

## CHAPTER SIX

### TARIFF LIBERALISATION, COMPETITIVENESS AND THE REAL EXCHANGE RATE (RER)<sup>1</sup>

#### 6.1 Introduction

In this chapter, a test of the hypothesis that tariff liberalisation has led to increased competitiveness, is provided. One way of assessing the effects of trade liberalisation is to consider its impact on the domestic prices for importables and exportables (Dijkstra, 1997: 8). This chapter uses real exchange rate (RER) calculations based on the relative prices of tradables (exportables and importables) to non-tradables to analyse the impact of tariff liberalisation on competitiveness during the 1990s.

Section 6.2 gives an overview of some of the theoretical issues relating to the RER. This is followed by section 6.3, which undertakes the RER calculations and tests the hypothesis that tariff liberalisation has led to increased competitiveness during the 1990s. Finally, some conclusions are drawn in the last section.

#### 6.2 Some theoretical considerations: The effect of trade liberalisation on the RER.

The RER provides an indication of the competitiveness and profitability of producing tradeable goods. However, there are different definitions of the real exchange rate, which have led to some confusion in the use of RERs in empirical analysis.<sup>2</sup> The purchasing power parity definition of the real exchange rate considers relative prices (domestic and international prices) multiplied by the exchange rate. This is given by:

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<sup>1</sup> I am grateful to an anonymous referee at the *South African Journal of Economic and Management Sciences* for valuable suggestions and comments on a version of this chapter.

<sup>2</sup> See Edwards (1989) for a discussion of the ambiguities related to the different definitions of the RER.

$$RER_1 = e \frac{P^*}{P} \dots\dots\dots(13)$$

where  $e$ ,  $P$ ,  $P^*$  refers to the exchange rate, domestic prices and foreign prices respectively. As Holden (1988: 1-2) points out when consumer price indices (CPIs) are used as price measures, the RER captures the relative price of the baskets of consumption goods in the two countries. Similarly, when producer price indices (PPIs) or gross domestic product (GDP) deflators are used, the relative price of a basket of production goods is measured. In terms of equation (13) a country's competitiveness increases (decreases) if the relative price of domestic tradable goods decreases (increases). Developments in the RER in South Africa have attracted attention in the economic literature (Holden, 1988; Kahn, 1998; Walters and de Beer, 1999; Golub, 2000; Edwards and Schoer, 2000). These studies have considered different measures of the RER and in the main have argued that there was an improvement in South Africa's competitiveness.<sup>3</sup> However, none of these studies have explicitly analysed the effects of trade (tariff) liberalisation on the RER competitiveness indicator.

The RER measured as the ratio of the internal relative price of tradables ( $P_t$ ) to the price of non-tradables ( $P_n$ ), is probably the most popular analytical definition of competitiveness (Edwards, 1992: 7). This definition emanated from the dependent economy model where the economy consisted of two sectors, namely tradables and non-tradables (Corden, 1985; Frenkel and Mussa, 1984; Frenkel and Razin, 1987).<sup>4</sup> In this case the RER is given by:

$$RER_2 = \frac{P_t}{P_n} \dots\dots\dots(14)$$

where  $P_t$  and  $P_n$  refer to the price of tradables and non-tradables respectively.

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<sup>3</sup> The evidence suggests that indicators based on real effective exchange rate calculations have overstated the extent of the improvement in South Africa's competitiveness. These studies have in the main emphasized the different theoretical and measurement issues pertaining to the calculation of the RER.

<sup>4</sup> Tradables are classified as those goods whose prices are determined on the world market; they include both exportables and importables. Non-tradables on, the other hand, are classified as those goods whose prices are determined domestically.

An increase (decrease) in  $RER_2$  implies that the opportunity cost of producing tradables, measured in terms of foregone output of non-tradables has decreased (increased). This, in effect, means that the production of tradables is encouraged (discouraged). Stated differently, an increase (decrease) in  $RER_2$  depicts a decline (improvement) in competitiveness. Viewed in this way, RER changes reflect changes in the internal competitiveness of tradable goods *vis-à-vis* non-tradable goods.

Aggregating exportables and importables into a single category implies that relative prices remain unchanged (Holden, 1988). However, the impact of trade liberalisation is not uniform across import and export prices. Liberalisation does not move the prices of exports and imports in the same direction, nor at the same pace. Thus, the use of a composite tradable price index in the calculation of the RER may not accurately indicate movements in competitiveness during periods of trade liberalisation. Some of the important aspects in this regard are briefly outlined and the reader is referred to Milner and McKay (1996) for a more elaborate exposition.<sup>5</sup>

If the price of tradeables is a geometric average of the price of exportables ( $P_x$ ) and importables ( $P_m$ ), that is:

$$P_t = P_m^\beta P_x^{(1-\beta)} \dots\dots\dots(15)$$

where  $\beta$  refer to the share of importables in tradables.

