, but they indicated they would respond to such incentives if offered.

Interviewees were asked to what extent the firm had experienced a change in employment levels, output and revenue over the last five years due to the exchange rate volatility or strength. Over the past five years, the Rand had recovered from its lowest levels and a period of considerable volatility in the late 1990s. From January 2002 until September 2003, the currency experienced a period of gradual appreciation. The Rand appeared then achieved a relatively stable value until around March 2006 this year when the currency has once again moved into volatile territory.

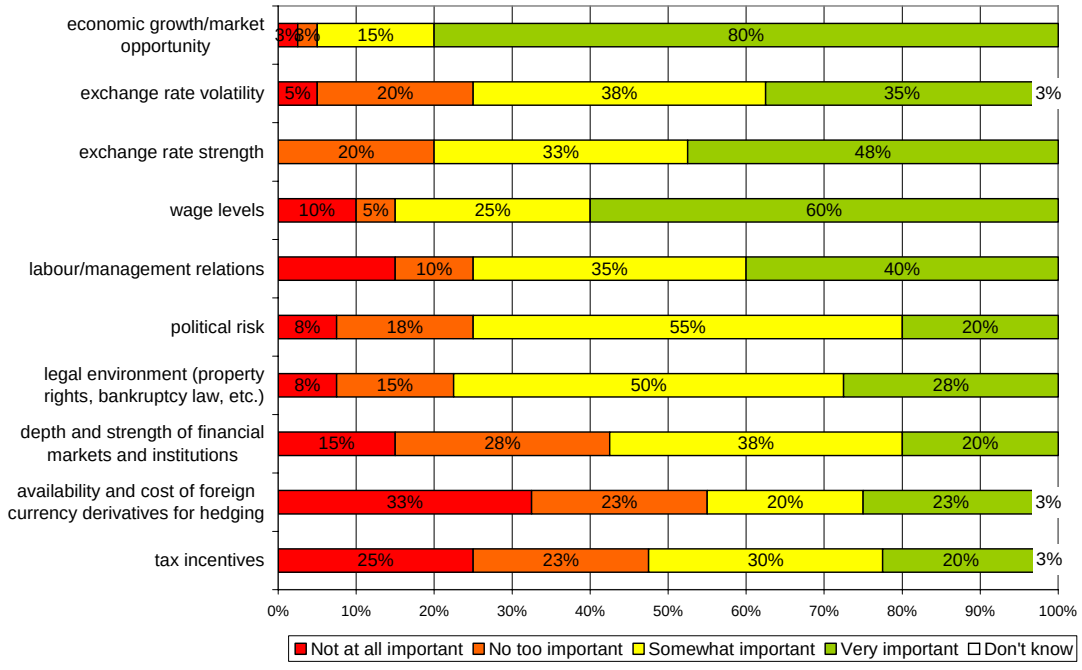
Firms were asked to what extent they had experienced a change in employment levels, output and revenue over the last five years due to the exchange rate volatility or strength. It was however difficult for firms to separate exchange rate volatility and strength. For this reason, the question asked firms to quantify in broad terms the impact of the currency on employment, output and revenue. Firms' responses varied for each of these categories, with 37 firms indicating that the exchange rate had had an impact on their revenues (93% of respondents). Twenty-seven firms (68%) indicated that their output had been affected. This may be artificially low as more than one service sector firm wasn't sure how to respond to the notion of output. 20 firms indicated there had been some influence on their employment in the past five years. (See figure 6).

