
**COMESA: WHAT IMPACT ON KENYAN
MANUFACTURED EXPORTS? //**

**BY
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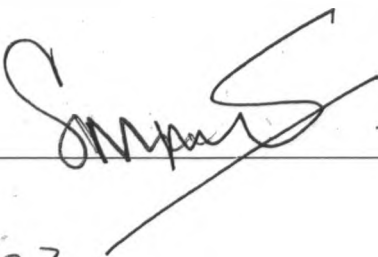
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To: My Dear Parents, Mark and Agnes Okado.

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Finally, I would like to state that am wholly responsible for any errors in this paper.

ABSTRACT

The paper investigates what impact the COMESA regional integration agreement has had on the value of Kenyan manufactured exports. The study derives its inspiration from the lack of empirical evidence on the effects of regional groupings on Kenya's exports of manufactures and by extension on its broader strategy of export led industrialization .

A gravity model of trade is employed. This is to control for the conventional determinants of bilateral trade, as well as to test for the specific impact of COMESA. The paper focuses on the period since the signing of the COMESA treaty and utilizes a panel of eight years to carry out the study. A fixed effects model is found to be preferred to a random effects model.

The major finding is that COMESA does have a positive outcome on exports of manufactures, but this effect is not yet compelling. The estimates show that other variables, both included and not included in the regression, are more important.

The paper concludes by calling for a package of measures that could make COMESA play a bigger role in fulfilling Kenya's dream of Industrialization.

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ACRONYMS

AERC	African Economic Research Consortium
ASEAN	Association of Southeast Asian nations
COMESA	Common Market for East and Central Africa
EAC	East African Cooperation
ECOWAS	Economic Community of West African States
ECSC	European Coal and Steel Community
ELI	Export Led Industrialization
EPZ	Export Processing Zone
EU	European Union
FEM	Fixed effects model
GDP	Gross Domestic Product
IMF	International Monetary Fund
KRA	Kenya Revenue Authority
LDC	Less Developed Country
MERCOSUR	Common market of the South
MUB	Manufacturing Under Bond
NAFTA	North American Free Trade Agreement
NEPAD	New Partnership for African Development
NIC	Newly Industrialized Country
NIEO	New International Economic Order
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Squares
REM	Random effects model
RIA	regional integration agreement
SADC	Southern African Development Community
SAP	Structural Adjustment Program
UEMOA	West African Economic and Monetary Union/Union economique et monetaire ouest-africaine
UNCTAD	United Nations Conference on Trade and Development

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background to the study

The growth of regional trade blocs has been one of the major developments in international relations in recent years (Schiff and Winters, 2003). Over a third of world trade takes place within such arrangements and this share is expected to rise as more countries exploit them for economic and political ends. Regional integration agreements (RIAs), is the generic name given to arrangements where member countries reduce trade barriers to each others' goods and services. The scope of these partnerships includes a simple preferential reduction of tariffs, the opening up of trade in services, and the elimination of restrictions on investment.

The popular starting point for the study of RIAs is the 1930s, when the great depression caused a negative reaction against a liberal trading regime and gave rise to protectionist trading policies. This period saw regional preferences winning out against 'laissez-faire' trade. The end of the Second World War (WWII), witnessed the introduction of the idea of equal treatment of all trading partners as a guiding principle of world trade. However the system still permitted the creation of trade blocs. Some Western European countries recovering from war, immediately took advantage of this. They formed the European Coal and Steel Community (ECSC), which has culminated in the world's most successful economic and socio-political undertaking i.e the European Union (EU). The huge success of the EU has been one of the great spurs behind the enthusiasm for RIAs. From Asia which has the Association of Southeast Asian Nations (ASEAN), to Africa's West African Economic and Monetary Union (UEMOA), this trading paradigm has blossomed.

Another reason for the popularity of RIAs is disenchantment with the World trading system as a whole. Many developing countries are turning to regionalism as a tool for development. This is in contrast to a marked lack of enthusiasm for further trade

liberalization within the World Trade Organization (WTO) framework. Most Less Developed Countries (LDCs), find the multilateral system of trade to be unsatisfactory. Despite a call by LDCs for a New International Economic Order (NIEO), They still remain marginalized with respect to trade. Even today, the pattern of world trade continues to show a distinct bias against LDCs. For example despite African countries making up 12% of the world's population, they only account for 2% of world trade (Source:UNCTAD). The unremitting marginalization of the continent in terms of world trade and investment is compounded by it's politico-diplomatic and strategic downgrading.

Ng'eno (1984), argues that the failure of NIEO has forced many LDCs to re-examine their trade relations with developed countries. One way this has been done is by encouraging economic co-operation among themselves, which would allow them to grow and diversify their economies, increase trade volumes and hence be in a better position to compete globally.

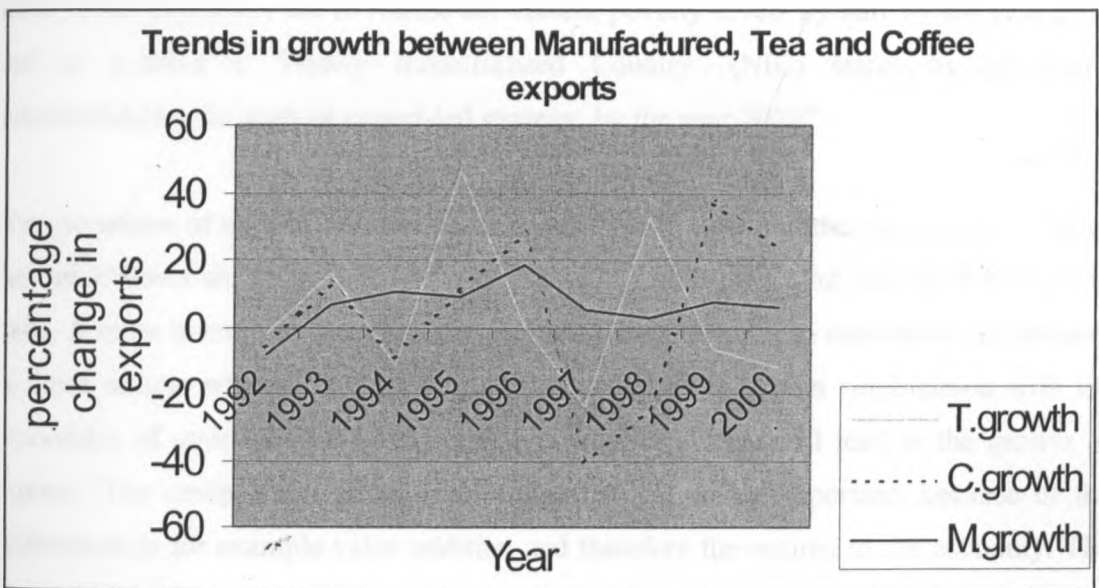
In Africa, policymakers have been pursuing RIAs as one way of economically empowering the continent. It is felt that African countries should vigorously pursue these groupings because the small size of African economies does not permit the realization of economies of scale necessary for an economy to be competitive in the global economy. RIAs provide access to a wider trading and investment environment, induce backward and forward linkages, encourages foreign direct investment and promotes diversification of exports to regional and global markets (Source:UNECA).

It is now conventional wisdom that for Kenya to succeed, it must integrate itself into the global economy. Yet integration by itself is not enough. Dependence on traditional export commodities with their low income elasticities and declining terms of trade is not going to significantly increase welfare levels in the country. Kenya has in the past depended heavily on agriculture as the base for economic growth, employment and foreign exchange generation. About 80% of the population depend on it for their livelihood and it accounts for over 70% of total exports. However agriculture suffers from the vagaries of

weather, with production witnessing wide fluctuations depending on whether conditions are favourable or not. On top of this, agricultural commodity exports suffer from price and therefore revenue instabilities, due to demand and supply inelasticities.

Manufacturing on the other hand is a more robust and reliable motor for stimulating and sustaining economic growth. The dynamism in manufacturing may be clearly demonstrated by the resilient nature of the sector over the years in terms of growth as shown in figure 1.

Figure 1. Comparing changes in growth rates for selected Kenyan exports.



Source: Computed from World Bank Development Indicators

- T. growth is the growth in Tea exports
- C. growth is the growth in coffee exports
- M. growth is the growth in manufactured exports

The figure shows that manufactured exports have had a steady if unspectacular performance in the nineties. This is contrasted by the sharp fluctuations in the export volumes of tea and coffee.