Substituting (15) into equation (14) and considering the proportionate change in the variables gives:

$$\hat{RER}_2 = \beta \hat{P}_m + (1 - \beta) \hat{P}_x - \hat{P}_n \dots\dots\dots (16)$$

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<sup>5</sup> Milner and McKay (1996) provide an elegant theoretical justification for the use of disaggregated tradable (i.e. exportables and importables) price indices in the calculation of the RER. They use the RER calculations to date the liberalisation episode in Mauritius. However, in this paper the RER calculations are used to analyse the impact of trade (tariff) liberalisation on competitiveness.

where  $\hat{P}_m$ ,  $\hat{P}_x$  and  $\hat{P}_n$  refer to the proportionate change in the price of importables, exportables and non-tradables respectively.

Further, if it is assumed that the domestic price for exportables and importables is equal to the corresponding foreign prices multiplied by  $e(1+t)$  and constant foreign prices ( $\hat{P}^* = 0$ ) then, equation (16) can be expressed as:

$$R\hat{E}R_2 = \hat{e} + \beta dt_m + (1 - \beta) dt_x - \hat{P}_n \dots\dots\dots(17)$$

where  $e$  = exchange rate;  $t$  = trade measure;  $dt_i = (1 + \hat{t}_i)$ ;  $i=x,m$

For simplicity if it is assumed a fixed exchange rate ( $\hat{e} = 0$ ) and exogenously determined non-tradeables prices ( $\hat{P}_n = 0$ ), then import liberalisation ( $dt_m < 0$ ) would mean that in terms of equation (17), there is a real depreciation ( $RER_2 < 0$ ). If the price of non-tradeables is endogenously determined - say a

positive relationship between  $P_n$  and the price of tradeables (ie.  $\hat{P}_n > 0$  when  $dt_m > 0$ ) - then with import liberalisation ( $dt_m < 0$ ),  $RER_2 > 0$  when  $\left| \hat{P}_n \right| > \beta dt_m$

and  $RER_2 < 0$  when  $\left| \hat{P}_n \right| < \beta dt_m$ . Thus, the impact of trade liberalisation on

$RER_2$  is ambiguous and depends on the change in the price of non-tradables (Milner and McKay, 1996: 78). The relationship between non-tradable and tradable goods' prices has an important bearing on the definition of the RER. It is important to recognise that income and substitution effects emanating from tariff liberalisation could also influence the price of non-tradables. To restore equilibrium in the economy, the proportionate change in the price of non-tradables ( $\hat{P}_n$ ) is given by:

$$\hat{P}_n = w_m \hat{P}_m + w_x \hat{P}_x + \mu \hat{y} \dots\dots\dots(18)$$

where  $w_i = \frac{\eta_{ni} - \varepsilon_{ni}}{\varepsilon_{nm} - \eta_{nm}}$

$$\mu = \frac{\eta_n^y}{\varepsilon_{nm} - \eta_{nm}}$$

$\eta_{ni}$  and  $\varepsilon_{ni}$  are the elasticities of demand and supply for non-tradables with respect to the price of  $i$  ( $i = m, x$ ).  $\eta_n^y$  represents the income elasticity of demand for non-tradables.

The first two terms on the right hand side reflect the substitution effects while the last term captures the income effects.<sup>6</sup>

Assuming homogeneity of degree zero in prices implies that  $w_i > 0$  and the sum of  $w_i$  is unity. Equation (18) can thus be rewritten as follows:

$$\hat{P}_n = w_m \hat{P}_m + (1 - w_m) \hat{P}_x + u \hat{y} \dots \dots \dots (19)$$

Substituting (19) into (17) and for simplicity assuming no income effects ( $\hat{y} = 0$ ) gives:

$$\hat{R}\hat{E}R_2 = \hat{e} + \beta dt_m + (1 - \beta) dt_x - w_m \hat{P}_m + (w_m - 1) \hat{P}_x \dots \dots \dots (20)$$

