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## Locational Distribution Patterns: An Inter-Regional Comparative Analysis

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## **1. Introduction**

There are many more factors that affect the location of industry in a regional bloc than most models allow for. Thus, it would be of interest to see empirically which industries have a tendency to agglomerate or disperse across different blocs. There have been very few studies that have compared the industrial location effects of integration of different blocs. Those that have been done have generally focused on comparing the EU and the USA (Devereux *et al*, 2002; Brülhart, 1995; Aiginger and Rossi-Hansberg, 2003; Leitner, 2001; Krugman, 1991) or eastern Europe (Forsslid *et al*, 1999b). To date there do not appear to have been any studies that have compared the locational effects of integration in either a developing country or a 'North-South' context. A comparison of three different regional blocs in this study will examine whether there are any cross-bloc or general effects of integration on industry regardless of the regional grouping. The paper will first give an overview of the three regions analysed, and then move on to outline the method of study. The results of the analysis will then be presented along with inferences and conclusions.

## **2. Regions chosen for analysis**

Three blocs were chosen for analysis, the Southern African Development Community (SADC), the European Union (EU) and Mercosur. SADC has clear relevance for the southern African region, and is at a relatively early stage of regional trade integration. The remaining two blocs were selected for the following reasons. Mercosur represents a group of developing countries of radically different size, with one particularly dominant member, Brazil. This is a somewhat similar situation to South Africa's economic dominance of SADC. Additionally, the region initiated their free trade area (FTA) just over a decade before SADC's free trade area is scheduled to be implemented. Thus, it is possible to observe the effects of a recently formed FTA on the regional distribution of industry. The EU was chosen as it is currently the most progressive RIA, and over the period of analysis has initiated high levels of integration amongst member states.

Although not a developing country grouping, there are wide differences in income and productive capacity in the bloc.

## **2.1 SADC**

The Southern African Development Community (SADC) was initiated in 1980 primarily as a means of regional co-ordination, as opposed to trade integration, and was then known as the Southern African Development Co-ordination Conference (SADCC). The nine initial members were Angola, Botswana, Lesotho, Malawi, Mozambique, Swaziland, Tanzania, Zambia and Zimbabwe. With the demise of apartheid in South Africa, and calls from COMESA for a merger, the 1990s saw a re-modelling of the group. This transformation included the renaming of SADCC as SADC, the Southern African Development Community, and an altered mandate to incorporate South Africa as an official trading partner in conjunction with the adoption of new trade policies. This resulted in the subsequent accession of five new members, Namibia, South Africa, the Democratic Republic of Congo, Mauritius and the Seychelles, to bring the total membership up to fourteen countries. Seychelles has since withdrawn from the group, while Madagascar joined in 2005.

In the late 1990s, SADC agreed to form an FTA (Cattaneo, 1998:1). This was to be implemented through the SADC Protocol on Trade that was technically launched on 1<sup>st</sup> September 2000. The Protocol has the ambitious aim of the gradual implementation of a free trade area with 85 percent liberalisation by 2008 and 100 percent by 2012 (Sadcreview, 2002:5). This allows for asymmetrical tariff reductions between SACU and the other SADC members. For example, by 2008, SACU is scheduled to have almost entirely completed its commitment to the protocol, while the remaining countries will have applied between 60 and 80 percent of their proposed tariff reductions (Imani Development, 2003:33).

To date twelve countries have ratified the SADC Protocol on Trade. The war-torn DRC, and new member Madagascar have both initiated processes to join the FTA, while Angola, although having recently ratified the Protocol is yet to present its liberalisation

offer (BIDPA, 2003:2; McCarthy, 2003:4). Thus, in terms of this analysis, only the 11 current SADC member states that have ratified the SADC protocol on trade and presented their offers will be analysed. These will be assumed to be a proxy for the entire SADC, and include Botswana, Lesotho, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe. Madagascar, having only joined SADC in 2005 would not qualify as part of the bloc over the period of analysis, and data availability for Angola and the DRC is very poor. A potentially complicating factor to the analysis is the assimilation of new countries into the group since its beginnings in 1980, and in particular the accession of South Africa and Mauritius. However, in light of the relatively porous borders despite the prior trade restrictions in the period analysed, all eleven countries are included in the analysis even though they may not have been members of SADC for the entire period.