The Kenya government, having realized the long-term potential of manufacturing, has made Export-led Industrialization (ELI) a key pillar of its anti-poverty drive. The National Development plan for the period 1997-2001, outlines a strategy for rapid and sustained economic growth which identifies industrialization as the cornerstone. The strategy calls for the building of export-oriented light manufacturing industries. This policy commitment is also evident in the poverty reduction strategy paper (PRSP): 2001-2004 as seen from the following excerpt

“the government is committed to the restoration of economic performance that will lead to sustainable long-run growth consistent with national development objectives. Two of these broad objectives are to reduce the current poverty levels by half by the year 2015 and to achieve a ‘Newly Industrialized Country’ (NIC) status by promoting industrialization through an export-led strategy, by the year 2020”

The promotion of exports requires that trade is freer to flow and this necessarily requires that trade flows are encouraged by the removal of both tariff and non-tariff barriers to trade. A more liberalized trade regime allows the home country to concentrate investment in those sectors where it has a comparative advantage which in combination with the economies of scale offered by a larger international market will lead to the growth of exports. The composition of exports is also thought to be important, because of the differences in for example value addition and therefore the returns to the economy. The literature is replete with evidence on the secular decline in the terms of trade for primary exports which has over the last few decades taken a devastating toll on the economies of developing countries. As Fosu (2001), points out, manufacturing exports can generate externality or productivity advantages over other forms of exports, such as primary products, through for example engendering greater learning by doing. If this is the case then the composition of exports will matter a great deal for an economy.

Of course export promotion is synonymous with trade liberalization because it necessarily entails altering the price structure in favour of exportables, which is precisely what any move toward a more liberal trading regime does. Trade liberalization in Kenya

can be viewed in terms of pre and post 90s terms. Before the 90s, episodes of increased protection and subsequent liberalization were closely linked to changes in the balance of payments (BOP).

In the 1970s, the tightening or liberalization of the trade regime was mainly influenced by external shocks to the economy. For example the two oil shocks of that decade caused the government to use import bans, quotas and quantitative restrictions to contain BOP disequilibria. Another good example is the coffee boom of 1976-7 which improved the BOP position leading to relaxation of quantitative restrictions, but these had to be reversed following the associated increase in aggregate demand which caused yet more BOP imbalances.

In the 1980s persistent BOP problems finally forced the government to accept structural adjustment programmes (SAPs) loans which had among other conditions, the relaxation of the trading regime. This period is marked by a more focused liberalization program, but nonetheless it was not without significant policy reversals. The 1990s saw Kenya implement its most significant and so far most enduring phase of liberalization. A freer trade regime was part of a broad package of reforms that also targeted the foreign exchange market.

Looking back at Kenya's liberalization experience since the 1970s to date, specific export promotion efforts include:

- The liberalization of trade, through the removal of quantitative restrictions.
- The reduction and rationalization of duty rates.
- The lifting of import licensing.
- The removal of foreign exchange controls.
- The introduction of export platforms, i.e export processing zones (EPZs), manufacturing under bond (MUB), and the export support program (EPPO).
- The development of regional markets, through preferential trade agreements.

In respect of Regional integration, Kenya is a member of two organizations. These are the East African Cooperation (EAC) and the Common Market for East and Southern Africa (COMESA).

COMESA is a regional integration grouping of 20 African states whose aim is to develop the natural and human resources of the region through trade development.

It was established in 1994 as a successor to the Preferential Trade Area for Eastern and Southern Africa (PTA), which was in existence since 1981. COMESA is a concrete step towards the fulfillment of the 1980 Lagos Plan of Action, which called for the establishment of sub-regional common markets with the ultimate aim of forming an African Economic community. It will also play a key role in any implementation of the New Partnership for African Development (NEPAD).

The COMESA treaty was signed in 1993, replacing the Preferential Trade Agreement (PTA). Its member states have a total GDP of US\$200billion and a combined population of 380million. The member states are Angola, Burundi, Comoros, Democratic Republic of Congo, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Namibia, Rwanda, Seychelles, Sudan, Swaziland, Uganda, Zambia and Zimbabwe.

The COMESA treaty, which sets the agenda for COMESA, covers a large number of sectors and activities. However, the fulfillment of the complete COMESA mandate is regarded as a long-term objective and, for COMESA to become more effective as an institution, it has defined its priorities within its mandate, over the medium term, as being promotion of regional integration through trade and investment. (COMESA In Brief)

COMESA has a long- term goal to become a fully integrated economic community. The member states have agreed to integrate their economies following five progressive stages of economic integration.

- 1. Preferential Trade Area.**

This stage started from 1982 and continues to date. Member states trade on preferential terms for goods meeting the COMESA rules of origin.

- 2. Free trade Area.**

From 31st October 2000, the free trade area came into force with an initial number of 9 states trading on duty and quota free terms. Each state continues to maintain their own external tariffs for goods originating from outside COMESA.

3. Customs Union.

A Customs Union is planned for 2004. When this phase of the treaty comes into operation, member states will operate a common external tariff and adopt common customs legislation, regulations and procedures.

4. Common Market.

A Common Market is envisioned for 2014, will see the free movement of goods, services, labour and capital. COMESA citizens will have the right to work and transact business anywhere in the common market.

5. Economic Community.

This is expected to be the pinnacle of the organization. In addition to duty and quota free access for goods and services, and the free movement of factors of production, a common currency will be adopted.

COMESA therefore stands out as one of Africa's most ambitious and closely watched regional integration initiatives currently. For Karingi et al (2002), it could be the future for a number of countries that have limited opportunities for increasing their exports to Europe, the Americas and Asia. Without doubt it is an organization that will be in the African economic spotlight for some time to come.

Table 1. Key Economic Indicators for selected COMESA countries.

COUNTRY	GDP (2001)	Population (mil.)	GDP per capita(\$) in 2001	Imports (\$ mil.) in 2001	Exports (\$mil.) in 2001	FDI (\$mil.) in 2001
Angola	6.7	14	500	4719	5138	1347
DR Congo	4.2	52	80	3347	2635	83
Egypt	99.6	65	1530	18532	16993	1613
Ethiopia	6.7	66	100	2113	1310	52
Kenya	10.7	31	350	3842	3287	50
Mauritius	4.6	1	3830	3300	2961	223
Rwanda	1.9	9	220	453	229	5
Sudan	10.7	32	340	2441	1692	98
Uganda	5.9	23	260	2254	1318	144
Zimbabwe	6.2	13	480	2983	3043	10

Source: World Bank, African Development Indicators 2003

1.2 Statement of the problem

Regional trade blocs are at the heart of trade policy for many developing countries. Most African countries are signatories to one or more RIAs. Some of the reasons that inform the decision to sign RIAs, include political, economic and security issues. In Kenya's case, membership in RIAs has traditionally been seen as a way of accelerating economic growth and development. Regional markets are considered important as an outlet for exports.

Membership in multilateral, regional or bilateral trading arrangements has implications for almost all parts of the economy and COMESA is no exception.

Some sectors will face opportunities for expansion, while others will inevitably contract.

In principle the expansion and contraction of different sectors will follow the pattern of comparative advantage, where sectors with a comparative advantage grow and vice-versa, leading to an overall growth in the volume of trade.

The overall growth in trade will however depend on how complementary in nature are the goods produced by the various members of a trading agreement.

Several studies have been carried out which focus on RIAs in Africa. Most find no major impact on economic performance. As Oyejide et al (1996) note, levels of trade between the partner states, remains low even after formation of these blocs. In trying to explain this, Alemayehu and Haile (2002), observe that countries in COMESA export similar primary products and import mainly manufactured goods. This leads to a non-complementary pattern of trade. If all countries export the same type of goods, there will be a decline in the terms of trade and as a result we will observe immiserizing growth, rather than the hoped for long-term improvement in economic conditions.

Kenya is trying to both grow and diversify her exports. Development of her industrial sector through promotion of its exports is a key goal of Government. Since RIAs are usually designed to favour increased flow of intra-group trade, then Kenya's exports of manufactures should be positively affected assuming it has a comparative advantage in them.

There have been no specific studies that focused on COMESA's effect on Kenyan manufactured exports. An estimate of such impacts is necessary in order to comment on Kenya's goals of both increasing exports and diversifying the export mix away from primary products, as part of a broader ELI strategy.

1.3 Objective of the study

To evaluate what impact there has been on the value of Kenyan manufactured exports in the time since Kenya signed the COMESA treaty in 1993.

1.4 Significance of the study

Kenya is a member of the COMESA trade block and has announced its intention of deepening her involvement in this organization over the coming years. In negotiating her membership in it and other RIAs, the country will need to have a good understanding of how these types of trading arrangements affect various economic sectors like manufacturing and its exports.

Kenya is also party to other multilateral, regional and bilateral trading initiatives. Research that helps in achieving a better understanding of Regional integration and its consequences, will very valuable in designing a national trade policy that takes its rightful place in the country's overall growth, poverty and re-distribution program.

Such a study would also aid policy makers, businessmen, trade unions and consumers to articulate their various positions with regard to current and proposed COMESA integration measures, including the reduction and in some cases complete removal of tariff barriers.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Theoretical Literature Review

2.1.1 Smith and Ricardo

In trying to understand the theoretical underpinnings of international trade liberalization and its offshoot regional integration, one is obliged to begin at Adam Smith's and David Ricardo's ideas about absolute and comparative advantage respectively.

These two men developed their ideas as a refutation of the doctrine of Mercantilism, which was the dominant economic philosophy of the seventeenth and eighteenth centuries.

Mercantilism viewed foreign trade as a threat to the economic welfare of a country. It viewed the accumulation of gold as the ultimate economic good, and considered unhindered trade as an obstacle to the building up of a country's reserves of gold.