This translates into:

$$\hat{R}\hat{E}R_2 = \hat{e} + (\beta - w_m) dt_m + (w_m - \beta) dt_x \dots \dots \dots (21)$$

with  $\hat{P}_m = dt_m$ ;  $\hat{P}_x = dt_x$

Further, if it is assumed that an exchange rate adjustment is equivalent to a uniform tariff on imports ( $e_m$ ) and a subsidy on exports ( $e_x$ ) then the exchange rate effects could be represented as:

$$\hat{e} = dt_m e_m + dt_x e_x \dots \dots \dots (22)$$

substituting (22) into equation (21) gives:

$$\hat{R}\hat{E}R_2 = (\beta - w_m)(dt_m + e_m) + (w_m - \beta)(dt_x + e_x) \dots \dots \dots (23)$$

In summary the effects would be as follows:

- With no change in trade policy, exchange rate effects are neutral.
- Trade liberalisation ( $dt_m < 0$ ;  $dt_x > 0$ ) accompanied by an exchange rate depreciation ( $e_x > 0$ ;  $e_m > 0$ ) would cause the price of exportables to

<sup>6</sup> See Milner and McKay (1996) for a more elaborate exposition of these concepts.

increase (since  $dt_x > 0; e_x > 0$ ) but the movement in the price of importables is uncertain (since  $dt_m < 0; e_m > 0$ ) i.e. import liberalisation causes the prices of imports to decrease whilst the exchange rate depreciation causes importable prices to increase.<sup>7</sup> In addition, the substitution effects ( $w_m$ ) are important since they also influence the movement in the price of both exportables and importables.

There are a number of factors influencing the price of tradables and non-tradables. The theoretical analysis presented above has considered four factors, namely, trade policy changes, exchange rate changes, substitution and income effects. The analysis has shown that under certain conditions trade liberalisation could have ambiguous effects on the price of importables. It is for this reason, that if the intention is to analyse the likely effects of trade liberalisation, then the RER measure should distinguish between the exportables and importables sectors (Milner and McKay, 1996: 79). Defining the RER in terms of the price of exportables ( $P_x$ ) and importables ( $P_m$ ) and replacing ( $P_t$ ) by ( $P_x$ ) and ( $P_m$ ) in equation (14) gives two definitions of the RER namely<sup>8</sup>:

$$RER_{2a} = \frac{P_x}{P_n} \dots\dots\dots(24)$$

$$RER_{2b} = \frac{P_m}{P_n} \dots\dots\dots(25)$$

Since this study is primarily concerned with the effects of tariff liberalisation during the 1990s, the effects of liberalisation on the two RER measures reflected in equations (24) and (25) are considered. With tariff liberalisation (and no change in the exchange rate), it can be expected that both  $\hat{RER}_{2a}$  and  $\hat{RER}_{2b}$  would depreciate (i.e. be  $< 0$ ); the depreciation in  $RER_{2a}$  probably being

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<sup>7</sup> Even if import liberalisation exceeds the depreciation in the currency (i.e.  $dt_m + e_m < 0$ ),  $RER_{2a} > 0$  when  $\beta > w_m$

<sup>8</sup> Following, Edwards (1992), the RER for the economy as a whole can be expressed as:  $RER = \alpha RER_{2a} + (1 - \alpha) RER_{2b}$  where  $\alpha$  and  $(1 - \alpha)$  represent the respective trade weights.

less than that of  $RER_{2b}$ .<sup>9</sup> However, tariff liberalisation accompanied by a depreciation in the currency, would cause  $RER_{2a}$  to depreciate. The likely effects of this on  $RER_{2b}$  would then be ambiguous depending on whether the tariff liberalisation exceeds the depreciation in the exchange rate and the likely income and substitution effects emanating from the implementation of tariff liberalisation. In the latter case, it is thus possible that, with large depreciations in the currency, import prices would not decrease with tariff liberalisation in relative terms.

However, it is important to realize that separate relative price indices provide an indication of how macro-economic and other economic policies affect overall incentives in the economy (Edwards, 1997), and as such one should be careful not to assign the primary importance to trade policy effects without due consideration to the other factors that could have precipitated the change in the RER.<sup>10</sup> The empirical work to date has not always given due consideration to this aspect.

Further, with imperfect competition, domestic prices may not change in the expected direction with trade liberalisation. A possible reason for this may be that lower import prices at the border are not passed onto consumers (Dijkstra, 1997: 8). This could result if there are a few importers dominating the market, or alternatively, if the retail network is dominated by a few sellers.<sup>11</sup> Another reason could be the prevalence of "*pricing to market*" behaviour on the part of foreign suppliers. In this case, profit margins are reduced to absorb the tariff so as to maintain market share. In such cases, tariff liberalisation may not necessarily lead to reduced import prices.<sup>12</sup>

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<sup>9</sup> The depreciation in  $RER_{2a}$  depending on the share of imported inputs used in production.