Figure 4 – Sector responses to "My firm treats the ability to manage exchange rate risk as a strategic competitive advantage"



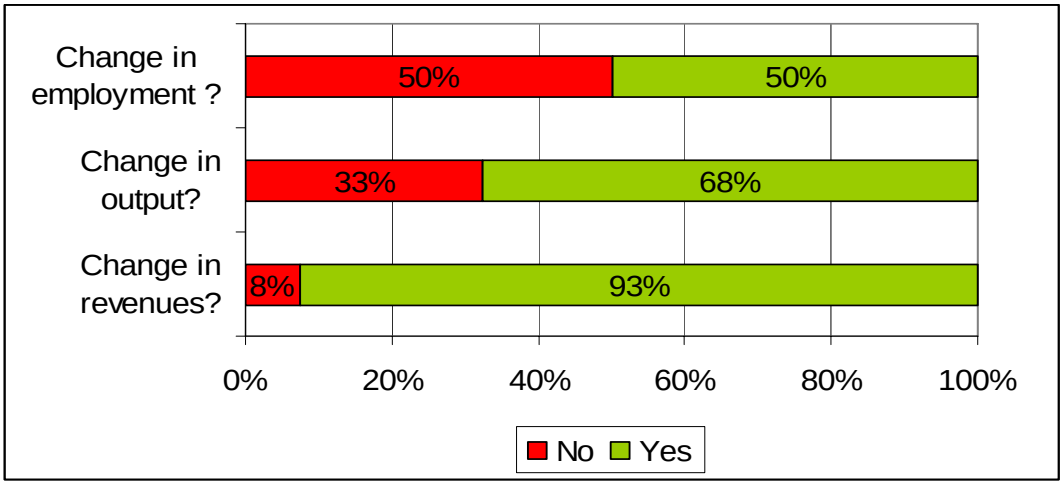
Source: Hawkins et al (2007)

Figure 5 – Influences on growth and employment decisions



Source: Hawkins et al (2007)

Figure 6 – Has your firm experienced any change due to exchange rate volatility or strength over the past five years?



Source: Hawkins et al (2007)

Figure 6 shows that half of the firms indicated there had been change attributable to the exchange rate in the past five years. Six firms (15%) indicated that it had significantly decreased their employment – where significant was defined as a 10% reduction or more. Three of these responses came from firms in the wood industry, two from firms in steel and appliances and one from a tourist firm. Eight firms (20%) indicated there had been a decrease in employment of less than 10 percent. Six firms indicated that they had increased employment over the past five years.

Financial providers felt that South African firms had become more aware of exchange related risks over the last decade. However, risk management approaches where generally limited and unsophisticated. Both firms and providers pointed to different classes of service for firms engaging in different values of transaction. Unless a firm takes forward cover of at least R1 million per month, the firm is relegated to retail service, which effectively implies being charged a premium on the spot rate. The study also showed that despite the exchange rate gaining importance most firms surveyed strongly disagreed or disagreed somewhat with the statement that the ability to manage exchange rate risk provided firms with a strategic advantage. One of the key questions asked of firms was to rank the importance of a number of possible influences on their growth and employment decisions. Among these were exchange rate volatility and exchange rate strength.

4.2.3 Exchange rate movements and employment in an economy-wide context

The significant appreciation of the exchange rate from 2002 sparked debate on the possible overvaluation of the rand. The difficulties that where faced by both exporters and import substituting firms where often cited as evidence of the overvaluation. The HSRC prepared a study to explore the possible outcomes of a mineral induced appreciation on sectoral patterns of employment (Ngandu 2006). The use of mineral

prices was consistent with some of the variables that had been identified as important determinants of the exchange rate at that time, part of the appreciation had been attributed to the global commodity super cycle which had started in 2002. The economy wide framework also seemed appropriate given that the interaction of winners and losers following an appreciation meant that the outcome would be dominated by sectors that benefited the most. Furthermore, simply measuring the impact of the exchange rate on the manufacturing sector could paint a one sided view where an appreciation always appears to result in a contraction in employment. Cross sectional studies are important in as far as they help us better understand sectoral inter-industry dynamics. However, they do not take into consideration the impact of the exchange rate on the rest of the economy and so their results do not give a complete picture of the overall impact on employment.