The SADC region represents a cumulative GDP of US\$ 230 billion, however, the majority of this value (almost 77 percent) is contributed by South Africa. GDP per capita varies widely within the group with similar income levels amongst Botswana, Mauritius, and South Africa, and Namibia to a lesser extent. The remaining countries have extremely low levels of GDP per capita with none exceeding US\$ 600. The DRC and Malawi have the lowest income levels per capita.

South Africa's dominance in manufacturing value added (MVA) is even more apparent, contributing almost 89 percent of the total SADC MVA in 1980. However, this share has fallen marginally to 84 percent as of 2001. Likewise, South Africa's share of manufacturing employment fell from 73 percent in 1980 to 70 percent in 1999. The other countries with notable manufacturing contributions are Mauritius, Tanzania and Zimbabwe (Hess, 2004).

## **2.2 The Southern Cone Common Market (Mercosur)**

The treaty of Asunión in March 1991 established the free trade area of Mercosur between the countries of Argentina, Brazil, Paraguay and Uruguay. In 1996 two other

countries, Bolivia and Chile were included as associate members, and are treated as 'political' members of Mercosur. Combined, the countries of Mercosur represent 230 million people with a combined GDP of US\$ 570 billion (Mills, 2000:15; Taccone and Nogueira, 2003:43). However, as with SADC, the economic balance is heavily biased in favor of two principal countries, Brazil and Argentina, which contribute 97 percent of the GDP of the full members (Mills, 2000: 15).

As with the countries of SADC, Mercosur's members followed a largely inward-focused and centralized system of economic management and trade. This included high import tariffs, heavy government management of foreign trade, export-enhancing exchange rate policies and a generally protectionist regime (Bertelsmann-Scott and Mutschler, 2000:2). As would be expected, this led to low intra-regional trade as each country sought to keep out neighboring imports. However, under severe pressure from the global recession in the 1980s and their high levels of external indebtedness, Argentina and Brazil made a deal with the IMF which created a paradigm shift in focus towards liberalization (Richards, 1997:134).

Regional integration in the Mercosur has been conducted in two distinct phases. The first phase, beginning in the early 1980s, formalized in 1990, and concluded in December 1994, saw the removal of tariffs on 85 percent of regional trade (Mills, 2000:14; Giannetti da Fonseca, 2000:63). The second phase, that of implementing a customs union, is currently in progress, with full convergence of tariff lines targeted by 2006 (Mills, 2000:14). The motor industry accounts for 25-30 percent of intra-Mercosur trade, and has been a source of antagonism between Brazil and Argentina (Gonclaves, 2000:21).

Although somewhat mitigated by the troubles in the region in the new century, during the period under analysis there was a great deal of regional success. For instance, during the 1990s intra-regional trade increased fivefold, from US\$4 billion in 1990 to US\$20 billion in 1998 (Giannetti da Fonseca, 2000:63) while foreign direct investment increased by an even greater amount, from US\$2.6 billion in 1990 to US\$26.6 billion in 1997 (Mills,

2000:14). As a means of comparison, Mercosur's trade with the rest of the world trebled over this period (Bertelsmann-Scott and Mutschler, 1999:2). This resulted in an increase in intra-Mercosur exports from 9 to 25 percent of the total (IADB in Baer *et al*, 2002:269). The two largest countries, Brazil and Argentina, both showed significant increases in exports and imports with the rest of Mercosur. During the 1990s, Brazil's exports to Mercosur grew by 23 percent and Argentina's by 19 percent in comparison to their average export growth of 6 and 8 percent respectively. Likewise, Mercosur imports to Brazil increased by 15 percent and to Argentina by 30 percent in contrast to average figures of 12 and 25 percent respectively (Baer *et al*, 2002:271). Mercosur's average tariff rate fell from 41 percent in 1986 to 12 percent towards the turn of the century. The changing trade flows seen over the 1990s have led to a much higher degree of regional interdependence. At the end of the 1990s this led to Brazil providing the market for one third of Argentina's total exports, and a massive 90 percent of Argentina's automotive exports. The role of Brazil's market was even more significant for the two smaller countries, accounting for 40 percent of Paraguay's exports and 35 percent of Uruguay's (Baer *et al*, 2002:273).