For simplicity the income and substitution effects are ignored.

<sup>10</sup> This study attempts to address this issue by distinguishing between the price movements in the price of liberalised and non-liberalised importables.

<sup>11</sup> This was the case for food prices in Nicaragua (see Dijkstra, 1996).

<sup>12</sup> Therefore the analysis of the effects of pass-through effects of tariff changes to import prices is important to ascertain if the envisaged benefits (reduced import prices) is in fact realised. This will be explored further in chapter seven.

### **6.3 Trade liberalisation and changes in the RER in South Africa during the 1990s.**

Chapter four documented the extent of tariff liberalisation during the 1990s. In this section the impact of tariff liberalisation on relative prices using the RER measures outlined in section 6.2 is measured. In order to calculate RER measures of competitiveness one needs separate price series for importables, exportables and non-tradables. This is the focus of the next section.

#### **6.3.1 Developing price measures for tradable and non-tradable sectors**

In order to establish the disaggregated price series it is necessary to distinguish between the tradable and non-tradable sectors. While the distinction between tradable and non-tradable sectors is central in many economic theories and models, much of the empirical work has relied on crude estimates to distinguish between the sectors. One such approach relies on *a-priori* assumptions about sectors. Goldstein and Officer (1979) for example, suggest that since exports and imports dominate in the agriculture, mining and manufacturing sectors; these sectors could be regarded as tradable sectors. This distinction was used in a study for Australia (Shann, 1986 cited in Knight and Johnson, 1997), Mauritius (Milner and McKay, 1996) and South Africa (Holden, 1988). However, a major disadvantage of this classification is that it is performed at a fairly aggregate level and as such may lead to inaccuracies in measurement. This may be due to some sub-sectors or industries (for example, in manufacturing) being wrongly classified as tradable when they may not be engaging in trade. In addition, this classification does not allow for a shift between the tradable and non-tradable divide.

Knight and Johnson, (1997) suggest an industry-based approach to distinguish between tradable (exportables and importables) and non-tradable sectors. In this approach, an industry is classified as exportable if it displays a significant degree of export orientation, importable if it is significantly involved in import-substitution and non-tradable otherwise. For the classification of



industries, the threshold values are important. Dwyer (1992), Balassa and Associates (1982) and Knight and Johnson (1997) suggest a threshold value of 10 percent to distinguish between the sectors. The distinction between the sectors is done on the following basis:

- Exportable (E) sectors have an export orientation (exports as a ratio of domestic production) exceeding 10 percent.
- Importable (I) sectors are those in which imports as a ratio of domestic demand exceeds 10 percent.
- Non-tradable (NT) sectors are all the other sectors in the economy excluding the above two cases.
- Tradable sectors include the exportable and importable sectors.

Table 11 classifies the 46 sectors of the South African economy into either exportable (E), importable (I), importable and exportable (I,E) or non-tradable (NT) for the period 1990-2001.<sup>13</sup>

The dynamic nature of the classification procedure is clearly evident from the table as in the case of the food sector, which was classified as non-tradable up until 1995, exportable for 1996 and 1999 and importable for 1997 and both exportable and importable for 1998, 2000 and 2001. The number of non-tradable sectors has decreased from 22 (1990) to 12 (2001) during the period under analysis. Of interest is that the number of sectors that are classified as importable and exportable (I,E) has increased from 8 in 1990 to 25 in 1991. This indicates that a larger number of sectors have been subjected to increased competition in both the domestic and international markets. What has been the role of tariff liberalisation on the competitiveness of these sectors?

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<sup>13</sup> The classification in Table 11 is the same used in table 9 (chapter 5). The only difference being that table 11 depicts the annual calculations for the period 1990-2001.

