# Sustaining industrial growth in Africa: A reflection on South Africa's automotive industry support model

Martin Kaggwa – Institute for Technological Innovation
University of Pretoria South Africa, Tel: (012) 564 5311, Fax: (012) 564 5301
Email:mkaggwa@aidc.co.za

## Abstract

*The use of selective industrial policy to re-integrate South Africa's previously protected automotive industry into the global business is one of the few successful cases on the African continent in recent times. South Africa's success provides a useful reference point for other African countries in which selective industrial policy is a key part of national development strategy. Despite the re-integration, the automotive industry has experienced deteriorating trade deficit since 1995 contrary to what had been envisaged. The paper uses a system dynamics model to explain this apparent contradiction. It is found that the offer fiscal incentives to the industry had a positive effect on industry investment and exports but not long-term competitiveness. The paper argues that for a replica of South Africa's selective industry support model to sustain industrial growth and subsequent international trade, it has to be implemented in conjunction with a targeted technology acquisition strategy.*

## Introduction

In 1995, the South African government put in place a package of incentives for the local automotive industry under a special dispensation named the Automotive Industry Development Programme (MIDP). The offer of incentives was motivated, in part, by new competitiveness challenges that the domestic industry faced because of opening up the South African economy to external competition. The MIDP selective industry policy has been responsible for the reintegration of South Africa's previously protected automotive industry into the global automotive value chain. As such, the MIDP has been presented as an example of a well-designed, successful industrial policy on the African continent. Barnes, Kaplinsky and Morris (2003) contend that South Africa's automotive sector performance post 1995 is one of the very few success cases that goes against the Washington Consensus that promote the thinking that the role of government in enabling industrial development through industrial policy should be minimal. Black (2001) postulates that the experience of South Africa's automotive industry proves that selective offer of investment incentives to a domestic industry can play a key role in influencing major foreign firms to locate manufacturing in a country and to draw such a country into their international networks. Participation in international business networks facilitates integration of a local industry into global production value chain without destabilising gains made by an industry under a protected trade regime.

Despite recording consistent increase in investment, vehicle production and exports under the MIDP, South Africa's automotive industry has been importing more than it has been selling onto the international markets. As a result, industry trade deficit has been persistently increasing. Automotive trade deficit increased from R12.2 billion in 1995 to R33.4 billion in 2006 (Table 1).

| Year | Exports (Rbn) | Imports (Rbn) | Trade deficit |
|---|---|---|---|
| 1995 | 4.2 | 16.4 | 12.2 |
| 1996 | 5.1 | 19.2 | 14.1 |
| 1997 | 6.6 | 17.2 | 10.6 |
| 1998 | 10.1 | 19.9 | 9.8 |
| 1999 | 14.8 | 22.8 | 8.0 |
| 2000 | 20.0 | 29.7 | 9.7 |
| 2001 | 30.0 | 38.0 | 8.0 |
| 2002 | 40.1 | 50.2 | 10.1 |
| 2003 | 40.7 | 49.8 | 9.1 |
| 2004 | 39.2 | 58.0 | 18.8 |
| 2005 | 45.3 | 72.5 | 27.2 |
| 2006 | 55.1 | 88.5 | 33.4 |

**Table 1: Automotive Industry Trade Balance South Africa 1995-2006**
Source: NAAMSA, 2006

Two key objectives of the MIDP and the motivations behind the opening up of the domestic automotive industry to external participation were to make the industry a net foreign exchange earner and to create viable business for domestic automotive component manufacturing sector. It was envisaged that if domestic assembly of vehicles was supported and export of vehicles to international markets encouraged, the industry would earn more foreign exchange and sourcing of local components would increase. This would create a business case for the struggling domestic automotive component manufacturing sector. The increasing trade deficit, despite industry participation in international markets, points to the fact that the anticipated benefits emanating from foreign exchange earning and local sourcing of components are not likely to be realised in the medium to long term.

The unintended performance of the MIDP in this regard calls forth a deeper analysis of South Africa's automotive selective industry policy if such a policy is to be valuable to other African countries in which selective industrial policy forms a key part of the national development strategy. The paper uses a system dynamics modelling approach to explain the apparent contradiction between participation in international market and rising trade deficit. It provides suggestions on how limitations of South Africa's selective automotive policy can be minimised without loosing on the policy's strong points.

**System dynamics**

System dynamics (SD) is a computer-based methodology for building quantitative and qualitative models of complex situations so that they can be better understood and managed (Caulfield & Maj, 2001, p.26). SD allows experimenting with and studying of behaviour of the models over time. The approach facilitates understanding of the relationship between the behaviour of a system and its underlying policy decision rules.

System dynamics as a methodology is grounded in control theory and modern theory of nonlinear dynamics. System dynamics is also a practical tool that policy makers can use to help solve important problems (Sterman, 2002, p.503). System dynamics provides a means by which to capture complex relationships and feedback effects within a set of interrelated activities and processes (Vennix, 1996, p.21). Its presentation has a user-friendly interface that encourages academics and non-academics to internalise the logic behind the model. In addition, the approach allows the use of quantitative and qualitative data; hence, it is not limited in its use when quantitative data is unavailable. Specialised software in system dynamics modelling allows scenario simulations, in fairly easy and understandable steps, an aspect critically important in applied research.