The aim of the study was to investigate the sectoral impact of a rand appreciation on employment by using a computable general equilibrium model (see Ngandu, 2006 for a detailed discussion). The experiment stimulated a commodity boom that leads to a 30% increase in the price of minerals in three sectors gold, other mining and coal. This leads to an appreciation which in turn causes a fall in exports and a subsequent fall in employment in all export sectors, as seen in Table 3. The appreciation reduces the rand price of exports relative to sales in the domestic market. Producers thus switch market destinations away from world markets. The exception is the booming sector, mining, which continues to benefit from the initial price increase (although by less than what it would have without the appreciation). The largest decreases are in labour intensive intermediate, consumer and capital goods (-8.7%, -6.4% and -7.2% respectively). The patterns of both domestic demand and imports also change. This can affect the possibilities of selling in the domestic market and therefore the possibility of switching away from exporting.

As expected from any economy wide framework, the fall in employment from these sectors was compensated for by an increase in employment in the services sector. There is an increase in imports, however, because investment is fixed we have very little capital goods being imported, therefore both labour intensive capital goods and capital intensive intermediate goods register small increases in their imports. The simultaneous rise and fall of imports and exports sees the current account moving from a surplus in the base year to a relatively small trade deficit. Since foreign savings (borrowing from abroad) are fixed the extra expenditure on imports is financed by private savings. The fall in manufacturing output does not have any impact on GDP which experiences a boost driven largely by the increase in the output of services. Since low skilled and skilled labour is assumed to be unemployed it means that as jobs are lost in the traded sectors there are absorbed in the services sector. Given that the three sectors with the largest employment shares are relatively non-traded, a movement from the struggling manufacturing sector to these sectors sees an increase in the overall employment of low skilled and skilled labour. These results bear a striking resemblance to traditional Dutch Disease dynamics where the increase in employment and GDP is driven by the wealth effect of the commodity boom, and the poor performance of the traded sector is a direct result of the exchange rate appreciation.

Table 2 – Change in sector output and employment

	Sector	Output	Low Skilled	Skilled	High Skilled
1	Agriculture	-0.5	-1.1	-1.1	-3.0
2	Mining	1.6	3.8	4.2	3.6
3	Labour intensive intermediate goods	-3.0	-5.0	-3.9	-6.0
4	Labour intensive consumer goods	0.1	-0.3	0.3	-0.9
5	Labour intensive capital goods	-4.4	-5.0	-4.9	-5.5
6	Capital intensive intermediate goods	-2.4	-7.5	-7.3	-8.4
7	Capital intensive consumer goods	-0.1	0.1	0.1	-0.8
8	Electricity and water	0.1	1.3	1.3	-0.6
9	Construction	-0.1	0.3	0.3	-1.6
10	Low skill intensive intermediate services	0.2	1.6	1.8	0.0
11	Low skill intensive consumer services	2.3	4.7	3.4	0.9
12	Skill intensive intermediate services	1.0	4.3	4.0	1.9
13	Skill intensive consumer services	2.3	5.9	5.9	4.0
14	Government services	0.1	1.1	1.1	-0.8
	Total	n.a.	0.9	2.0	n.a.

Source: Ngandu 2006

Table 3 – Changes in quantities of sector exports, imports and domestic sales

	Sector	Exports	Imports	Domestic Sales
1	Agriculture	-4.9	16.9	0.1
2	Mining	2.2	-1.8	-1.7
3	Labour intensive intermediate goods	-8.7	9.5	-2.3
4	Labour intensive consumer goods	-6.4	15.1	1.1
5	Labour intensive capital goods	-7.2	2.5	-2.4
6	Capital intensive intermediate goods	-3.2	-0.8	-2.2
7	Capital intensive consumer goods	-6.3	29.7	0.7
8	Electricity and water	-5.0	6.9	0.4
9	Construction	-4.0	4.7	0.0
10	Low skill intensive intermediate services	-5.1	18.7	0.4
11	Low skill intensive consumer services	-4.5	10.5	2.2
12	Skill intensive intermediate services	-5.4	9.8	1.1
13	Skill intensive consumer services	-3.9	10.5	2.5