**Table 11: Classification of sectors as export promoting, import substituting and non-tradables based on annual trade flows for the period 1990-2001**

	Liberalised sectors	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[14]	[15]
Agr, Forestry and Fishing		E	E	E,I	E	E	E	E	E	E	E	E	E
Coal Mining		E	E	E	E	E	E	E	E	E	E	E	E,I
Gold and Uranium Mining		E	E	E	E	E	E	E	E	E	E	E	E
Other Mining	L	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I
Food		NT	NT	NT	NT	NT	NT	E	I	E,I	E	E,I	E,I
Beverages		NT	NT	NT	NT	NT	NT	E	E	NT	E	E	E
Tobacco		NT	NT	NT	NT	NT	NT	NT	NT	E	E	E	E
Textiles		E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I
Wearing apparel	L	NT	NT	NT	NT	NT	NT	NT	I	I	E,I	E,I	E,I
Leather		I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I
Footwear	L	NT	NT	I	I	I	I	I	I	I	I	I	I
Wood and wood prod	L	NT	NT	NT	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I
Paper and Paper Prod	L	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I
Print, pub and recording		I	I	I	I	I	I	I	I	I	I	I	I
Coke and ref petrol	L	E	E	E	E	E	E	E,I	E,I	E,I	E,I	E,I	E,I
Basic Chemicals	L	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I
Other chem & Man fibres	L	I	I	I	I	I	I	I	I	I	I	I	I
Rubber		I	I	I	I	I	E,I	E,I	E,I	E,I	E,I	E,I	E,I
Plastic prod	L	NT	NT	NT	NT	NT	NT	I	I	I	I	I	I
Glass and glass product	L	I	I	I	E,I	I	I	E,I	E,I	E,I	E,I	E,I	E,I
Non metallic minerals		NT	NT	NT	NT	I	I	I	I	I	E,I	I	E,I
Basic Iron and Steel	L	E	E	E,I	E	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I
Basic non ferrous metals	L	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I
Metal prod excl machinery		NT	NT	NT	I	I	E,I	E,I	E,I	E,I	E,I	E,I	E,I
Machinery & Equip	L	I	I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I
Electrical machinery	L	I	I	I	I	I	E,I	E,I	E,I	E,I	E,I	E,I	E,I
TV radio and equip	L	I	I	I	I	I	E,I	E,I	E,I	E,I	E,I	E,I	E,I
Professional and scientific	L	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I
Motor vehicles Parts	L	I	I	I	I	I	I	I	E,I	E,I	E,I	E,I	E,I
Other transport	L	I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I
Furniture	L	NT	NT	NT	NT	E	E	E	E	E,I	E,I	E,I	E,I
Other manufactures	L	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I
Electricity, gas and steam	L	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Water supply		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Building construction		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Civil engineering and other construction		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Wholesale and retail trade		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Catering and accommodation services		E,I	E,I	I	I	E,I	E,I	E,I	E,I	E,I	E,I	E,I	E,I
Transport and storage		E	E	NT	NT	E	E	E	E	E	E	E	E
Communication		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Finance and insurance		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Business services		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Medical, dental and veterinary services		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Services excl med, dental and vet services		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
Other producers		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
General government services		NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT

Source: Own calculations with data from TIPS.

Table 11 (column 2) also reflects those sectors that have become more liberalised during the 1990s. This classification is based on the relative change in the average effective rate of protection (ERP) measures between the period 1988-93 and 1994-98 (as specified in column 10 of table 6).

Using these industry classifications the price series for exportables, importables, non-tradables and tradables are established. This is reflected in table 12.

**Table 12: Price series of exportables, importables, tradables and non-tradables**

Year	$P_m$	$P_m^I$	$P_m^{nl}$	$P_n$	$P_x^1$	$P_x^2$	$P_x^3$	$P_t$
1990	65	65	62	56	68	66	69	65
1991	68	70	70	64	70	69	72	69
1992	76	75	78	74	71	72	77	74
1993	83	83	83	84	82	82	83	82
1994	90	90	90	91	91	91	93	91
1995	100	100	100	100	100	100	100	100
1996	107	107	106	108	110	109	108	108
1997	115	115	116	119	115	115	116	115
1998	120	120	122	127	121	121	129	121
1999	127	128	128	135	128	129	138	128
2000	141	145	132	144	146	146	157	143
2001	155	155	155	154	160	160	183	158

Source: Own calculations with data from Quantec.

The price of importables ( $P_m$ ) is the weighted sum of the GDP deflators of the importable sectors.<sup>14</sup> Similarly the price of non-tradables is given by the weighted sum of the GDP deflators of the non-tradable sectors. Three different calculations for the price of exportables are undertaken.  $P_x^1$  is an export weighted sum of the GDP deflators of the exportable sectors.<sup>15</sup>  $P_x^2$  is an export-weighted sum of the price of exports of the respective industries.<sup>16</sup>  $P_x^3$  is the export price series calculated by the South African Reserve Bank (SARB).<sup>17</sup> It is interesting to note that there is very little difference between

<sup>14</sup> The Laspeyres price index formula was used which is given by  $P = \sum w_{it} \frac{P_{it}}{P_{i0}}$  where

$w_{it}$  reflects the share of industry  $i$  contribution to the total value of output of the importables sector in time period  $t$ .  $P_{it}$  is the price index of the commodities produced by industry  $i$  in period  $t$  and  $P_{i0}$  the price index of the commodities produced by industry  $i$  in the base period. The price indices were proxied by the GDP industry deflators and were obtained from the TIPS standard industrial classification database.