**MIDP incentives dispensation**

The MIDP incentive dispensation in South Africa consists of three incentives: Productive Asset Allowance (PAA), Import-Export Complementation (IEC) and Duty Free Allowance (DFA). Under the PAA dispensation, firms receive import rebates equal to 20% of investment undertaken in new and unused productive assets. Rebates earned under the PAA dispensation are used to offset duties payable on imported vehicles only. The PAA benefit is spread over a period of 5 years. The IEC dispensation enables firms to earn Import Rebate Credit Certificates (IRCCs) based on exported local content. IRCCs are also used to offset import duty payable on all automotive product imports in the country. By definition, the value of rebatable imports under the IEC dispensation is equivalent to the value of IRCCs issued and is independent of the import duty rate. The DFA allows domestic vehicle manufacturers to import vehicles or components free of duty to the value equivalent to 27% of their domestic wholesale sale value of vehicles.

Although the PAA, IEC and the DFA incentive dispensation jointly contribute to the value of automotive products that can be imported into South Africa free of duty, it was postulated that the IEC and PAA that were the main drivers of the trade deficit. The assumption was because in the period 1995 to 2006, growth in domestic sale of vehicles, the main determinant of DFA, was less than 4% per annum. However, the average annual growth rate of exports and investment, the determinants of rebatable imports under the IEC and PAA rebatable imports, was more than 17% within the same period.

To conceptualise industry performance dynamics under MIDP incentive dispensation, a high-level causal loop diagram was used to capture industry interrelationships and key feedback effects that have a bearing on the trade balance, including the IEC and the PAA. Causal loop diagrams provide a useful way to visualise complex policy interrelationships. The MIDP incentive model may appear to be a simple concept but its ramifications on industry dynamics are vast. The working of the MIDP shows interrelationships between sectors and industry variables without explicit cause and effect, characteristic of a complex system. Policy interventions in complex situations are vulnerable to unintended consequences a phenomenon referred to as policy resistance in system dynamics. According to Meadows (1982, p.99) policy resistance occurs when policy intervention leads to a delay, dilution, or defeat of the intended purpose; a tendency for intervention to be defeated by the response of a system to the intervention itself (Sterman 2000, p.3). Policy resistance often leads to the opposite of the intended results (Forrester, 1969).

Forrester (1991) argues that as high as 98% of policies in systems have little effect on the intended systemic behaviour because of the ability of systems to compensate for changes in most policies. Indeed the deteriorating industry trade deficit manifests itself as an unintended consequence of MIDP incentives.

Under the PAA dispensation, an increase in investment increases the value of PAA rebatabe certificates depending on the PAA benefit fraction, the proportion of industry investment qualifying for the PAA and to a lesser extent the spread of PAA rebate certificates issue. Increase in the value of PAA rebate certificates increases the value of vehicle imports on which import duty would not be paid; this in turn motivates higher levels of industry imports. Industry imports substitute some of the planned local production, reducing domestic investment and subsequently reduce PAA rebate certificate generation. These series of relationships constitute a counterbalancing PAA loop presented in Figure 1.

The IEC incentive dispensation, on the other hand, generates IRCCs depending on the value of local content exported. An increase in exports increases IRCCs being generated and subsequently increases the value of IRCCs rebatable imports, holding other factors constant. The value of IRCC rebatable imports increases industry propensity to import, which in turn impacts negatively on local production potential as mentioned previously. Low local production potential leads to less domestic production, which puts downward pressure on industry exports due to high production costs emanating from diseconomies of scale. Reduced industry exports decrease IRCCs generated. Hence, the IEC incentive working constitutes another counterbalancing loop presented also in Figure 1.