The theory of Absolute advantage developed by Adam Smith, posited that countries should trade what they have an absolute advantage in producing, in exchange for goods that another country has the absolute advantage in producing.

For example, if country A can produce good X with less labour cost than country B, and country B can produce good Y with less labour cost than country A, they will gain from trade. Country A gains by buying Y from B more cheaply than it can produce it, while B gains by buying X from A more cheaply than it can produce it. The resources saved by the two countries can be used to increase domestic production or increase leisure.

David Ricardo modified Smith's analysis. He introduced the now famous idea of Comparative advantage.

His basic insight was that even if Country A is more productive than country B in all lines of production, it still paid for the two to trade as long as Country A was not equally more productive in all lines of production.

This can be illustrated using the following tables.

Table 2.1 Cost comparisons

	Labour cost of production (in hours)	
	1 unit of X	1 unit of Y
Country A	80 hrs of labour time	90 hrs of labour time
Country B	120 hrs of labour time	100 hrs of labour time

Table 2.2 Opportunity costs

Country	Opportunity cost of production	
	1 unit of X	1 unit of Y
Country A	$80/90=0.89$	$90/80=1.1$
Country B	$120/100=1.2$	$100/120=0.82$

Country A can produce both goods using less labour per unit, which means it has an Absolute advantage in the production of both goods.

However it only has a comparative advantage in the production of good X because it's opportunity cost of good Y, which is 1.1, is higher than the opportunity cost of producing good Y in country B, which happens to be 0.82.

We assume that one unit of X exchanges for one unit of Y in the international market. In this case country A will gain by trading good X for good Y. This is because it can use eighty hours of labour to produce one unit of X, and then exchange this unit for one unit of Y. In the process it will save ten hours of labour which can be used for increased production or increased leisure. The same argument holds for country B by symmetry.

Trade is said to be restricted when there exist tariff and non-tariff barriers. A tariff is simply a tax that is levied on imports, the impact of which is to increase their prices.

Non-tariff barriers do not affect the price but rather reduce the quantities that can be imported, for example through the use of a quota.

In the case of a tariff, the effect is to increase the price of the good within the importing country, which makes it less attractive with respect to similar goods produced by the import-competing industries. This increases production of the import-competing good and reduces demand for the import. As such the relative prices are altered and this very often moves the pattern of trade away from one that reflects each trading partners comparative advantage.

The fundamental purpose of trade liberalization is to make price signals clearer and to alter relative prices in order to encourage production of exportables and discourage production of importables. In principle, this stimulates a pattern of resource allocation closer to that consistent with a country's comparative advantage. This results in a shift of resources from import-competing to export industries.

On the export side, the gain consists in the opportunity to sell commodities at better terms of trade than would have been possible in the absence of tariff reductions on the part of other countries. On the import side, benefits of freer trade arise from the opportunity to consume low-cost imported goods in the place of more expensive domestically produced commodities, the purchase of which has been a result of the existence of tariffs.

The Heckscher–Ohlin theorem predicts that the relatively capital-rich country will export capital-rich goods, while a country that is relatively labour-rich will export relatively labour-rich products.

2.1.2 Customs Unions

The argument about how freer trade necessarily increases welfare is predicated on the assumption that trade barriers are reduced in a non-discriminatory manner. What would happen if countries merely shifted discrimination? What would happen in a Customs Union?

The analysis of Customs Unions constitutes part of the so called theory of 'second best' in welfare economics. This theory says that given that some distortions remain in some activities in the economy, it is not necessarily true that removing some of the distortions is welfare improving. Generally the impact of customs unions can be viewed in terms of static and dynamic effects.

Static effects: Trade diversion and Creation

The general theory of customs unions, dates back from Jacob Viner (1950), who offered important insights into the possible outcomes of the formation of trade blocs. His major contribution was to show that although customs unions inevitably reduce some barriers to trade this will not necessarily be welfare improving.

Viner introduced the concepts of Trade creation and Trade Diversion. Trade Creation refers to the replacing of relatively high-cost domestic production with lower-cost imports from a partner country, Trade Diversion is the switching of a country's source of imports from a more efficiently producing country to a less efficiently producing one, due to a Customs Union.

The following example illustrates Trade Creation and Trade Diversion.

We assume three countries, A B and C.

A and B are members of the customs union, while C represents the rest of the world.

If we consider consumers in country A, then they face three prices. These are

a) The price at which a good can be supplied by producers in Country A, P_A .

- b) The price at which it can be imported from Country B (inclusive of the tariff prior to the formation of the customs union), P_B+t .
- c) The price at which the good is supplied by the rest of the world (inclusive of the tariff), P_C+t .

There will be five possibilities when internal tariffs within the bloc are removed and external ones remain:

Table 2.3: Effects of a trade bloc on Country A

Case	Cheapest Supplier Before Union	Cheapest Supplier After Union	Change in domestic production
1	A	A	0
2	C	C	0
3	B	B	0
4	A	B	-
5	C	B	0

1. P_A remains the lowest price and producers in A supply all the demand.
2. P_C+t , being the lowest price initially, is still the lowest. Therefore all demand in A is supplied by imports from C.
3. P_B+t was the cheapest price and B was the supplier of demand in A. This means that after the tariff is removed, P_B is the new price. Since there is a drop in prices, the imports from b will increase. This is the case of Trade Creation.
4. P_B is cheaper than P_A and imports from B replace local production.
5. P_C+t was initially the cheapest price but after tariff removal P_B is now the cheapest. Imports from C are now replaced by imports from B. This is the case of trade Diversion.

Dynamic Effects: Scale and competition Effects

A second mechanism through which RIAs influence economic welfare is through market enlargement which allows firms to exploit economies of scale more fully. Trade preferences and resulting shifts in demand in favour of intra-regional trade enable firms to raise production, which gives rise to economic gains in member countries.

Other important theoretical contributions.

Other important theories include work by Cooper and Massel which suggests that there is always a non-preferential tariff policy for any country that is superior to a customs union. This means the country can obtain all the benefits and avoid all the losses of a customs union by simply applying an optimum external tariff.

Paul and Ronald Wonnacot showed that the theoretical framework within which Cooper and Massel proposed their theory, failed to consider the home country as an exporter. When this 'export interest' is considered, then it becomes obvious that any trade diversion in a customs union will be to the advantage of an exporting member country. Hence the losses through trade diversion on imports might be matched by gains through trade creation on exports. As such their chief contribution was to show that in a tariff ridden world there are some welfare gains from customs union membership that cannot be secured through unilateral non-preferential tariff reductions.

Krugman (1991) formalised the role played by geographical proximity in the regionalization process. He analysed how proximity could lead to production agglomeration and hence regional bias in trade flows. This is his famous 'economic geography' model. Krugman's basic idea was that economies of scale and costs of trade were what determine the location of economic activity. This has an important implication for RIAs because regional integration could help exploit economies of scale and lead to the location of productive activity in one place(country) rather than in many places(countries).

2.2 Empirical Literature Review

Important studies show that RIAs have a significant positive impact on regional trade. Frankel, Stein and Wei (1994), find evidence of the increasing importance of intra-regional trade. They ask about the extent of regionalization of world trade, and whether this has been good or bad for trade. They use the gravity model of trade to examine bilateral trade patterns among seven trade blocs. These blocs are NAFTA, ANDEAN, MERCOSUR, EFTA, EU, WH and EAsia. For example, intra-regional trade as a share of total trade of the region since 1965 to 1990, has increased from 0.8% to 2.6% for the ANDEAN pact; from 35.8% to 47.1% for the EU; from 19.9 to 29.3% For East Asian countries. In addition to examining trends in the data, Frankel and others use the gravity model to decompose the effects of economic size, distance and the existence of a regional trade agreement between the partners on their bilateral trade. They find that the dummy variables for intra-regional trade are highly statistically significant. The study therefore concludes that regional integration agreements which have positive impacts on members trade with each other are clearly in evidence.

Yeats (1998), finds evidence of increased intra-MERCOSUR trade from 1979-1994, noting that trade preferences in the region were introduced in June 1991. In some cases, the changes are dramatic, with Argentina's share of exports to MERCOSUR countries increasing from 13.4% to 30.4%. Exports from individual MERCOSUR countries to Europe declined slightly, while exports from these countries to the United States increased slightly over the same period.

Other studies are not so encouraging in their results, tending to find only a small positive impact if at all. Soloaga and Winters (1999), apply a gravity model to data on annual non-fuel imports for 58 countries for the years 1980-96, to quantify the effects on trade of

recently created or revamped RIAs. They modify the usual gravity equation to identify the separate effects of RIAs on intra-bloc trade, members' total imports, and members' total exports. They also formally test the significance of changes in the estimated coefficients before and after the blocs' formation.

Trade liberalization efforts in Latin America, had a positive impact on both imports and exports of bloc members (Andean Group, Central American Common market, Latin American integration Association, and MERCOSUR). MERCOSUR was the exception, with increased propensities to export being accompanied by a reduced propensity to import.

On the question of how these blocs performed with respect to trade, their estimates give no indication that regionalism boosted intra-bloc trade significantly.