<sup>15</sup> The weight used in the calculation of the index is the share that the respective industries contribute to the value of exports of the exportable sectors.

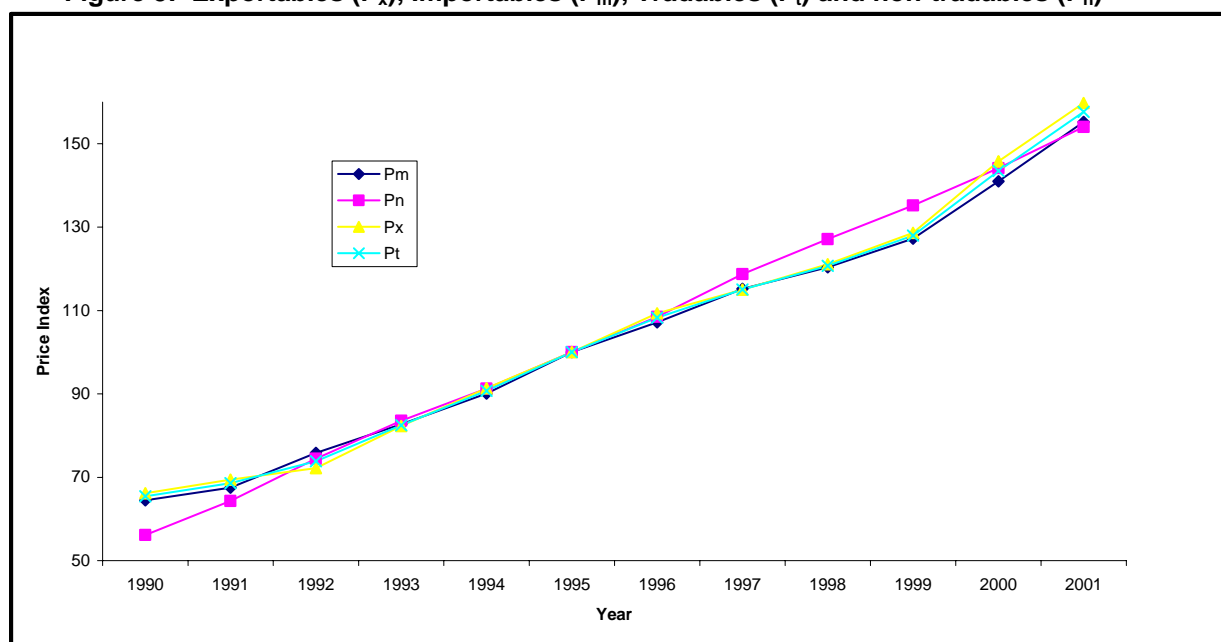
<sup>16</sup> The index was constructed from the export price series of the respective industries, which was obtained from the TIPS standard industrial classification database.

<sup>17</sup> The export price series calculated by the SARB, is an extrapolation done from unit values of some of South Africa's major export commodities. The major difference between  $P_x^2$  and

$P_x^1$  and  $P_x^2$  which implies that there is very little difference between the prices charged for domestic goods and similar goods that are exported. However, the price series of the SARB ( $P_x^3$ ) shows a significant upward divergence after 1995. This may primarily be due to the SARB index being dominated by resource intensive commodities and as such the depreciation of the currency, coupled with the increases in commodity prices during the latter part of the 1990s, may have biased the price index upwards.<sup>18</sup>  $P_t$  is a weighted sum of  $P_x^2$  and  $P_m$ .<sup>19</sup>

Figure 5 graphically depicts the price indices for the importable, exportable and non-tradables sectors.<sup>20</sup>

Figure 5: Exportables ( $P_x$ ), Importables ( $P_m$ ), Tradables ( $P_t$ ) and non-tradables ( $P_n$ )



Source: Constructed using data from table 12.

$P_x^3$  is that the former is derived from the GDP deflators of all the exportable *industries* while the latter considers the export unit values of some of South Africa's major export *commodities*.

<sup>18</sup> The nominal effective exchange rate depreciated by 35 percent between 1990-95 and by 43 percent between 1995-2001.