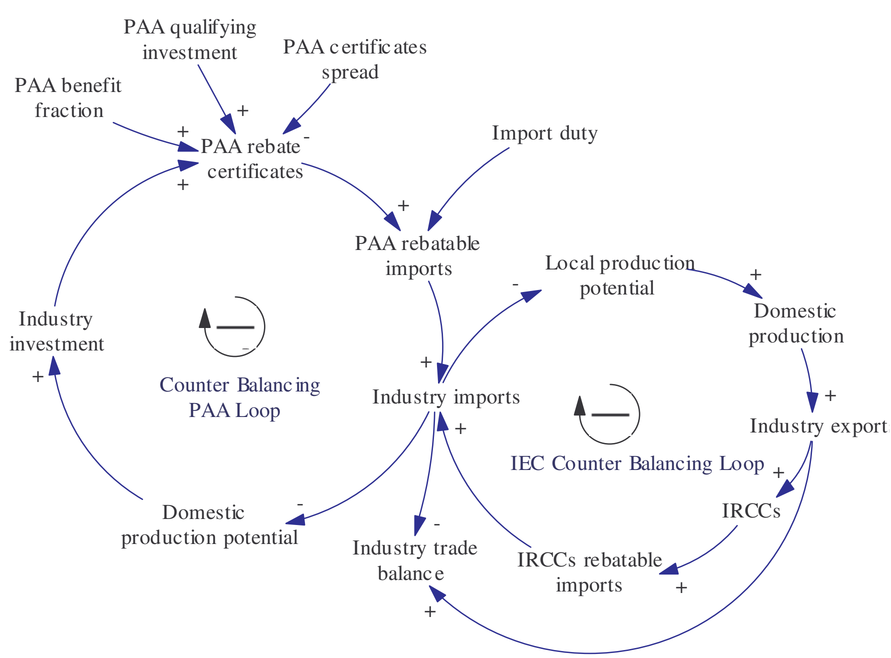


**Figure 1: A high level causal loop diagram for South Africa's automotive incentives**

**Policy decisions on the PAA and the industry trade balance**

Implicit to any policy model is a policy variable or a set of variables that can be adjusted in order to influence intended outcomes. In complex systems, with more than one policy variables, system dynamics modelling provides useful means to identify high leverage policy variables through estimating variable effect on the situation being modelled (Barlas, 2000). Under the PAA dispensation, there are only two policy variables – the PAA benefit fraction and the import duty rate. These variables are under the direct control of government. The delay in issue of the PAA certificates can be considered as another policy variable, but overtime the value of annual certificates to be issued becomes dependent on previous investment which government cannot control after investment approval. Policy decisions on the PAA are therefore limited to the adjustment of the PAA benefit fraction and/or industry import duty rate. The immediate product of the PAA incentive offer and the conduit of the incentive effect to industry performance dynamics is the value of rebatable imports generated under the dispensation.

To establish whether or to what extent the PAA dispensation influences industry trade balance, one has to test the responsiveness of the industry trade balance to a change in the PAA benefit fraction and to a change in import duties. To do this, the qualitative model of the MIDP incentives presented in Figure 1 had to be converted into a simulatable quantitative system dynamics model (Attached as a separate file). This was done by specifying, as a set of equations, relationship captured in Figure 1. Initial stocks and rates of change of relevant variables were estimated using historical industry performance data. The National Association of Automobile Manufacturers of South Africa (NAAMSA) Annual Reports were the main source of quantitative data. Qualitative data was collected through interaction with key industry stakeholders in the Motor Industry Development Council (MIDC) forum. The quantitative model was used to simulate industry trade balance trend under different PAA and IEC policy rules scenarios.

**Effect of PAA benefit fraction on PAA rebatable imports**

First, a test of the sensitivity of the PAA rebatable import to a change in the PAA investment benefit fraction was done. As pointed out previously, rebatable imports argument industry imports thereby influencing the industry trade balance. The model was run with the PAA investment benefit fraction was set at 20%, 30% and at 40%. The 20% was the prescribed benefit fraction. The sensitivity tests intended to find out how the increase in the PAA benefit fraction would affect the value of rebatable imports. Model simulations showed that the increase in PAA rebatable imports was proportional to the increase in investment benefit fraction (Figure 2). Given a specific value of PAA qualifying investment, one could double the value of PAA rebatable imports by simply doubling the PAA benefit fraction. The value of the rebatable imports relative to total industry rebatable imports, however, remained insignificant even at a 40% benefit fraction. For example, the value of industry rebatable imports in 2008 was projected to stand at R49.7 billion while that of the PAA rebatable imports, predicted in the same year, was a mere R 3.1 billion.

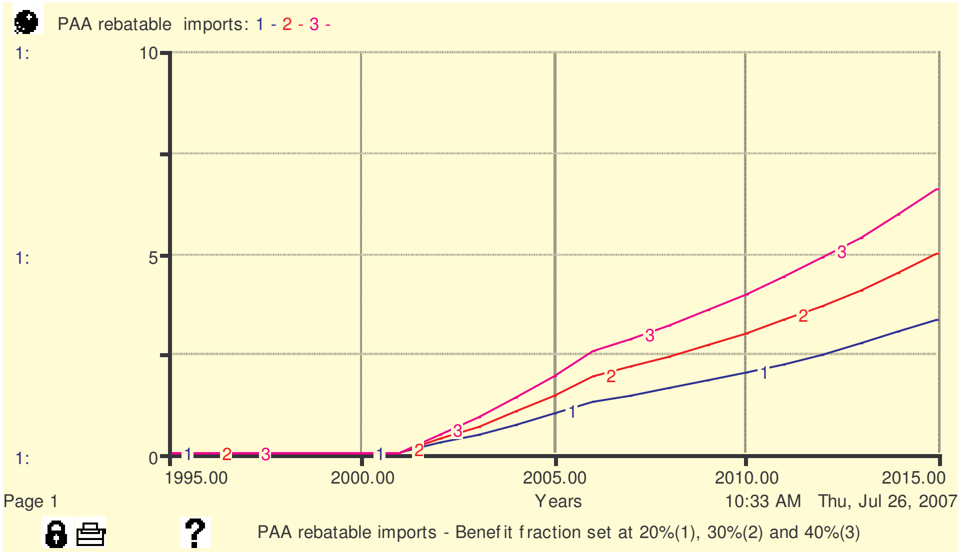


**Figure 2: Effect of PAA benefit fraction on PAA rebatable imports**

**Effect of change of import duty on PAA rebatable imports**

The expectation was that PAA rebatable imports would be highly sensitive to import duty rates. Given a particular value of PAA rebate certificate, the value of PAA rebatable imports increases with the lowering of import duties – PAA rebate certificate value being the value of duty one can offset on imports. For example, if industry was awarded R10 million worth of PAA rebate certificates, at an import duty rate of 20%, industry would offset duty on imports to the value of R50 million, but if the import duty rate was lowered to 10%, the value of imports on which duty could be offset would increase to R100 million. Figure 3 shows the sensitivity of PAA rebatable imports to import duty rates set at 10%, 20% and 30%. The increase in the value of rebatable imports at 10% import duty rate was more than threefold compared to when import duty rate was set at 30%. The non-linearity of the import duty rate effect on PAA rebatable imports emanated from the hyperbolic relationship between PAA rebatable imports and import duty on one hand, and from import duty effect on overall industry rebatable imports. Industry rebatable imports negatively affected domestic investment and as result, reduced the value of PAA rebate certificates generatable. The import duty rate, together with the new value of PAA certificates generated, ultimately determined the value of rebatable imports.