In Africa several studies have been carried out on most African RIAs. Oyejide et al (1996), carried out a collaborative project that set out to assess the impacts of trade liberalization and regional integration in Sub-Saharan Africa. They found that following trade liberalization in the sample of African countries studied, there was a shift of resources away from import-substituting and non-tradeable sectors to the tradeables sector.

Following this two lessons were drawn, firstly, the volume of trade increased as well as the volume of exports (although modestly). Secondly some de-industrialization occurred in some countries. With regard to regional integration, the same study concludes that regional integration initiatives in Africa have not significantly increased intra-regional trade. It points out that African inter-group trade may not necessarily be low because of barriers to trade, but rather it may be intrinsically small.

Alemayehu and Kibret (2002), review the major issues in African economic integration. The paper looks at the history of RIAs in Africa, and identifies the challenges and opportunities that lie ahead.

Using COMESA as a case study, trade flows between its member countries is estimated. These results are then used as the basis for conclusions about the effectiveness of the bloc

and for making recommendations for what steps need to be taken to make African RIAs play a greater role in bringing about economic growth and development.

They use a gravity model to see what impact conventional determinants of bilateral trade as well as regional groupings have on intra-African trade flows.

Their model is specified as follows:

$$T_{ij} = \beta_0 + \beta_1(Y_i Y_j) + \beta_2[(Y C_i Y C_j)] + \beta_3 \text{Dist}_{ij} + \beta_4(\text{Area}_i \text{Area}_j) + \beta_5 |Y C_i - Y C_j| + [\beta_i \Sigma Z_i + \beta_j \Sigma Z_j]$$

Where T is bilateral trade between country i and country j.

Y is GNP, while YC is GNP per capita.

Z_i and Z_j are other relevant variables grouped under infrastructure (such as road length per 1000 people); Policy (such as FDI); Political (such as war); and Cultural and Geographic, (such as sharing a border). The above model is estimated using a tobit formulation, with estimates produced for both bilateral imports and exports.

The results show that almost all the standard gravity model variables have plausible and statistically significant coefficients. However the results also show that regional integration arrangements failed to positively impact intra-regional trade. Faced with the failure of African RIAs to stimulate trade, the authors review these arrangements and conclude that their performance is constrained by problems of differing levels of economic development among members; lack of political commitment; inequitable distribution of the gains and limited input from the private sector. The study is one of the most comprehensive that focuses on COMESA, is therefore a valuable point of departure for exploring related issues.

Ogunkola (1998), estimates the trade potential among the member states of ECOWAS. He seeks to answer two questions; first how trade among member states has evolved since the formation of the bloc, and second what is the long-term trade potential of the bloc. His study finds that ECOWAS has had no positive impact on intra-regional trade flows. However using ASEAN as a comparator, the study estimates that ECOWAS can

raise intra-regional exports from about 3.67% to about 22% of total exports. He recommends that a gradual approach to integration, as has been the case with ASEAN, is the best way forward.

The study employs a gravity model for estimation purposes. In order to capture potential trade flows, it compares pre-integration with post-integration trade matrices. In this approach it's the potential foreign goods supply and potential foreign goods demand, as well as trade impeding/promoting factors that are the main determinants of bilateral trade flow patterns.

Gunning (2002), looks at the economic effects of regional trade blocs on African economies. He paints a pessimistic picture of the relevance of these blocs. He argues that many of the potential benefits are not achieved because of the political tensions that build up following a divergence in how benefits accrue to member countries, which is often caused by the fact that these are South-South rather than North-South blocs. The paper takes the view that there should be more clarity on the objectives of these blocs, since many of the reasons given for their formation do not require the formation of a trade bloc.

Mengistae and Teal (1998), carried out a study to assess the effects of trade liberalization and regional integration on the performance of firms in the manufacturing sector, investigate the reasons for the low level of manufactured exports, and to identify the factors that limit the expansion of the sector.

Some of the principal questions the study posed were,

- i) What are the factors that influence the decision to export to their regional markets or to the world?
- ii) how have manufactured exports responded to real exchange rate depreciation?
- iii) what policy, resource or infrastructural constraints prevent firms from responding to the more liberal trade regimes now existing?

The study utilizes a sample of eight countries, which are Cote d'Ivoire, Ghana, Ethiopia, Kenya, Mauritius, Zambia and Zimbabwe. In respect of regional integration and its impact on manufactured exports, they find clear evidence that access to regional markets causes the volume of intra-regional exports of manufactures to expand. Among the

reasons they put forward to explain this are increased macroeconomic stability and the fact that manufactured exports are very sensitive to transport costs, and therefore benefit enormously from regional efforts to improve infrastructure. However they note that the gains to manufactured exports from regional integration are small and may be achievable using unilateral tariff reductions.

Other work has also been done, which although not touching directly on RIAs, does yield interesting results about non-traditional exports in Africa. Wangwe (1995) finds that import-substitution may be the way to eventual creation of export industries. The protection of some industries, allows them to build up capacity, by enabling them to grow, develop scale economies, and skills which they then use to venture into export markets successfully. He sights the case of Mauritius as a typical African example. This study therefore makes a case for protection as a viable strategy developing exports.

L.Bamou (2002) found that Cameroonian Exports in General and non-traditional ones in particular are constrained by tariff and non-tariff barriers, as well as inadequate national and international socioeconomic environment. She finds that export performances can be improved by among other things the reduction of both the number and level of taxes and duties.

Were et al (2002) set out to look the pattern of Kenya's exports and try to identify some of the factors that may explain this pattern. They begin by noting that the traditional markets for Kenya's exports, for example the European union (EU) are witnessing decline, as new markets, including African ones, begin to emerge. Also observed is that the share of manufactures in Kenya's exports are low. The paper sees trade liberalization as causing some sub-sectors, for example manufacturing, have seen their exports thrive, while others like coffee have suffocated. In this respect they caution that looking at aggregated export data can be quite misleading, because the specific responses from sectors may be overlooked. One of their important conclusions is that openness to trade through an export-led growth strategy, is the way forward especially because advances in

economic integration, like the enactment of COMESA, provide Kenya with an outlet for promotion of exports including non-traditional ones like manufactures.

2.3 Overview of the Literature

We see from the literature that movements towards free trade lead to an increase in both exports and imports for a country. According to the theory of comparative advantage the increase in exports will be for those goods in which a country is relatively better off in producing than its trading partner. The Heckscher-Ohlin (H-O), framework while analyzing the move from no trade to free trade for two countries, suggests that the relatively capital-rich country will export goods that are relatively capital-intensive to produce and vice-versa. Therefore in an RIA, we would expect that relatively capital-rich countries will export relatively capital-intensive goods, which we will term manufactures. Standard trade theory is the starting point for the analysis of the effects of regional integration on exports, by proposing that freer trade regimes are preferable to more closed ones. However because RIAs are a second best option to fully liberalized trade, their implications welfare depends on whether they lead to net trade creation or trade diversion as elucidated by Jacob Viner. The literature on the theoretical question of whether Regional trade blocs are welfare improving is ambiguous.

Overall the findings of empirical investigation into the economic ramifications of trade blocs paint a mixed picture. On the one hand, there is a lot of evidence that RIAs, impact positively on intra-group trade. Studies ranging from Frankel's (1994), to Yeats (1998), show increased trade. Blocs as diverse as the EU, NAFTA and ASEAN provide evidence of their positive impacts on trade and welfare. However in Africa, an altogether different picture emerges. In this region the performance of RIAs is unconvincing. Studies by Oyejide (1996), and Alemayehu and Kibret (2000), suggest that there is not yet any cause to celebrate.

An interesting pattern emerges where RIAs between rich partners i.e North-North, or a mix of rich and poor partners i.e North-South, produce good outcomes in terms of

increased trade and welfare. However groupings among LDCs, i.e South-South, perform poorly in almost all respects. The obvious conclusion is that not all partners are equal, and that RIAs with high-income countries are more likely to generate significant economic gains than are those with poorer ones.

The literature also reveals that there are other important factors in explaining the performance of exports. The real exchange rate, transport costs and whether the products are resource based or not, are important explanatory variables.

This study sets out to fill the information gap about the specific impact of COMESA on Kenya's manufactured exports, and add to the empirical analysis touching on African RIAs.

CHAPTER THREE

3.0 METHODOLOGY

3.1 The Gravity model of International Trade

The derivation of estimates was done using the gravity model of international trade.

The gravity model of international trade was developed independently by Tinbergen (1962) and Poyhonen (1968). In its basic form, the amount of trade between two countries is assumed to be increasing in their sizes, as measured by their national incomes, and decreasing in the cost of transport between them, as measured by the distance between their economic centers.

Linnemann (1966) included population as an additional measure of country size, employing an augmented gravity model. It is also common to instead specify the augmented model using per-capita income, which captures the same effects.

Whatever specification of the augmented model is used, the purpose is to allow for non-homothetic preferences in the importing country, and to proxy for the capital/labour ratio in the exporting country (Bergstrand, 1989).