The sharp growth in intra-bloc trade until 1998 was reversed with a recession in the region starting in 1999, and the onset of the regional economic crisis in 2001. This crisis had a major impact on the internal trade in goods, which in 2002 fell 36 percent on the previous year to 55 percent of their 2000 value (Taccone and Nogueira, 2003:26). The fall in trade value significantly outweighed the fall in the external trade of Mercosur of 10 percent over 2001 to 2002 (Taccone and Nogueira, 2003:26). By far the most important trading partners of Mercosur are the EU and NAFTA which each account for roughly a third of the region's total trade.

Thus it was decided to incorporate Mercosur into this study as they provide a more recent formation of a free trade area, and that, within the context of developing countries. The results for this group would be particularly interesting for SADC as it consists of developing countries with one particularly dominant member (Brazil), one medium-sized

and more developed member (Argentina), and the two very small countries of Uruguay and Paraguay.

### **2.3 The European Union (EU)**

The European Union is at the forefront of contemporary regional integration practice, theory and research. This is because the union is currently the most progressive and economically important integrated bloc of independent countries (McCarthy, 2002:5). An economic union has been established between all countries involved, with a monetary union existing amongst a number of the key members.

The founding member states were France, Germany, Belgium, Italy, the Netherlands and Luxembourg. After five waves of accessions, membership has grown to a total of 25 countries. However the countries selected to represent the EU for this paper were limited to the 15 member nations prior to the 2004 expansion. In addition to the founding six nations, the other countries analysed include Austria, Denmark, Finland, Greece, Ireland, Portugal, Spain, and the United Kingdom.

The inclusion of Ireland, Greece, Portugal and Spain created a new dimension, in that they were relatively poorer and less industrialised than the existing members, and the recent accession of eastern European countries even more so. The GDP per capita and MVA contribution for this group of countries is significantly lower than those of the older and richer members. This has led to a strong focus on uplifting peripheral regions through the use of structural funds (Lebre de Freitas *et al*, 2003:270). European Union policy is based on the premise that competitive markets lead to inequality, therefore substantial redistributive funds are necessary to avoid agglomeration (Molle, 1997:429). This inequality is likely to increase with the recent extension efforts of the EU. Thus funds have been created that are channelled firstly to traditionally underdeveloped regions, i.e. those which are agriculturally orientated, have little manufacturing or services industry and which are deficient in infrastructure, and secondly to regions of industrial decline (Molle, 1997:436).

There are three such funds that aim to increase economic and social cohesion, the European Regional Development Fund (ERDF), the European Social Fund (ESF) and the European Agricultural Guarantee and Guidance Fund (EAGGF) (Goodman, 1996:234).

Like SADC, the structure of trade from the peripheral regions in the EU to the core countries consists largely of natural resource-based products and some traditional industry. However, as integration has proceeded, the share of new industry has been increasing in peripheral country exports (Barry, 2002:6). Thus, including the EU in this study will provide some interesting comparisons and lessons for SADC as it represents one of the most progressive attempts at regional integration in the last few decades. Although the bloc consists predominantly of developed nations, there is still a wide range of development levels and industrial production in the group.

### **3. Background to the study**

#### **3.1 Time period**

The time period chosen was 1980 to the year for which the most recent reliable data was available, 1999. During this time SADC has shown a progressive willingness to liberalise. Additionally, this period ties in well with the end of protectionist regimes in Mercosur and significant progress towards an economic union in the EU.