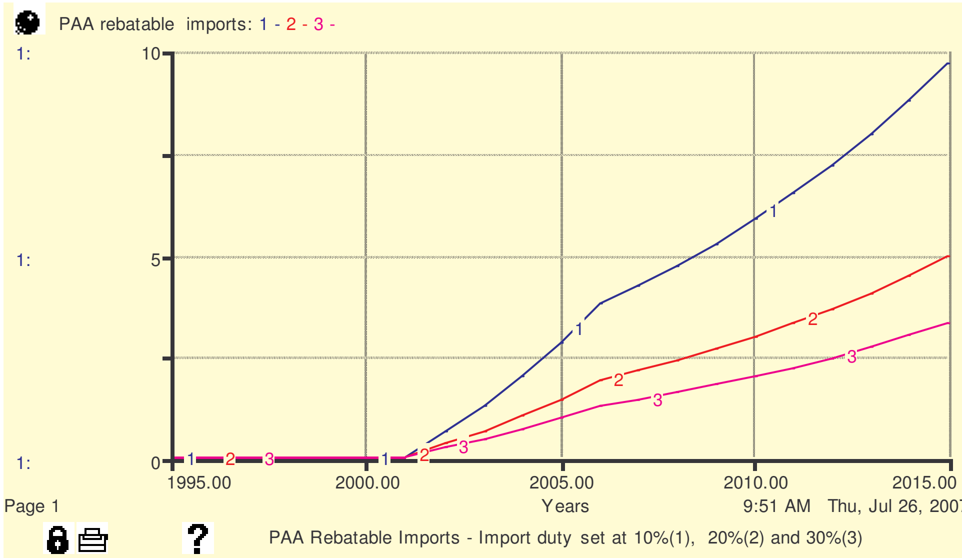


**Figure 3: Effect of import duties on PAA rebatable imports**

From Figure 2 and 3 it was clear that a change in import duty rate provided a more effective policy lever to influence PAA rebatable imports. Still, compared to overall total industry rebatable imports, the increase of PAA rebatable imports due to a change in import duty rates remained insignificant.

**Effect of change of PAA benefit fraction on industry trade balance**

Analysis of the responsiveness of the industry trade balance to a change in PAA policy variables was carried out. Model simulations showed that the effect of a change in the PAA benefit fraction on industry trade balance was marginal. Figure 4 shows how industry trade balance trends differed with a change in PAA benefit fraction from 20%, 30% to 40%.

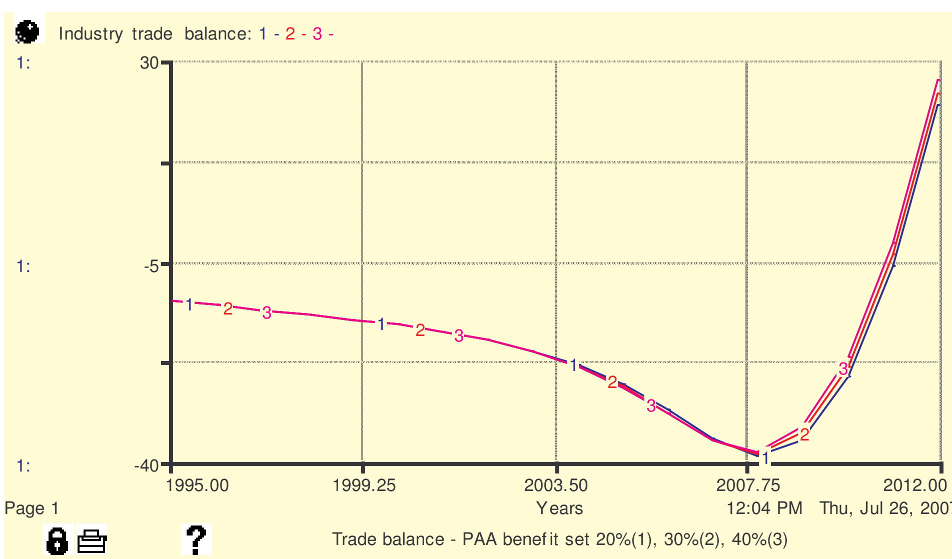


**Figure 4: Effect of PAA benefit fraction on industry trade balance**

Although a change in PAA benefit fraction did have a noticeable effect on PAA rebatable imports, its effect on the industry trade balance was minimal. This could be attributed to the relatively low value of PAA rebate certificates compared to the overall industry import value.