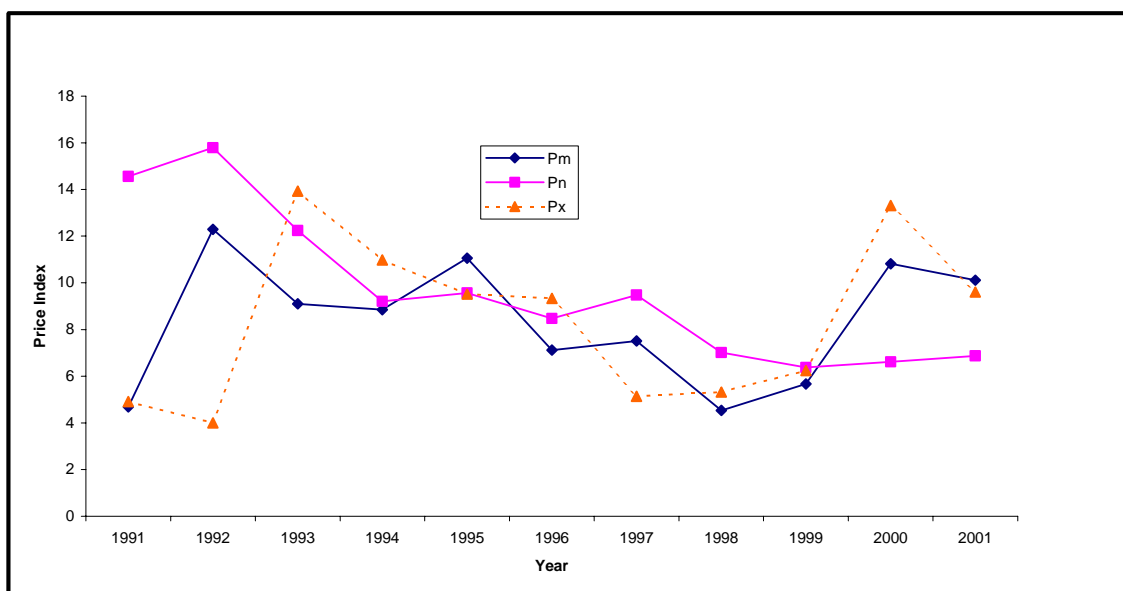
<sup>19</sup> The weights being made up of exports and domestic demand for exportables and importables respectively.

<sup>20</sup> Export prices used in the graph are given by  $P_x^2$  and import prices by  $P_m$  in table 12.

In general, the trend is the same for all the price series. However, during the early 1990s, exportables' and importables' prices increased faster than those of non-tradables. Between 1996 and 2000, non-tradable prices increased faster than those of exportable and importable prices with a relative moderation in the price of tradables being particularly evident between 1995 and 1999.

The moderation in prices is analysed by considering the annual rate of increase in the price of exportables, importables and non-tradables sectors (see figure 6).

**Figure 6: Growth rate of exportable (Px), importable (Pm) and non-tradable (Pn) prices**



Source: Own calculations with data from table 10.

This is informative as it gives an indication of the trend in the rate of price increases. The three price series have the same trend. Throughout the period under analysis there has been a continuous deceleration in the price of non-tradables, to the extent that, by the end of the period under analysis, the annual rate of increase in prices was lower than that of the exportable and importable commodities. The price of importables show a moderation in their rate of increase from 1995 to 1998 and exportables from 1993 to 1997. However, the price increases of importables (since 1998) and exportables (since 1997) have accelerated quite rapidly. However, it is important to

realise that the competitiveness of an industry does not depend on absolute but relative prices. This aspect is explored in a little more detail in the next section.

### 6.3.2 Trade liberalisation and its effect on prices during the 1990s

$P_m^l$  (in table 12) reflects the price series for those importable sectors that were liberalised and  $P_m^{nl}$  those importable sectors that were not liberalised.<sup>21</sup> The liberalised sectors are those sectors that are reflected under column 2, table 11. One advantage of distinguishing between the liberalising and non-liberalising sectors is that it provides an indication of the likely impact of trade (tariff) liberalisation on prices. In other words, if one assumes that all other effects (e.g. exchange rate changes, substitution and income effects, cost influences, etc) are uniform across the importables sector, then any divergence between  $P_m^l$  and  $P_m^{nl}$  would be due to trade liberalisation measures.  $P_m^l$  and  $P_m^{nl}$  show very little divergence from each other implying that the price of importables that were liberalised increased at the same pace as those that were not liberalised.<sup>22</sup> This suggests that the liberalisation implemented during the 1990s may not have had the intended (expected) effect of reducing the prices of importables.