#### **3.2 The locational Gini coefficient**

A number of indices have been developed to measure geographic concentration. There are four indices that are used predominantly in the literature, the concentration index, the Herfindahl index, the Ellison-Glaeser concentration index, and the locational Gini coefficient. However, which index to use is a hotly debated issue in the literature (Spieza, 2002:1).

For this study, the locational Gini coefficient is used as it is the “most widely used concentration index in the analysis of regional patterns” (Stirboeck, 2002:5). The standard form of calculation was popularised by Hoover (1936) and is used as the basis for Krugman’s (1991) coefficient. This index measures the extent to which individual industries are concentrated within a regional bloc.

Employment is usually preferred to other measures of manufacturing, such as manufactured value added (MVA) for cross-regional and country analysis. This is because it is more stable and easily measured. An additional problem in Africa is the conversion to a common currency unit as exchange rates are highly volatile and / or artificially fixed.

However, a common criticism of the Gini coefficient is that it does not factor in the size of firms; hence the index may be biased upwards if there are a few large firms in one small area (Macon and Puech, 2002:5). Additionally, it is argued that the Gini gives additional emphasis to the middle parts of the distribution, thus reducing the impact of changes on the edge of the distribution (Stirboeck, 2002:5). Other criticisms have revolved around the potential for the Gini coefficient to ‘confuse’ the distinct concepts of inequality and concentration (Arbia, 1989, and Wolfson, 1997, in Spiezia, 2002:2). Devereux *et al* (2002:10) find a strong negative correlation between the locational Gini coefficient and the number of firms, a factor exacerbated by the use of the concentration index. The blurring of distinction between concentration and specialisation arises as the measure is relative, and takes into account the overall shares of each country’s manufacturing employment sector. This means that the Gini will be higher for a small country with a high degree of concentration of a particular industry, even though a larger country may possess an overwhelming majority of the industry. This is evident within SADC as the tobacco industry has the highest Gini at 0.61, even though there are four major producers in the region. As a means of comparison the pottery industry, where South Africa contributed 98.8 percent of total employment, had a Gini of 0.29, and the miscellaneous petroleum industry, where almost all industry was concentrated in South

Africa, had a Gini of 0.31. Thus, the way in which these Ginis are interpreted must be handled with care. An additional problem with the Gini is the question of whether to include countries with zero production levels in particular industries in the calculation. As this is a common occurrence within the SADC and Mercosur countries, it was decided to include all countries for all industries, even where there was zero output (employment).

### **3.3 Problems with the analysis**

Unsurprisingly, the major problem faced by the study was obtaining accurate data. The most comprehensive standardised database available is provided by the United Nations Industrial Development Organisation (UNIDO). However, data was missing for a number of countries and industries over the years 1980 to 1999. Although some more recent data could have been sought, it would have been for a select few countries only. The last year for which comparable data could be obtained was 1999. Due to these data constraints, it was decided to use 5 year intervals and, where data for a particular year was not available, the closest year for which data could be found was used. The countries that posed the biggest problem in terms of data collection were Namibia, due to its union with South Africa until 1994, and Paraguay, for which only highly suspect data was available for 1991 and 1995.

The quality of the data is also of concern, with data missing for some industries for certain years, or extremely large changes which appear suspect, such as the disappearance of Malawi's tobacco industry. Thus, the reliability of the results is heavily affected by the quality of the data. In most cases it was unclear whether this was due to data not being recorded, or to no employment in the industry. As an attempt to check for missing data, data for other variables such as MVA, establishments and wages were checked in order to ascertain whether it was just employment data missing. In every case, where no employment data was recorded, there was no data for any of the other variables.