**Effect of import duty on industry trade balance**

Next, a test was done on the effect of change in import duty rate on industry trade balance, as the second PAA policy variable. Model simulations showed that at an import duty rate of 20% and 30%, the impact of import duty on industry trade was almost synonymous to that of a change in the PAA benefit fraction. The change in the industry trade balance remained minimal. However, as the import duty rate was lowered further, excessive increase in industry trade deficit was impeded. At import duty of 10%, it was notable that industry trade deficit did not reach high levels projected when import duty was set at 30%, before it started to improve (Figure 5). This seemed to point to the fact that import duty adjustment could be used to influence industry trade balance under the PAA dispensation. However, for the duty to have a visible effect on the trade balance, it would have to be reduced to very low rates, a situation which would be unlikely and that could yield other industry dynamics outside the scope of this analysis.

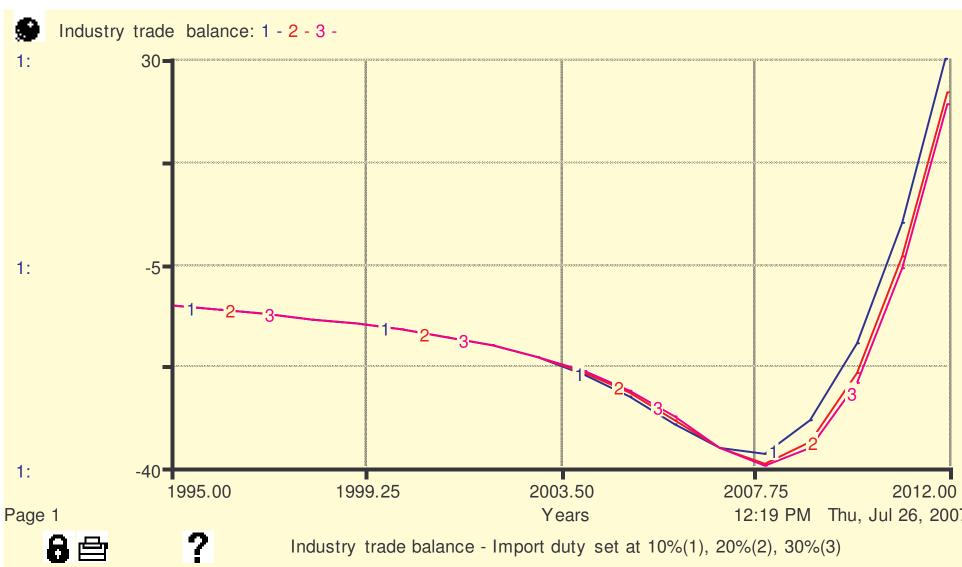


**Figure 5: Effects of import duties on industry trade balance**

There was another dimension to the import duty reduction that had to be acknowledged. With the location disadvantage and relatively low production volumes of vehicles in South Africa, the country is a high-cost producer compared to its global competitors in Europe, Asia and Latin America. MIDP incentives made it profitable for local vehicle assemblers to produce domestically as long as the domestic market was still protected from cheaper foreign imports. At very low levels of import duties, local vehicle assemblers could find it profitable just to import from other low-cost production locations, given that all locally produced models were also being assembled in other international locations. If this were to happen, the resultant effect would be that the import growth fraction would be higher than the estimated 12% used in the reference mode run. If the domestic market and export growth rates were to remain unchanged, increase in industry imports would result into lower production levels being planned for domestic production and subsequently lower investment growth rates. Hypothetically, if the import duty rate threshold at which industry switched to import rather than domestic production was uniform and immediate at 18% duty level, industry trade deficit would increase to higher levels than captured in Figure 5 at any import duty rate less than 18%. Model simulation showed that industry trade deficit increased up to R148 billion at 10% import duty before it started to decline, compared to R39 billion in the case where the import duty was presumed to be above the 'import-switching' threshold (Figure 6).