While lacking micro-economic foundations, especially in its earlier versions, the basic Gravity model has been widely applied as a predictive model for estimating the level of trade between two countries, particularly when other control variables such as measures of the country's remoteness from major trading centers are added. Anderson (1989) made the first formal attempt to derive it. His model assumed product differentiation. Bergstrand did the same assuming monopolistic competition, while Helpman and Krugman (1985) motivated the gravity model on a differentiated product framework with increasing returns to scale. Deardoff (1995) has shown that this model characterises many models and is justified from standard trade theories. It has proven remarkably adept at

predicting observed trade flows and as such it has become the standard model used for this type of research.

3.2 The conventional formulation of the model

The gravity model is a popular formulation for statistical analyses of bilateral flows between different geographical entities.

It is derived from Newton's law of universal Gravitation, which held that the attractive force between two objects i and j is given by

$$F_{ij} = G \frac{(M_i^\alpha M_j^\beta)}{D_{ij}^\theta} \quad (1)$$

Where

F_{ij} is the attractive force.

M_i and M_j are the masses.

D_{ij} is the distance between the two objects.

G is a gravitational constant.

Roughly the same functional form could be applied to international trade flows.

$$F_{ij} = R_j \frac{(M_i M_j)}{D_{ij}^\theta} \quad (2)$$

Where

F_{ij} is the trade flow from origin i to destination j .

M_i and M_j are the relevant economic sizes of the two locations. These will be GDP and population sizes.

D_{ij} is the distance between the locations

R_j measures each importers set of alternatives and is usually assumed to be constant.

The theoretical explanation for GDP, population, and distance is that a larger GDP in country j creates a larger demand for imports and a larger GDP in country i creates a larger supply for exports.

The population size is assumed to proxy the physical size of the economy. It is also thought to have a negative effect on the openness of an economy. This negative effect is because of the greater self-sufficiency under assumptions of economies of scale and larger natural resource endowments.

Distance will hinder trade because the further away are two locations the greater the costs of transport.

The multiplicative nature of the gravity equation means that we can take natural logs and obtain a linear relationship between trade flows and the logged economy sizes and distances.

$$\ln F_{ij} = \alpha \ln M_i + \beta \ln M_j - \theta \ln D_{ij} + \rho \ln R_j + \epsilon_{ij} \quad (3)$$

In the General model, the volume of exports between pairs of countries X_{ij} , is a function of their incomes (GDPs), their populations, their geographical distance and a set of dummies,

$$X_{ij} = \beta_0 Y_i^{\beta_1} Y_j^{\beta_2} N_i^{\beta_3} N_j^{\beta_4} D_{ij}^{\beta_5} A_{ij}^{\beta_6} U_{ij} \quad (4)$$

Where

- $Y_i(Y_j)$ = GDP of the exporter(importer)
- $N_i(N_j)$ = the populations of the exporter(importer)
- D_{ij} = the distance between the two countries' capitals (or economic centers)
- A_{ij} = represents any other factors aiding or impeding trade between pairs of countries
- u_{ij} = a disturbance term which is normally distributed with zero mean and constant variance.

For estimation purposes, (4) in log-linear form for a single year, is expressed as,

$$\ln X_{ij} = \beta_0 + \beta_1 \ln Y_i + \beta_2 \ln Y_j + \beta_3 \ln N_i + \beta_4 \ln N_j + \beta_5 \ln D_{ij} + \beta_6 \text{COM} + \beta_7 \text{BOD} + U_{ij} \dots(5)$$

Where:

COM = is a trade dummy variable, which in our case will capture the fact whether the country being looked at is a member of COMESA or not.

Border = is a dummy variable that captures the effect of a country sharing a border with Kenya or not.

3.3 Estimation Procedure

Assuming that all the classical disturbance-term assumptions hold, then equation (5) is estimated by ordinary least squares (OLS) for each year.

In this type of study, a Panel Data analysis has two key advantages. Firstly it is used to disentangle the time invariant country-specific effects and secondly it can capture the relationships between the relevant variables over time.

Since individual effects are included in the regressions we have to decide whether they are treated as fixed or as random, therefore we test for whether it is appropriate to run a pooled model. If we find that we can run a pooled model, we then carry out a Hausman test to determine whether our model should be a Random effects model (REM) or fixed effects model (FEM).

A pooled regression amounts to estimating a model where for a given individual observations are serially uncorrelated, but across individuals and time the errors are homoscedastic.

$$Y_{it} = \alpha + \beta X_{it} + \epsilon_{it}, \text{ where } \epsilon_{it} \sim \text{iid}(0, \delta^2) \forall i, t \dots\dots\dots(6)$$

Hence the pooled data is estimated by equation (6), using OLS. Equation (6) can be decomposed further by separating the unit specific residuals in the error term.

From (6);

$$Y_{it} = \alpha + \beta X_{it} + \epsilon_{it},$$

and

$$\epsilon_{it} = \lambda_i + \pi_{it}$$

where λ_i is the individual effect and π_{it} is an error component. The assumptions made about the individual effects determine whether a REM or a FEM is used. For REM, λ_i is uncorrelated with x_{it} , but for FEM the two are correlated.

3.4 Data variables and expectations

Population.

The actual population for each trading partner will be used. A bigger Domestic demand reduces surplus for export (reducing potential exports), but it also means that local firms can produce more thereby exploiting economies of scale which help them to become competitive and comp ete abroad. Therefore the coefficient estimate for the population of the exporters, may be positive or negative depending on whether the country exports less when it is big (absorption effect), or whether a big country exports more than a small country (economies of scale). The coefficient of the importer population also has an ambiguous sign, for the same reasons. There will be no a priori expectation for this variable.

Distance

Distance is assumed to proxy transport costs. The further away are two centres, the higher is the cost of getting goods there. The distance between economic centers of the trading

countries will be the variable here. We expect that the closer the two economic centers, the larger will be the volume of trade

Economic output (GDP).

A high level of income in the exporting country indicates a high level of production, which increases the availability of goods for export. Similarly a high income in the importing country indicates that there is more disposable income available for spending on imports. So the GDP of the exporting country measures its productive capacity, while the GDP of the importing country measures its absorptive capacity.

COMESA dummy.

A dummy variable, that captures the effect of the COMESA trading bloc. It takes the value of 1 when a country is a member state of COMESA, and 0 otherwise.

We expect that membership in this bloc will lead to an increase in the volume of manufactured exports from Kenya.

Border dummy.

A dummy variable, that captures the effect of the Kenya sharing a border with one of its trading partners. It takes the value of 1 when a country borders Kenya, and 0 otherwise.

This variable is included on the grounds that neighbouring countries tend to share the same kind of languages, similar laws, shared institutions, and other affinities that facilitate increased trade. For example Uganda and Sudan both have a common border with Kenya. Ugandan communities could buy consumables found in shops on the Kenyan side, while Kenyan Millers will find it easy to buy cheap Ugandan grain which can be processed in Kenya for sale in the local market. In the case of Sudan pastoral communities living on either side could trade cattle especially in times of drought. But this could also work in reverse whereby warring tribes may hinder trade.

We expect that sharing a common border with one of its trading partners will lead to an increase in the volume of manufactured exports from Kenya to that country.

3.5 Hypothesis to be tested

The study tests the hypothesis that:

H₀: Being a member state of COMESA has led to an increase in the recorded value of Kenya's manufactured exports.

H₁: Otherwise

3.6 The Data

The study utilizes comparatively recent data, which spans from 1994-2001. So our panel runs for eight years. The export data is taken from the records kept by the Customs Department of the Kenya Revenue Authority (KRA).

Our sample of countries consists of twenty five countries. These are selected on the basis of their importance in Kenya's trade and also their relationship with COMESA. A balance is maintained between COMESA and non-COMESA states, so that the sample does not end up being biased.

The distance variable is measured as the great circle distance between the capital cities of the trading pairs. The estimate is measured in Kilometres.

Population and GDP figures are obtained from the World Bank's World Development Indicators.

Other data is collected from Kenya's Economic surveys and Statistical abstracts, as well as from Ministries and other relevant institutions.

3.7 Limitations of the study

Because Kenya is a member of more than one trading bloc, the impact of overlapping trade is likely to be significant. The non-inclusion of this aspect will mean that results will miss out an important aspect of the trade in manufactures. Also the limited time period that the COMESA treaty has been in force may lead us to draw conclusions based on results that are transitory.

CHAPTER FOUR

4.0 ESTIMATION RESULTS AND DISCUSSION

4.1 The results

Model Selection.

Before we can run our regressions using panel data, we must test to see whether our data set is suited to this type of manipulation. We run regressions based on pooled data, a REM and a FEM.

Test for whether to use a Pooled regression.

The reason for doing this test is to determine whether or not we should run one regression for all countries, or perform separate regressions for each country. We use the Wald test which is a chi-sq test.

At the 1% level of significance:

Calculated chi-sq(7)= 37.05

Critical value of chi-sq(7)= 18.475

Since the calculated value is greater than the critical value we can run a pooled regression.

Test for whether to use a REM or a FEM.