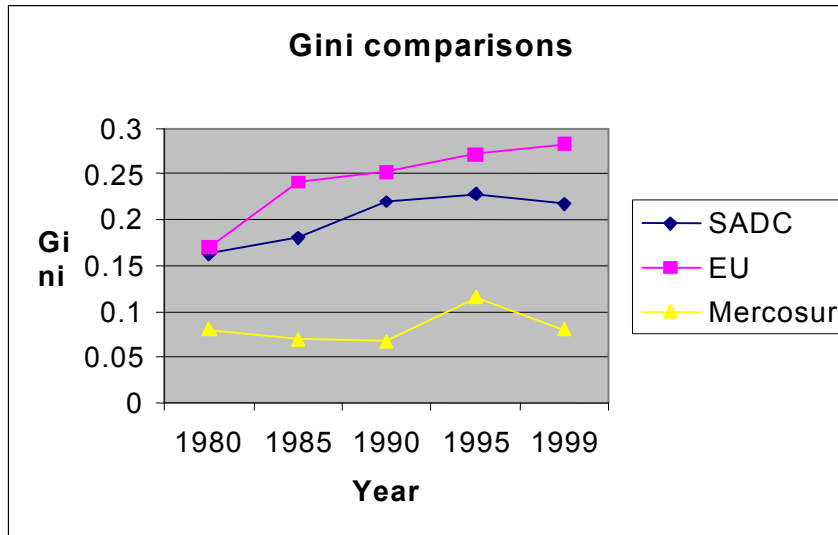
Employment data is most commonly used in the literature, as well as being the most readily available and accurate data. Data for MVA is less readily available, subject to more calculation problems, and the data has to be converted to a common exchange rate. For many countries in SADC exchange rates tend to be either fixed or highly volatile making a common measure of MVA meaningless. Additionally, MVA data availability and quality was so poor that this was not possible.

## **4 Multi-regional analysis**

### **4.1 What the Gini's say**

In both the EU and SADC an overall trend of increased agglomeration was present over the period under investigation. While the concentration of industry was similar in the EU and SADC in 1980, the increase in the Gini for the EU was far greater than that experienced in SADC over the same period. Conversely, the average Gini coefficient fell very slightly overall for Mercosur, indicating that the distribution of overall industry in 1999 was similar to that of 1980. It is also notable that the level of concentration was already lower in Mercosur than both SADC and the EU, and it remained so. The stability of the Gini showed a sharp deviation from the trend in 1995, where it shows that concentration increased dramatically. However, as can be seen by 1999, almost all of this increase in concentration was reversed. This period coincides with the formation of the FTA in the region, so it is possible that there was substantial reshuffling of industry, which is also reflected in the sharp rise in intra-regional trade at this time. As with any developing country group, the concern remains that this extraordinary change in the Gini could be due to data problems.

**Figure 1: Comparison of the average Gini coefficient in SADC, EU and Mercosur 1980-1999**



Source: Own calculations based on Unido (2003) data.

Taking agglomerated industries to be those that were more concentrated than the region's average, the following table illustrates common industries across blocs that were agglomerated in 1999. Three industries, tobacco, miscellaneous petroleum and coal products, and pottery china and earthenware, were all found to have Gini coefficients greater than the average in all three blocs. Additionally, wearing apparel, textiles and footwear were found to be agglomerated in peripheral countries in both SADC and the EU, while similarities between the former bloc and Mercosur were found in petroleum refineries, and beverages. Non-ferrous metals and other manufacturing products both showed above average agglomeration levels in the EU and Mercosur, while falling just under the average, but still relatively agglomerated, in SADC. The remaining industry, furniture, was found to be relatively dispersed in SADC.

**Table 1: Industries agglomerated above the region's average in 1999: SADC, EU and Mercosur**

SADC+EU+MERC	SADC+EU	SADC+MERC	EU+MERC
Tobacco	Wearing apparel	Petroleum refineries	Non-ferrous metals
Misc. petroleum and coal products	Textiles	Beverages	Other manufactured products
Pottery, china and earthenware	Footwear		Furniture

Source: Own calculations based on Unido (2003) data.

There were six industries that became more concentrated over the 20 year period in all three blocs, namely, industrial chemicals, textiles, printing and publishing, iron and steel, and plastic products. Other industries that were found to agglomerate in two blocs were footwear, pottery china and earthenware, paper and products, non-ferrous metals and tobacco.