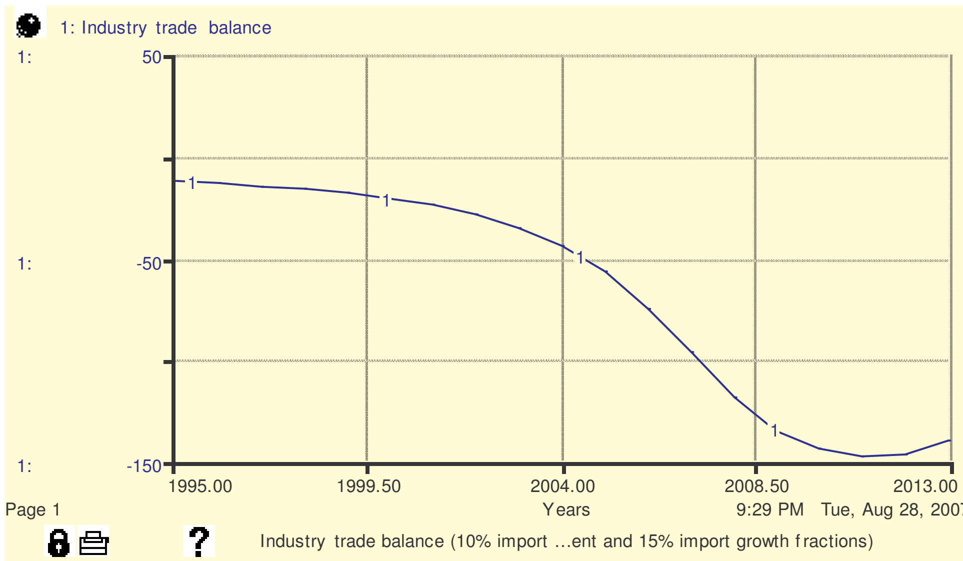


**Figure 6: Industry trade balance at 10% duty rate increased import and decreased export rates**

Since the drastic deterioration of industry trade balance as simulated in Figure 6 above had not happened, it could be said with certainty that the 30% duty rate was above a threshold rate at which industry switches to import more than to produce domestically. With the available information, the exact 'import-switching' duty rate could not be determined. Moreover, the rate would still be influenced by a number of factors, which could differ for each business case of vehicle assembler or component manufacturer project. Practically, a more gradual decline in domestic production was likely as an increasing number of projects became globally uncompetitive. The most likely trend of industry balance if the import duties were to be reduced below 30% duty rate would depend on whether the import duty considered was below or above such 'switching' thresholds for projects. If the duty rate were above the threshold, trade balance trend shown in Figure 5 would be more likely; otherwise, the trend Figures 6 trend would apply.

In all, from model simulations it was clear that the PAA incentive dispensation was not the main driver of the deteriorating industry trade deficit recorded under the MIDP regime.

**Effect of the exported local content benefit fraction on industry trade balance**

Under the IEC dispensation, policy makers had one effective policy lever under their control – exported local content benefit fraction. Setting the exported local content benefit fraction at 0% was equivalent to complete neutralisation of the incentive, while setting the benefit fraction at 100%, gave maximum benefit to industry under the dispensation. Since there were no indications to reduce the benefit fraction below 50%, trade balance sensitivity to exported local content fraction was tested by setting the fraction at 50%, 80% and at 100%. Simulation results showed that industry trade balance was very sensitive to the exported local content benefit fraction. With the fraction set at 50%, there was a minimum deterioration in the trade balance relative to the 1995 status before the deficit started to decline. The increase in trade deficit, before the decline set in, was more pronounced at 100% benefit fraction compared to 80% (Figure 7).

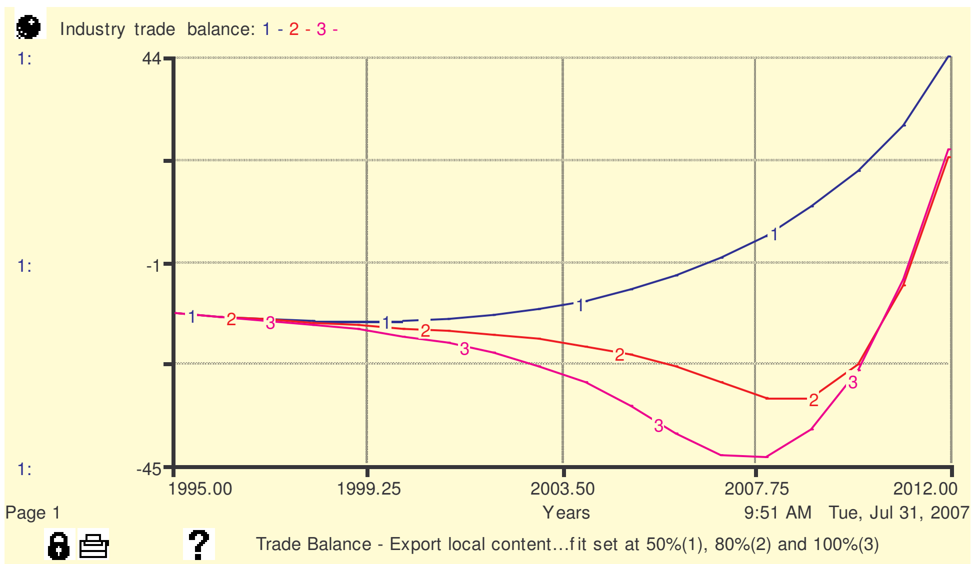


**Figure 7: Effect of exported local content benefit fraction on industry trade balance**

It is important to note that the analysis above was based on the effect of exported local content benefit fraction on the supply of IRCCs in value terms. An increase in exported local content benefit fraction might also have a 'demand effect' in terms of motivating the industry to export products with higher local content. In order to do so, industry has to increase its local sourcing of products. Local sourcing of products offsets potential imports, hence has a positive effect on the industry trade balance. The opposite results of the supply and demand side effects on the industry trade balance could put into question the soundness of the trade balance trend captured in Figure 7. However, given the limited capacity of the domestic component-manufacturing sector to meet vehicle assemblers' component supply requirements, even if there was intention to increase local sourcing, the increase would not be drastic. It was felt reasonable that the effect of change in the exported local content benefit fraction would more likely increase IRCCs supply than increase local component sourcing. Thus, the contention that Figure 7 was a fair reflection of what would happen if the exported local content benefit fraction were to be changed.