Source: Ngandu 2006

The impact on output and employment varies across sectors, as seen in Table 2. Overall, the traded sector experiences a decrease in output whilst that of the non-traded sector rises. Changes in sectoral employment (with a few exceptions) tend to follow the same pattern as output. The net effect on employment is positive, low skilled employment rises by 0.9% and skilled by 2.0%; high skilled employment remains constant since its fixed by assumption. These results are not surprising: the positive shock to the terms of trade has a positive net effect on the economy since a favourable terms of trade shift makes the economy richer (as well as appreciating the exchange rate). From these results it can be seen that the terms of trade gains are thus the primary source of the absorption (the total demand for goods and services) expansion whilst the increase in total employment is the secondary source of gain.

The poor performance of the traded sector in the face of the appreciation is what underlies the concern about the impact of the commodity price boom on the economy.

5 Critical issues arising

The HSRC project on exchange rates and employment has been aimed at deepening understanding of this critical link. Resource constraints limited the ability to representative firm surveys, and the modelling is preliminary in light of the need for new methodologies in the absence of sufficiently strong data for time-series analysis.

Some critical insights arose through the project that deserve further attention by researchers and policy-makers. This is particularly so in the context of the ASGISA commitment to expanding non-traditional exports. The HSRC employment scenarios show how urgent the promotion of employment through traded sectors will be to achieving the ASGISA objective of halving unemployment and poverty by 2014. The essence of our findings is as follows:

An appreciation in a minerals economy might have some unexpected effects on unemployment. Our economy-wide modelling experiment found that an appreciation caused by a commodity boom can have a positive impact on employment and GDP. This can create exuberance, which is not necessarily sustainable. In such cases, domestically oriented services sectors are favoured over manufactured exports. The positive growth impetus from the appreciation masks strong Dutch Disease effects which lead to the poor performance of the manufacturing sector. When the commodity boom is over, there is concern as to whether manufacturing sectors that have shrunk or remained stagnant during the boom will be able to recover sufficiently to replace the earnings lost during the appreciation. The most worrying development in the case of an appreciation caused by a commodity boom is the fall in the rate of return of capital in the tradeable sectors; this has implications on the sector distribution of investment. It will have an impact on the future investment response of the sector since capital might move out or future investment might be directed towards other sectors. The inability of this sector to attract investment in the future

will hamper its capacity to compete internationally. The bias that is created by the resource boom has important welfare effects since the total wage for unskilled labour falls as it shifts from high wage sectors to low wage sectors.

The responses from our survey suggest that though volatility does not impose significant constraints in the short run, its long run impact are considerable.

The survey showed that the appreciation at the time would have been expected to encourage capital investments with imported investment goods becoming cheaper: however, firms did not respond by making increases in investment. This could be the result of uncertainty, since the volatile exchange rate makes it difficult for firms to plan for the future.

On the other hand, a depreciation will not necessarily have the expected impact on stimulating investment either, even where exports do expand. Again, volatility may hinder long-term investment, where firms are simply shifting between domestic and foreign sales depending on the exchange rate at the moment. Moreover, capital and equipment which often sourced overseas become more expensive. Poor infrastructure or lack of belief in a sustained depreciation may constrain business response to a depreciation. A weak private sector response will likely result in a depreciation having an inflationary impact, rather than a growth inducing one.

The extent to which the exchange rate can be used as an incentive depends on industrial structure, quality of services, back bone infrastructure and the perceived likelihood of reversions in the currency's future trend. The recent electricity crisis highlights the fact that efforts to promote sectoral performance through the exchange rate will be hampered by the shortage of basic production inputs such as energy.

These results pose a challenge to policy aimed at promoting appropriate growth paths for South Africa. Is it sensible that the sectors producing value added goods are subject to fluctuations in world mineral prices? This question is important if the economy is to move to a higher labour-absorbing growth path on the basis of growth in higher value goods and services for global markets. Can SA afford stagnation or reversal in growth every time there is a commodity boom? To what extent is the growth seen in the model value-adding and sustainable? Is there an alignment to an overall economic strategy as was found in successful sustained high growth economies? To what extent can we expect greater diversification in the South African economy given the challenges faced by the manufacturing sector following the appreciation? This is especially important given the dominance of resource based exports in the country.