After finding that we can run a pooled regression, the next step is to determine whether a REM or a FEM is the correct specification for running a pooled regression. The way we do this is by using the Hausmann test, which is also a chi-sq test. It is premised on the null hypothesis of there being no systematic differences in the coefficients. The procedure is to compare the calculated chi-sq value with a critical chi-sq value.

In our case at the 1% level of significance:

Calculated value of $\chi^2(5) = 20.28$

Critical value of $\chi^2(5) = 15.08$

Since the calculated value is greater than the critical value, we reject the null hypothesis and conclude that there are no systematic differences in coefficients.

Hence the FEM is the most appropriate model for the analysis.

A problem faced with FEM is that we cannot directly estimate variables that do not change over time. This is because the inherent transformation wipes out such variables. These variables were estimated in a second step, by running another regression with the country-pair individual effects as the dependent variable and distance and the border dummy as explanatory variables.

$$IE_{ij} = \alpha_0 + \alpha_1 \text{Dist}_{ij} + \alpha_2 \text{BOD} + \mu_i$$

Where IE denotes individual effects, Dist is distance and BOD is a dummy taking the value of one for a pair of countries sharing a border and zero otherwise.

Below we report the results from the two regressions. Note that in the Cross-section regression we obtain a very low R^2 coefficient. This means that there are other determinants of the trading-pair effects which are different from the ones included in the analysis.

Table 4.1 Regression results for the Fixed effects model

Variables	Coefficient	Standard error	t-statistic	Significance
Constant	-19.50428	9.087977	-2.146	0.033
Kenya population	7.195412	4.296028	1.675	0.096
Importer population	8.062533	1.959986	4.114	0.000

Kenya GDP	-6.791027	2.5809	-2.631	0.009
Importer GDP	-1.122309	0.6083079	-1.845	0.067
COMESA dummy	0.1973013	0.9963635	0.198	0.843

R2=0.0235

No. of Observations=200

Hausmann test (χ^2 ,
degrees of freedom in
brackets) = 20.28(5)

Table 4.2. Cross-section regressions. Individual effects regressed over distance and border dummy.

Variables	Coefficient	Standard error	t-statistic	Significance
Constant	-77.80982	44.51936	-1.748	0.094
Distance	0.0017172	0.008508	0.202	0.842
Border dummy	54.89743	71.07504	0.772	0.448

R2 = 0.0268

RSS=320449.724

No. of

Observations=25

4.2 Interpretation of the results

Population of Kenya.

The coefficient of population of Kenya is positive and significant at the 10% level.

There is a strong effect from Kenya's population on its exports of manufactured goods.

A 1% increase in Kenya's GDP will increase Kenya's manufactured exports by 7.2%.

This result is reasonable on theoretical grounds. Within its region Kenya is a relatively

large country. This means it has a more people who have disposable income and who

therefore can demand goods. Since most of Kenya's manufactured exports are consumer

goods, we can surmise that The Kenyan industries that produce these goods have benefited from this and grown their industries. This has allowed them to exploit economies of scale, and they now have an excess of goods which they would like to sell abroad.

Population of Importing Countries

The importer population has a large and positive effect on exports. A 1% increase in Importer population leads to a 8.1% increase in Kenyan manufactured exports. This can be explained by the fact that the larger the effective demand in an importing country the greater is the potential for Kenya's exports to that market.

Economic Output of Kenya.

The economic output of Kenya as measured by its GDP, is negative and significant at the 1% level. A 1% increase in Kenya's GDP reduces it's exports of manufactured goods by 6.8 %. This result is not in line with theory, as we expect that a higher GDP means more goods are produced for export.

However we can explain this by noting that Kenya's economy is dominated by primary production. Indeed our major exports are tea, coffee and horticultural products. Quite simply economic production is driven by primary production. As such increased growth will be in these sectors and it could cause a form of 'dutch disease' where resources are drawn from manufacturing into the growing sector of the economy.

Economic Output of Importer countries.

The economic output of importing countries as measured by their GDPs is negative and significant at the 10% level. Theory predicts that the coefficient should be positive. This result is however well established in the literature especially for African exports. Rasken (1998), notes that African exports going to rich countries may have low income elasticities meaning they do not respond strongly to rising GDPs in those countries.

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In Kenya's case we could explain this phenomenon by suggesting that Kenyan manufactures are not what the importers are 'looking for'. Our manufacturing sector was born in the days of Import-Substitution Industrialization and grew under a protective trade regime. They are not yet world class and for that reason their products may not yet be competitive in terms of variety and quality.

COMESA dummy.

The coefficient is positive and thus we can say that being a COMESA member leads to an increase in the amount of exports. Infact it shows that Kenyas exports of manufactures is 22% higher [$\exp(0.197)=1.22$], than what they would be without COMESA. However the coefficient is not significant .

As already mentioned, a fixed effects regression will drop the variables whose values are not changing over time. In our case these are distance and the border dummy. A cross section regression is carried out to obtain estimates for these two variables. The results are reported in table 4.2.

Distance

The coefficient of this variable is barely positive, suggesting that distance has no major bearing on the destination of Kenyan manufactured exports. This is a surprising result considering that theoretically, distance is thought to be a major hindrance to trade.

However we can explain this by remembering that those of Kenya's trading partners who are relatively near to her happen to be African countries. The record will show that African countries tend to have rudimentary transport and communication infrastructures. This could easily negate the advantage they have of being relatively close to Kenya.

In addition the high incidence of instability in Africa, could mean that these markets are risky to access, which would act as a dis-incentive to exporters.

Border

This dummy is positive. This means that sharing a border with an importing country boosts Kenya's manufactured exports. This is what theory predicts and is in line with our expectations. Countries that border one another often have political and socio-cultural ties that are deep and historical. Things like shared language and cultural affinity, are likely to facilitate trade and as such play an important role in explaining trade flows.

CHAPTER FIVE

5.0 Research findings and policy implications

5.1 Summary of the findings

The purpose of this study was to find what impact COMESA is having on Kenya's exports of manufactures. This was done within the framework of a generalized gravity model that explicitly included a dummy variable to capture the impact of the trading bloc.

The empirical results presented in chapter four show that in the short time COMESA has been in existence, its impact on manufactured exports has been limited. These results were derived within the assumption that trade can generally be predicted by allowing for factors that inhibit or facilitate trade. By controlling for these variables and then introducing an empirical measure for COMESA, the study set out to decompose the determinants of Kenya's exports of manufactures.

The measures for economic size and openness are all large and significant. The population size parameter for both Kenya and importer countries is positive. This means that a bigger population size has a big positive impact on these exports.

However the estimates also showed that a larger GDP for Kenya and the importer cause exports to decline. These results suggest that the structure of Kenya's economy is still not geared towards an industrial direction. The implication is that exports of primary products are the ones which respond to income growth in foreign countries and which drive income growth at home. Also the fact that bigger GDPs in importer countries does not stimulate export of manufactures suggests that we are producing the goods that the market is 'not looking for'.

The two variables that proxied the ease of doing business were distance and sharing a common border. Both positively impacted on exports but neither one was significant in the regression. Although we expected a common border to positively impact on

manufactured exports, it was surprising that distance didn't have a strong negative impact.

The COMESA variable had the expected sign, with this trade bloc having a positive impact on exports, but again the coefficient proved insignificant. The implication is that while COMESA is giving a boost to these exports, it is not yet one of the driving forces behind Kenyan manufactured exports.

5.3 Policy Recommendations

The results of the study suggest that COMESA could yet prove to be a major market for manufactures from Kenya. However it is also clear that this has not yet happened. As the economy grows there is not a corresponding growth in export of manufactures. This is worrying, since substantive transformation from an agricultural based economy to an industrial one is key for the country's development. The Kenyan government needs to formulate interventions that will improve prospects for manufactures within COMESA. The export sector needs to be given further incentives, apart from preferential access to regional markets. Perhaps the most important one is to exploit the relatively smaller distances to member states by improving regional infrastructure. The Kenya Government in partnership with other COMESA states, should prioritize cooperation in infrastructural development. Better roads, telephone lines and ports are a prerequisite for increased regional trade.

Kenyan policy-makers also need to look at the structure of our economy and try to give incentives to Manufacturers so that they can produce a greater variety of goods for export. More research and development as well as increased FDI in the sector could lead to the production of more diversified and attractive product lines. This will make Kenyan manufactures more competitive on the world market.

5.4 Areas for further research

The study has shown that there is plenty of room for investigation into how exactly the standard gravity variables influence exports of Kenyan manufactures. What impact an improvement in the general infrastructure, for example in roads, telecommunications, and railways would have on these exports is another promising area. A more indepth study of COMESA, including what role macro-economic coordination and exchange rate policy has on exports will be very welcome.

The study investigated the current trade in manufactured exports. Another study looking at the potential trade in manufactures as well as other goods should be carried out.

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APPENDIX 1. Intra-COMESA total trade, 1997 to 2001.