The significance of exported local content fraction could be understood in the context of the value of rebatable imports generated under the IEC dispensation and the effect of rebatable imports on overall industry imports. As noted by Richardson and Pugh (1981, p.324):

> *"It is not enough to know that a particular policy improves model behaviour. The critical question is why. What is needed is a fundamental understanding of why a particular policy improves model behaviour"*,

Although both industry and IEC rebatable imports were increasing, the later was increasing at a faster rate. This could be attributed to the fact that the rates of increase for export and investment, upon which generation of rebatable imports was based, was higher than industry-import growth rate. The increase in industry rebatable imports was further exacerbated the Precious Group Metal (PGM) allowance in the catalytic converter sector under which 40% of imported precious metal was being treated as local content when exporting catalytic converters. After 2010, the model projected that the value of IEC generated rebatable imports tended to reach 50% of the total industry imports (Figure 8). This 'catch-up' process of IEC rebatable imports with total industry imports was predicted to continue. Therefore, to the extent that imports affected industry trade balance and that rebatable imports had a significant influence on industry imports, a change in exported local content benefit fraction would significantly affect the industry trade balance trend.

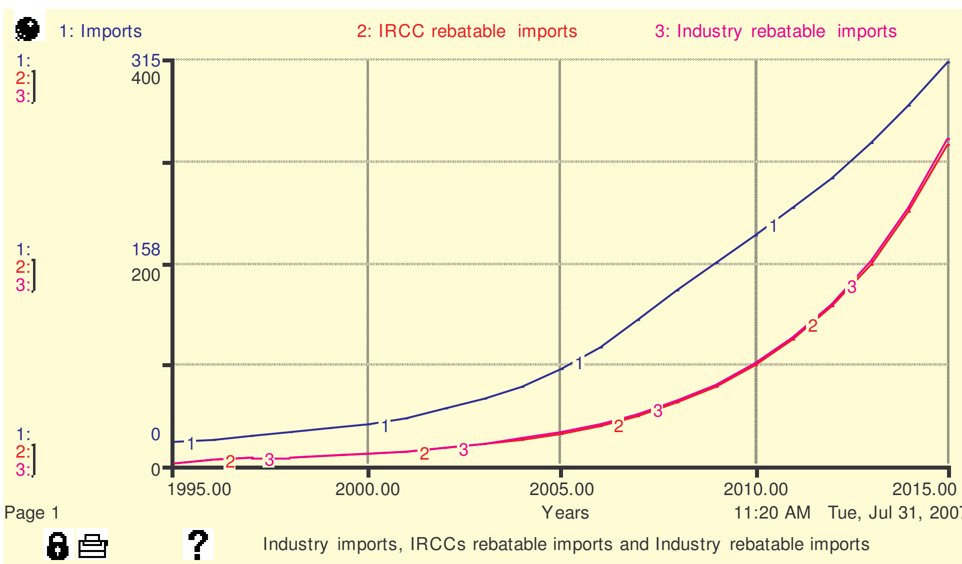


**Figure 8: Industry imports, IRCC rebatable imports and industry rebatable imports**

## Industry performance without the IEC and PAA incentives

An important question to which the model could provide some insight was what would happen to the industry if the PAA and IEC incentives were discontinued. Would this ameliorate the trade deficit trend? The model captured this situation by disabling effects of rebatable imports to the system. Investment growth faction was lowered to account for the high likelihood that investment levels would be less than in situation where the incentives were being given because of the location disadvantages and low economies of scale previously highlighted. In addition, import growth fraction was adjusted upwards, while exports growth fraction was reduced. This was based on the understanding that low investment would negatively affect the country's export potential while increasing the propensity to import at the same time. Without incentives, there was high likelihood that domestic production would decrease, benefit of economies of scale would be lost, industry competitiveness would be lost and ultimately exports based on industry competitiveness would decline. Simulation of the model under these conditions showed that trade deficit increased to higher levels compared to a situation where industry was receiving IEC and PAA incentives. Moreover, improvement of trade deficit after a while, as realised in Figure 1-8 did not take place in the simulation period under consideration (Figure 9).

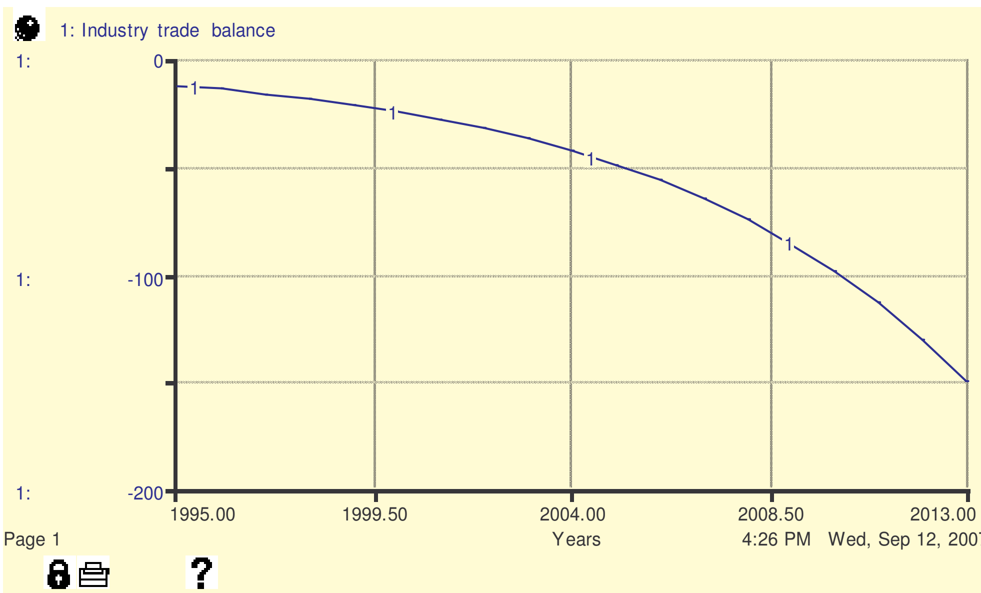


**Figure 9: Industry trade balance without IEC-PAA incentives**

One could not therefore argue that without the incentives, industry would be in better position as regards its trade balance account. However, without linking incentives and industry competitiveness, benefits from the incentive offer are likely to be short lived.