Tsikata (1999:10) argues that tariffs had a reduced impact on prices during the 1990s. Figure 6 provides some implicit support for this, in the sense that there is a moderation in increase in all tradable (exportables, importables and tradables) prices during the period of trade liberalisation (particularly between 1995 to 1999). However, on closer examination, it should be noted that the moderation in prices had begun in the early 1990s - some time before the implementation of the tariff reform in 1995. Thus the deceleration in prices suggests that there may be other factors (for example, the ending of sanctions) that could have played a greater role in improving competitiveness than tariff liberalisation *per se*.

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<sup>21</sup> The weights used were the respective industries' share to the value of output of the liberalised and non-liberalised importable sectors.

In addition, Tsikata's (1999) conclusions are drawn by comparing the local currency value of manufactures (MUVLC) and the domestic import price of manufactures (PPIM). MUVLC is proxied by "...the product of the US dollar-based international manufactures unit value and the nominal exchange rate vis-à-vis the US dollar" (*ibid.*) and this is taken to represent the expected rate of increase in domestic prices. A comparison (of MUVLC and PPIM) is taken to reveal whether import prices (PPIM) has in fact come down faster than what could have been expected (MUVLC). However, some reservations can be expressed about the proxies used in the analysis. Firstly, the manner in which MUVLC is calculated does not give due recognition to the major differences between the structure of the US manufacturing sector vis-à-vis that of South Africa.<sup>23</sup> Secondly, PPIM represents the price of imports and not necessarily importables. In analysing the effects of liberalisation one is concerned about the impact of trade liberalisation on the price of importables.<sup>24</sup>

As mentioned earlier in the theoretical section, a measure of the internal competitiveness of a sector is obtained by considering the price indices for the importables, exportables and tradable sectors relative to the price index for non-tradables (Dwyer, 1992: 451). An increase (decrease) in any of these relative prices represents a decline (improvement) in competitiveness. The price indices are reflected in table 13.

The RER measures recorded in table 13 reveal some interesting characteristics of the tradable sectors. All indices depict a declining trend (improved competitiveness) for most of the period.<sup>25</sup> Once again, it is evident that the improvement in competitiveness during the major part of the 1990s,

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<sup>22</sup> With the exception of 1992, 1997 and 1998, the price index for liberalised sectors was either the same (for most of the years) or even higher (as in 1996, 2000) than that for non-liberalised sectors.

<sup>23</sup> The US manufacturing sector is composed of more technology intensive sectors.

<sup>24</sup> As argued earlier, it may be the case that due to lack of competition between importers, the benefits of lower import prices may not be passed onto consumers.

<sup>25</sup> During 2000 and 2001 there was a relative decline in the competitiveness of the tradable sectors.

started before the implementation of tariff reform. In addition, the fact that the competitiveness of the non-liberalised sectors ( $\frac{P_m^{nl}}{P_n}$ ) differs very little from the liberalised sectors ( $\frac{P_m^l}{P_n}$ ) also calls into question the extent to which tariff liberalisation may have increased competitiveness during the 1990s.

**Table 13: Relative prices of exportables, importables, tradables and non-tradables**

Year	$\frac{P_t}{P_n}$	$\frac{P_x}{P_n}$	$\frac{P_m}{P_n}$	$\frac{P_m^l}{P_n}$	$\frac{P_m^{nl}}{P_n}$
1990	117	118	115	116	110
1991	107	108	105	109	108
1992	99	97	102	101	104
1993	99	98	99	99	100
1994	99	100	99	99	99
1995	100	100	100	100	100
1996	100	101	99	99	98
1997	97	97	97	97	98
1998	95	95	95	94	96
1999	95	95	94	94	95
2000	100	101	98	100	92
2001	102	104	101	101	100

Source: Table 12, own calculations.

#### 6.4. Conclusion

In this chapter the competitiveness of the tradable sectors *vis-à-vis* the non-tradable sectors is analysed using a variant of the conventional RER measure. While the increased globalisation of production could have contributed to the improved competitiveness of the tradable sectors, the evidence presented in this paper suggests that tariff liberalisation (which essentially began in 1995) may have played a minimal role in improving the level of competitiveness of South Africa's manufacturing sector. It could be the case that factors such as the ending of sanctions, pricing to market behaviour on the part of foreign suppliers, domestic and international cost factors, etc. could have been more important determinants of competitiveness. These aspects will be tested econometrically in chapter seven.