**Table 2: Industries that increased in agglomeration greater than the average: SADC, EU and Mercosur 1980-1999**

SADC+EU+MERC	SADC+EU	SADC+MERC	EU+MERC
Wearing apparel	Footwear	Paper and products	Non-ferrous metals
Industrial chemicals	Pottery, china and earthenware*		Tobacco
Textiles			
Printing and publishing			
Iron and steel			
Plastic products			

\* Data not recorded for this industry in Mercosur for 1999.

Source: Own calculations based on Unido (2003) data.

Transport equipment, paper and products, machinery except electrical, plastic products, rubber products, and fabricated metal products are all industries that were relatively dispersed in all three regions. The table below shows the remaining industries that were more dispersed than each region's average level in at least two different blocs.

**Table 3: Industries below average levels of agglomeration: SADC, EU and Mercosur 1999**

SADC+EU+MERC	SADC+EU	SADC+MERC	EU+MERC
Transport equipment	Beverages	Leather products	Professional and scientific equipment
Paper and products	Food products	Printing and publishing	Plastic products
Machinery except electrical	Furniture	Wood products	Transport equipment
Plastic products	Glass and products		Machinery, electric
Rubber products	Other chemicals		
Fabricated metal products	Other non-metallic mineral products		

Source: Own calculations based on Unido (2003) data.

There were no industries that dispersed in all three blocs, although machinery except electrical, which dispersed in both the EU and Mercosur, had begun to disperse by the end of the 1990s in SADC. Food products dispersed in both SADC and the EU, while other chemicals, leather products, and wood products dispersed in SADC and Mercosur.

**Table 4: Industries that dispersed: SADC, EU and Mercosur 1980-1999**

SADC+EU	SADC+MERC	EU+MERC
Food products	Other chemicals	Machinery, except electrical
	Leather products	Beverages
	Wood products	

Source: Own calculations based on Unido (2003) data.

#### **4.2 Inferences from this comparative analysis**

The regional blocs of SADC, the EU and Mercosur all represent regional integration of countries of vastly different levels of development. The theory of the new economic geography predicts that depending on the initial level, as transport costs fall in a regional grouping, industrial concentration will first increase as transport costs lie at an intermediate level, and then decrease once the costs reach a critically low level. However, the reaction of the above groups to falling transport costs has been widely divergent, both in aggregate and sectoral terms. Both the EU and SADC have experienced an increase in industrial concentration over the last twenty years. What is evident is that the pace of agglomeration in the EU was far greater than that in SADC, even though transport costs and trade barriers were significantly higher in SADC in 1980. This finding could reflect the critical effect of integration at greater levels than the free trade area on the reduction of transport costs within a region. Additionally, or alternatively, actual transport costs may not have decreased significantly in SADC. Mercosur, on the other hand, displayed the expected increase and subsequent decrease in agglomeration, although at an exceedingly rapid rate. Considering that the EU is at a more advanced stage of integration, it is likely that the dispersion in Mercosur is due to factors other than explained in the new economic geography. Another potential explanation could have been the economic instability of the Mercosur region in the late 1990s which could have distorted the process.

Various studies have postulated that the EU has now reached its peak in terms of industrial concentration and is ready for a dispersion phase, with industry relocation from the core countries to the periphery (Leitner, 2001). An interesting result of this analysis is that SADC may have reached a similar stage, in that the increase in industrial concentration had slowed down in the 1990s, and in the second half of the decade industry on average dispersed. Obviously, the EU and SADC are by no means at similar levels of development, both economically and in terms of liberalisation, so the rationale for such movements must be found elsewhere. Possible reasons why industry has begun to disperse in SADC, even as transports costs still remain relatively high, could be the role of external markets, and the extraordinarily large differences in average wages between the core countries and the periphery. As a means of comparison, the South African average labour cost in urban areas was estimated to be US\$ 1.89 in 1999 (McCarthy, 1999:388). Although this figure decreases to US\$ 1.08 in the former homelands it is still substantially higher than wages in the rest of SADC at US\$ 0.35 in Zimbabwe and between US\$ 0.27 and US\$ 0.32 in the remaining countries (McCarthy, 1999:388).