**MIDP Incentives and Competitiveness**

Competitiveness refers to the ability of a firm or industry to increase in size, market share and profitability. Industrial competitiveness encompasses increase in market share and profitability achieved through provision of goods and services of higher quality at a lower price, compared to that of competitors. Quoting the US Presidential Commission on Industrial Competitiveness, Clark and Guy (2000, p.364) define competitiveness as "the degree to which it (a nation) can, under free and fair market conditions, produce goods and services that meet the test of international markets while simultaneously maintaining and expanding the real income of citizens".

The automotive industry was one of the many local industries that had to adapt to efficient means of production and doing business in order to hold out on external competition following the country's re-integration into the global economy in 1994. Apart from the historical industry inefficiencies perpetuated by many decades of protectionism, the South African automotive industry has a location disadvantage in terms of major global markets. Located at the Southern tip of the African continent, it is further away from both European and American markets than most of its global competitors, such as the former socialist Eastern European countries and Brazil. Yet exports are supposed to be the drivers of the automotive industry growth. To effectively compete on the global scene, the local industry has to find a way to compensate for the distance disadvantage. The implementation of the "Just-In-Time" (JIT) supply concept under which components have to reach the assembly plants just in time to be used on the assembly line, has further exacerbated the location disadvantage for component supply. Component manufacturers have to be within easy reach of assembly plants; otherwise, they have to be supported by extremely efficient and robust logistical systems. The local component-manufacturing sector has to contend with this challenge. According to Stumpf & Vermaak (1996, p.8), countries like South Africa could mitigate against production location disadvantages by increasing their productivity through technology upgrade given its high percentage contribution towards production productivity (Table 2). It is not impossible for a country like South Africa that has some advantage in terms of resource endowment, to offset historical production inefficiencies by increasing the contribution of technology to its overall industry productivity.

| **Factor** | **% Contribution** |
|---|---|
| Technology | 38.1 |
| Capital | 25.4 |
| Labour quality | 14.3 |
| Economies of scale | 12.7 |
| Resource allocation | 9.5 |

**Table 2: Factors contributing to productivity increase**
(Stumpf & Vermaak, 1996, p.8)

A key limitation of MIDP incentives model, is that it does not address issue of investment in R&D. The model implicitly assumes that investment is homogenous and equally contributes to industry competitiveness. Yet conventional literature points to the fact that it is the investment in R&D rather than plant machinery and equipment that is more likely to lead to industry competitiveness in the long term. The link between R&D and competitiveness is via its effect on technological development and subsequent innovation. Innovation, technological advances and country competitive advantage happen to be connected by complex multidimensional relationships (Lengnick-Hall, 1992, p.399). Lack of progress in the local industry innovative capacity and the inability of the MIDP incentive dispensation to influence investment into R&D explains, in part, why despite participation in international trade there is high import penetration in the domestic. MIDP incentive model is not fundamentally competitiveness-enhancing in terms of supporting R&D and domestic innovative activities. The MIDP incentive model lacks internal policy levers that can influence the nature of industry investment. At best, the incentive model creates a business case for automotive manufacturing in South Africa, by way of contribution for firms' profitability, in the medium term.

**Insights**
Sustainable competitiveness depends on the ability of a country or industry to offer comparative products to its competitors at lower prices on an open market. It requires that a country or industry is able to lower its production costs without sacrificing quality. Technology innovation offers one of the most practical ways to reduce production costs while at the same time maintaining or even increasing product quality. R&D happens to be perhaps the most widely used innovation approach. R&D investment has a powerful positive correlation with industrial profitability, product quality, return to investment, hence overall competitiveness (Merrifield, 1989, p.72). R&D activities generate knowledge, which is a factor of production, as such an indirect input in the neo-classical production function (Özçelik & Taymaz, 2004, p.410). Stumpf & Vermaak (1996, p.7) also pointed out that technology that results from R&D activities determines the actual value of the physical resource endowment of a country. Through its value adding, technology augments the value of a country resource base and enhances its competitiveness, holding other factors constant. Therefore, there is general agreement that countries seeking to enhance their international competitiveness, have to engage in domestic R&D and subsequent innovative activities (Wint, 1998, p.281). R&D and innovation dynamics are better deal within the area of technology management and not industrial policy in isolation.

For South Africa's selective industry support model to sustain industrial growth and subsequent international trade in the long term, it has to be implemented in conjunction with a targeted technology acquisition strategy. The deterioration in the country's automotive trade deficit is attributable, in part, to lack of tangible progress in industry competitiveness in the small vehicle category.  Short term success, in terms of increased investment, production and exports seem to have blurred the fact that these achievements may not be sustained in the long term. Challenges facing South Africa's automotive industry point to the fact that any industry incentive model that does not factor in the element of competitiveness and technology, will always be at a risk of not realising envisaged benefits in the long term.

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