These questions have very compelling implications with respect to South Africa's ability to meet its employment targets. The implications emanate from an exchange rate that is driven by commodity prices creating sectoral biases that have far reaching consequences on the economy. The importance of the latter is especially true if the traded sector is a source of growth through backward and forward linkages and learning externalities. This shows why it is important to seriously look at the challenges being faced by the manufacturing sector as a result of the appreciation in the exchange rate since the economy loses the benefits of the external economies to manufacturing as this sector shrinks. Contraction might create a situation where even

in subsequent periods of depreciation the sector might fail to respond in a way that is growth inducing.

Looking at recent growth successes we find that behind their impressive growth was a system of managed exchange rates which created significantly undervalued currencies. Together with an abundance of cheap labour and labour intensive export manufacturing their outward oriented growth strategies led to significant reductions in unemployment. However, the question of an export led growth in South Africa is complicated by a number of factors.

- First, there is the issue of a highly volatile currency that not only shows short term volatility but is also characterized by fluctuations in the long term trend of the level. Some argue that Rand volatility is the central concern which may imply a macroeconomic misalignment of the exchange rate, together with longer-term volatility or swings in the real exchange rate. If the argument that export manufacturing has a prominent role to play in the absorption of unskilled labour, do such movements in the currency create a bias against the ability of the traded sector to reduce unemployment?
- Secondly, the South African economy appears to do well when the currency appreciates as a result of a commodity boom, even though exports are negatively affected. Judging from the performance of the manufacturing sector it is very doubtful whether this growth is sustainable. In contrast, where appreciations are caused by expansions of manufactured exports, associated growth might well be sustainable. However, this has not been the SA experience to date.
- Thirdly, South Africa might not have the ability to build up the kind of foreign currency reserves to offset an appreciation of the exchange rate.
- Fourthly, a depreciation of the currency to stimulate exports needs an economic environment with few supply constraints; otherwise the weaker currency can only prove to be inflationary.

The sensitivity of the traded sector to changes in the exchange rate makes it difficult to frame an employment generating industrial policy in the context of a volatile currency. There is therefore a need to find strategies that are effective in stimulating the traded sector and foster employment creation that can overwhelm the negative impact of currency volatility. The role of industrial policy may be to identify sectors of the economy that are more vulnerable to changes in the exchange rate and find ways of insulating them from the volatility.

It is indisputable that resource dependent countries face a unique set of challenges such as increased vulnerability to external shocks, the risk of 'Dutch disease' type effects, and the risk of developing specific institutional pathologies. These can however be overcome or avoided by implementing, the right economic policies. The rents from resources can be used to diversify the rest of the economy together with supportive industrial policies; this has been done in countries such Norway, Australia and Canada. One way of achieving this diversity is through tax incentives to assistant non-resource based sectors. To reduce vulnerability from the countries main resource exports, good fiscal policy becomes very important and the objective should be to

keep the budget in balance across the commodity-price cycle. It should be based on conservative assumptions for the major export commodities; this means a budget that balances only because of high commodity prices is not necessarily in balance. The increased revenues accruing to government during the commodity boom can also be used to import capital goods that cannot be made locally such as computer equipment for schools, medical equipment for public hospitals, and backbone communication infrastructure. The advantage with this kind of investment is that it improves the competitive position of the economy and generates little exchange rate appreciation.

This report has highlighted the transmission channels through which the exchange rate impacts on employment, these either dampen or amplify the magnitude of exchange rate shocks. Though the empirical literature on exchange rates and employment is still growing, existing evidence shows that exchange rates exert a strong influence on employment. In order for government's industrial policy to achieve its goal of a job creating impetus the impact of the exchange rate on traded goods and services needs to be addressed.

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