The majority of SADC trade is external and not internal; hence the liberalisation of trade within the region is not likely to result in industrial relocation replacing intra-regional trade flows. This factor may be enhanced by the high levels of transport costs and non-tariff barriers (such as infrastructural inadequacies) present within the region, but less so externally. As the poorer countries obtain preferential treatment in some foreign markets (particularly the EU and USA), it may become more profitable for firms to relocate out of high-wage countries into low-wage countries with preferential access treatment. Alternatively, the large wage differentials may mean that SADC will reach a stage where the price of the immobile factors (such as labour) will take effect at a higher level of transport costs than in the EU. The question that now arises is whether a further fall in transport costs will accentuate this trend, or reverse it.

Doing a simple regression of the distribution of industry in SADC to that of the EU and Mercosur, it was found that industries in Mercosur and the EU were distributed in a

similar pattern to each other, but not to SADC. The results were significant at the 1 percent level for 1999, but not significant for any other year. However, what is perhaps more interesting for SADC, is that if one regresses the distribution of industry in the EU in 1980 against the current (1999) SADC distribution, the results are significant at the 5 percent level. This may indicate that the evolution of SADC industry is at a similar stage to that of the EU 20 years ago.

## **5 Conclusion**

A number of interesting points arise from this analysis, even if firm conclusions remain elusive. Although Mercosur appears to buck the trend a little, there appears to have been an increase in agglomeration in all groups by the mid 1990s, and since then a trend towards dispersion. What makes this particularly interesting is that although there was a general trend of liberalisation over the mid to later period across all blocs, the stages of integration in each were radically different. It could perhaps be that global perceptions of integration may have changed in the mid 1990s which resulted in an increased willingness by firms to relocate across a wider spectrum of countries. The results could also indicate the importance of transport costs other than tariffs due to the relative similarity of average results between SADC and the EU. Other possible explanations may lie in the role of external markets and significantly different levels of real wages within regions.

The path of concentration has been fairly similar in SADC and the EU with vastly increased levels of agglomeration during the 1980s, which slowed down in the 1990s. However, industries in the EU tended to agglomerate at a much faster pace than in SADC, as in 1999 the EU was more concentrated than SADC, even though the level of agglomeration in 1980 was very similar. Although there was a similar level of agglomeration in 1980, the extent to which industries were affected by agglomeration forces was very different, and SADC's distribution in 1999 was more like the EU's distribution in 1980 than in any other year. On the other hand, the distribution of industry in the EU and Mercosur has remained fairly similar throughout the analysis, even though

industry in Mercosur is significantly less agglomerated than both SADC and the EU. Unlike the increased concentration in SADC and the EU in the 1980s, industry dispersed in Mercosur during this time, but then concentrated in 1995 only to disperse again by 1999.

There appeared to be a greater correlation of industries that tended to agglomerate between the blocs than industries that dispersed, with the following industries agglomerating in all three regions: wearing apparel; textiles; industrial chemicals; printing and publishing; iron and steel; and plastic products. No industries showed trends of dispersion across all three blocs. Three industries tended to be agglomerated in all three blocs, tobacco, miscellaneous petroleum and coal products, and pottery china and earthenware. The following industries were all relatively dispersed in all three blocs: transport equipment, paper and products, machinery except electrical, plastic products, rubber products, and fabricated metal products.

Thus, there appear to be similarities between some of the industries that have followed comparable paths, such as the increased concentration of the labour intensive textile and apparel industries in the peripheral regions of SADC. Other than the above example and one or two other like cases, there do not appear to be any hard-and-fast rules as to the characteristics of industries that tend to concentrate, either in the core, or in the periphery. It is suggested that the trends of individual industries considered indicate how each industry is likely to adjust with a further fall in transport costs. This can be seen through the degree of change, direction of change and volatility of the Gini. Additionally, in comparing the way in which individual industries have changed in different regional blocs it appears to be possible to identify particular industries that have concentration tendencies.

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