Year	1997	1998	1999	2000	2001
Country					
Angola	56,760,424	64,646,854	57,147,081	70,038,337	98,188,337
Burundi	26,205,299	28,220,615	23,287,964	24,933,972	58,727,337
Comoros	5,604,081	5,232,774	4,023,127	5,127,096	3,705,337
Djibouti	71,033,306	73,856,749	64,204,086	77,515,561	83,286,337
DR Congo	105,883,018	113,250,223	98,979,177	140,984,862	112,767,337
Egypt	175,408,337	156,230,561	179,081,200	237,879,409	304,853,337
Eritrea	2,687,510	8,807,992	4,599,372	7,986,306	1,672,337
Ethiopia	111,876,736	108,046,034	102,047,632	102,795,272	115,584,337
Kenya	697,175,844	657,744,928	612,233,868	673,104,801	792,543,337
Madagascar	56,616,636	51,935,323	68,749,674	82,517,682	39,725,337
Mauritius	129,666,984	149,797,588	140,284,863	155,568,337	186,485,337
Malawi	154,266,778	122,639,844	131,866,230	94,422,876	136,980,337
Namibia	65,108,832	156,620,180	58,874,291	75,288,377	98,705,337
Rwanda	129,356,876	88,547,153	80,029,399	63,720,317	172,198,337
Seychelles	14,998,065	12,683,110	16,168,392	14,916,652	15,219,337
Sudan	13,715,046	29,721,390	12,055,826	154,424,146	152,491,337
Swaziland	33,758,654	36,514,065	33,981,129	71,610,757	51,869,337
Uganda	363,783,967	334,336,708	222,222,116	229,722,968	393,793,337
Zambia	174,001,442	272,458,502	188,652,192	240,291,261	227,076,337
Zimbabwe	340,762,541	326,798,392	258,441,264	255,664,282	153,176,337
Total	2,728,670,376	2,798,088,985	2,356,928,883	2,778,513,271	3,199,053,337

Values in US\$

Source: COMESA in brief.

APPENDIX 2. The Pooled Regression.

```
. xtreg lexports lpopk lpopi lgdpk lgdpi ldist comesa border, pa
```

Iteration 1: tolerance = .44604023

Iteration 2: tolerance = .03035739

Iteration 3: tolerance = .00190602

Iteration 4: tolerance = .00011807

Iteration 5: tolerance = 7.308e-06

Iteration 6: tolerance = 4.523e-07

GEE population-averaged

```
model                      Number of obs   =   200
Group variable:           countrysn      Number of groups =    25
Link:                      identity      Obs per group: min =    8
Family:                    Gaussian          avg =    8.0
Correlation:              exchangeable      max =    8
                          Wald chi2(7)      =   37.05
Scale parameter:          2.779359      Prob > chi2      =   0.0000
```

```
-----+-----
lexports |   Coef.  Std. Err.      z    P>|z|    [95% Conf. Interval]
-----+-----
 lpopk |  10.76657  4.46081    2.414  0.016    2.023545   19.5096
 lpopi |   .0709965 .2331108    0.305  0.761   -0.3858923   .5278852
 lgdpk |  -5.761256  2.753213   -2.093  0.036   -11.15745   -3.650581
 lgdpi |   .539781  .2430316    2.221  0.026    .0634478   1.016114
 ldist |  -2.023015  .7130253   -2.837  0.005   -3.420519   -.6255108
 comesa |   .4145385  .7750034    0.535  0.593   -1.10444   1.933517
```

```
border | 1.297157 .9269326 1.399 0.162 -.5195975 3.113912
_cons | 1.991446 10.95797 0.182 0.856 -19.48578 23.46867
```

APPENDIX 3. The Random Effects Regression

```
xtreg lexports lpopk lpopi lgdpk lgdpi ldist comesa border, re
```

```
Random-effects GLS regression           Number of obs   =    200
```

```
Group variable (i) : countryn          Number of groups =    25
```

```
R-sq: within = 0.0333                   Obs per group: min =    8
```

```
      between = 0.5553                   avg =    8.0
```

```
      overall = 0.4038                   max =    8
```

```
Random effects u_i ~ Gaussian           Wald chi2(7)    =   28.90
```

```
corr(u_i, X) = 0 (assumed)              Prob > chi2     =   0.0002
```

lexports	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
-----+-----						
lpopk	10.76768	4.332187	2.486	0.013	2.276751	19.25861
lpopi	.1390225	.2699472*	0.515	0.607	-.3900644	.6681094
lgdpk	-5.759096	2.673151	-2.154	0.031	-10.99838	-.5198162
lgdpi	.4683761	.2718355	1.723	0.085	-.0644117	1.001164
ldist	-1.876636	.8187977	-2.292	0.022	-3.48145	-.2718221
comesa	.3952671	.8146198	0.485	0.628	-1.201358	1.991893
border	1.336805	1.075381	1.243	0.214	-.7709033	3.444513
_cons	.8574588	11.18413	0.077	0.939	-21.06304	22.77796
-----+-----						

```
sigma_u | 1.268805
```

```
sigma_e | 1.1590676
```

rho | .54510683 (fraction of variance due to u_i)

APPENDIX 4. The Fixed Effects Regression

. xtreg lexports lpopk lpopi lgdpk lgdpi ldist comesa border, fe

Fixed-effects (within) regression Number of obs = 200

Group variable (i) : countryn Number of groups = 25

R-sq: within = 0.1299 Obs per group: min = 8

 between = 0.0300 avg = 8.0

 overall = 0.0235 max = 8

F(5,170) = 5.08

corr(u_i, Xb) = -0.9849 Prob > F = 0.0002

lexports	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
lpopk	7.195412	4.296028	1.675	0.096	-1.285019	15.67584
lpopi	8.062533	1.959986	4.114	0.000	4.193488	11.93158
lgdpk	-6.791027	2.5809	-2.631	0.009	-11.88577	-1.696289
lgdpi	-1.122309	.6083079	-1.845	0.067	-2.323119	.0785008
ldist	(dropped)					
comesa	.1973013	.9963635	0.198	0.843	-1.769537	2.164139
border	(dropped)					
_cons	-19.50428	9.087977	-2.146	0.033	-37.4441	-1.564458

sigma_u | 10.67344

sigma_e | 1.1590676

rho | .98834487 (fraction of variance due to u_i)

F test that all $u_i=0$: $F(24,170) = 9.27$ $\text{Prob} > F = 0.0000$

APPENDIX 5. The Hausman test and Cross-section regression

HAUSMAN TEST

. xthaus

Hausman specification test

---- Coefficients ----

	Fixed	Random	
lexports	Effects	Effects	Difference
lpopk	7.195412	10.76768	-3.57227
lpopi	8.062533	.1390225	7.923511
lgdpk	-6.791027	-5.759096	-1.031931
lgdpi	-1.122309	.4683761	-1.590685
comesa	.1973013	.3952671	-.1979658

Test: Ho: difference in coefficients not systematic

$$\chi^2(5) = (b-B)'[S^{-1}](b-B), S = (S_{fe} - S_{re})$$

$$= 20.28$$

$$\text{Prob} > \chi^2 = 0.0011$$

THE CROSS-SECTION REGRESSION: for distance and adjacency.

reg ieffect distance border

Source	SS	df	MS	Number of obs =	25
-----+-----				F(2, 22) =	0.30
Model	8824.39253	2	4412.19627	Prob > F	= 0.7417
Residual	320449.724	22	14565.8965	R-squared	= 0.0268
-----+-----				Adj R-squared =	-0.0617
Total	329274.116	24	13719.7548	Root MSE	= 120.69

ieffect	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
-----+-----						
distance	.0017172	.008508	0.202	0.842	-.0159273	.0193618
border	54.89743	71.07504	0.772	0.448	-92.50317	202.298
_cons	-77.80982	44.51936	-1.748	0.094	-170.1373	14.51769

APPENDIX 6. Data used in the regression

COUNTRY	CountryN	YEAR	EXPORTS	POPK	POPI	GDPK	GDPI	DISTANCE	COMESA	BORDER
Angola	1	1994	1877	26.2857 1	10.5	8.58571 4	2.9	2739	1	0
Angola	1	1995	18580	27	11	9.1	3.7	2739	1	0
Angola	1	1996	29592	27	11	8.7	3	2739	1	0
Angola	1	1997	7208	29	12	9.7	3	2739	1	0
Angola	1	1998	2988	29	12	10.2	4.6	2739	1	0
Angola	1	1999	20904	29	12	10.7	3.3	2739	1	0
Angola	1	2000	5295	30	13	10.6	3.8	2739	1	0
Angola	1	2001	5470	31	14	10.7	6.7	2739	1	0
Burundi	2	1994	145968	26.2857 1	5.5	8.58571 4	1.18	859	1	0
Burundi	2	1995	124738	27	6	9.1	1.06	859	1	0
Burundi	2	1996	84836	27	6	8.7	1.1	859	1	0
Burundi	2	1997	153802	29	6	9.7	0.9	859	1	0
Burundi	2	1998	89061	29	7	10.2	0.9	859	1	0
Burundi	2	1999	147390	29	7	10.7	0.8	859	1	0
Burundi	2	2000	175019	30	7	10.6	0.7	859	1	0
Burundi	2	2001	297979	31	7	10.7	0.7	859	1	0
Comoroti	3	1994	16501	26.2857 1	0.612 857	8.58571 4	0.511	1593	1	0
Comoroti	3	1995	14226	27	0.6	9.1	0.498	1593	1	0
Comoroti	3	1996	8928	27	0.62	8.7	0.481	1593	1	0
Comoroti	3	1997	47348	29	0.64	9.7	0.478	1593	1	0
Comoroti	3	1998	7195	29	0.65	10.2	0.481	1593	1	0
Comoroti	3	1999	24144	29	0.6	10.7	0.491	1593	1	0
Comoroti	3	2000	16259	30	0.7	10.6	0.495	1593	1	0
Comoroti	3	2001	180729	31	0.6	10.7	0.4	1593	1	0
Congo	4	1994	277872	26.2857 1	42.57 143	8.58571 4	5.657142 86	2411	1	0
Congo	4	1995	257728	27	44	9.1	5	2411	1	0
Congo	4	1996	348681	27	45	8.7	5.7	2411	1	0
Congo	4	1997	344978	29	47	9.7	5.2	2411	1	0
Congo	4	1998	374166	29	48	10.2	5.4	2411	1	0
Congo	4	1999	285525	29	50	10.7	5.1	2411	1	0
Congo	4	2000	616179	30	51	10.6	4.9	2411	1	0
Congo	4	2001	921467	31	52	10.7	4.2	2411	1	0
Egypt	5	1994	12975	26.2857 1	56.57 143	8.58571 4	44.44285 71	3531	1	0
Egypt	5	1995	59372	27	58	9.1	47.3	3531	1	0

Egypt	5	1996	62661	27	59	8.7	64.3	3531	1	0
Egypt	5	1997	949	29	60	9.7	72.2	3531	1	0
Egypt	5	1998	575	29	61	10.2	79.2	3531	1	0
Egypt	5	1999	1913	29	63	10.7	86.5	3531	1	0
Egypt	5	2000	2970	30	64	10.6	95.4	3531	1	0
Egypt	5	2001	56704	31	65	10.7	99.6	3531	1	0
Eritrea	6	1994	1	26.2857 1	3.428 571	8.58571 4	0.8	1860	1	0
Eritrea	6	1995	1	27	3	9.1	0.6	1860	1	0
Eritrea	6	1996	11709	27	4	8.7	0.9	1860	1	0
Eritrea	6	1997	12685	29	4	9.7	0.9	1860	1	0
Eritrea	6	1998	14148	29	4	10.2	0.8	1860	1	0
Eritrea	6	1999	25937	29	4	10.7	0.8	1860	1	0
Eritrea	6	2000	74548	30	4	10.6	0.7	1860	1	0
Eritrea	6	2001	63062	31	4	10.7	0.7	1860	1	0
Ethiopia	7	1994	1135176	26.2857 1	54.71 429	8.58571 4	5.471428 57	1165	1	1
Ethiopia	7	1995	1619420	27	56	9.1	5.3	1165	1	1
Ethiopia	7	1996	979796	27	58	8.7	6	1165	1	1
Ethiopia	7	1997	832820	29	60	9.7	6.5	1165	1	1
Ethiopia	7	1998	529627	29	61	10.2	6.2	1165	1	1
Ethiopia	7	1999	258818	29	63	10.7	6.5	1165	1	1
Ethiopia	7	2000	412861	30	64	10.6	6.7	1165	1	1
Ethiopia	7	2001	469939	31	66	10.7	6.7	1165	1	1
Malawi	8	1994	72974	26.2857 1	9.857 143	8.58571 4	1.814285 71	1451	1	0
Malawi	8	1995	74231	27	10	9.1	1.5	1451	1	0
Malawi	8	1996	149408	27	10	8.7	1.8	1451	1	0
Malawi	8	1997	168755	29	10	9.7	2.1	1451	1	0
Malawi	8	1998	192313	29	11	10.2	2.2	1451	1	0
Malawi	8	1999	144013	29	11	10.7	2	1451	1	0
Malawi	8	2000	43003	30	10	10.6	1.7	1451	1	0
Malawi	8	2001	199773	31	11	10.7	1.7	1451	1	0
Mauritius	9	1994	459602	26.2857 1	1	8.58571 4	3.957142 86	3074	1	0
Mauritius	9	1995	388034	27	1	9.1	3.9	3074	1	0
Mauritius	9	1996	504555	27	1	8.7	4.2	3074	1	0
Mauritius	9	1997	706984	29	1	9.7	4.4	3074	1	0
Mauritius	9	1998	238311	29	1	10.2	4.3	3074	1	0
Mauritius	9	1999	34427	29	1	10.7	4.2	3074	1	0
Mauritius	9	2000	53074	30	1	10.6	4.4	3074	1	0
Mauritius	9	2001	73418	31	1	10.7	4.6	3074	1	0
Nigeria	10	1994	8345	26.2857 1	108.4 286	8.58571 4	34.15714 29	3481	0	0
Nigeria	10	1995	7191	27	111	9.1	40	3481	0	0
Nigeria	10	1996	1690	27	115	8.7	27.6	3481	0	0
Nigeria	10	1997	2058	29	118	9.7	33.4	3481	0	0
Nigeria	10	1998	792	29	121	10.2	36.4	3481	0	0
Nigeria	10	1999	6767	29	124	10.7	31.6	3481	0	0
Nigeria	10	2000	171483	30	127	10.6	32.7	3481	0	0
Nigeria	10	2001	119931	31	130	10.7	37.1	3481	0	0
Rwanda	11	1994	479602	26.2857 1	6	8.58571 4	1.114285 71	753	1	0
Rwanda	11	1995	274866	27	6	9.1	1.1	753	1	0

Rwanda	11	1996	542072	27	7	8.7	1.3	753	1	0
Rwanda	11	1997	882363	29	8	9.7	1.7	753	1	0
Rwanda	11	1998	607007	29	8	10.2	1.9	753	1	0
Rwanda	11	1999	486393	29	8	10.7	2	753	1	0
Rwanda	11	2000	386387	30	9	10.6	2	753	1	0
Rwanda	11	2001	454656	31	9	10.7	1.9	753	1	0
S.Africa	12	1994	20612	26.28571	38.85714	8.585714	137.971429	2872	0	0
S.Africa	12	1995	83092	27	41	9.1	136	2872	0	0
S.Africa	12	1996	51258	27	38	8.7	132.5	2872	0	0
S.Africa	12	1997	97998	29	41	9.7	130.2	2872	0	0
S.Africa	12	1998	77018	29	41	10.2	136.9	2872	0	0
S.Africa	12	1999	49549	29	42	10.7	133.6	2872	0	0
S.Africa	12	2000	124803	30	43	10.6	129.2	2872	0	0
S.Africa	12	2001	82174	31	43	10.7	121.9	2872	0	0
Sudan	13	1994	328644	26.28571	25.42857	8.585714	6.38571429	1934	1	1
Sudan	13	1995	240639	27	27	9.1	7	1934	1	1
Sudan	13	1996	151335	27	27	8.7	7.9	1934	1	1
Sudan	13	1997	160896	29	28	9.7	7.9	1934	1	1
Sudan	13	1998	358819	29	28	10.2	8.2	1934	1	1
Sudan	13	1999	297538	29	29	10.7	9.4	1934	1	1
Sudan	13	2000	184964	30	31	10.6	9.6	1934	1	1
Sudan	13	2001	343948	31	32	10.7	10.7	1934	1	1
Tanzania	14	1994	2250137	26.28571	28.85714	8.585714	3.22857143	671	1	1
Tanzania	14	1995	3376320	27	30	9.1	3.6	671	1	1
Tanzania	14	1996	4683778	27	30	8.7	5.2	671	1	1
Tanzania	14	1997	4298391	29	31	9.7	6.6	671	1	1
Tanzania	14	1998	2930838	29	32	10.2	7.2	671	1	1
Tanzania	14	1999	1802243	29	33	10.7	8.5	671	1	1
Tanzania	14	2000	2202303	30	34	10.6	9	671	0	1
Tanzania	14	2001	3168666	31	34	10.7	9.4	671	0	1
Uganda	15	1994	5154614	26.28571	18.42857	8.585714	5.87142857	520	1	1
Uganda	15	1995	4949878	27	19	9.1	5.6	520	1	1
Uganda	15	1996	5454625	27	20	8.7	5.8	520	1	1
Uganda	15	1997	4858920	29	20	9.7	6.6	520	1	1
Uganda	15	1998	4877150	29	21	10.2	6.6	520	1	1
Uganda	15	1999	4405429	29	21	10.7	6.8	520	1	1
Uganda	15	2000	5464856	30	22	10.6	6.7	520	1	1
Uganda	15	2001	5492635	31	23	10.7	5.9	520	1	1
Zambia	16	1994	47574	26.28571	8.714286	8.585714	3.82857143	1828	1	0
Zambia	16	1995	43932	27	9	9.1	4	1828	1	0
Zambia	16	1996	39764	27	9	8.7	3.4	1828	1	0
Zambia	16	1997	91452	29	9	9.7	3.5	1828	1	0
Zambia	16	1998	86988	29	10	10.2	3.2	1828	1	0
Zambia	16	1999	31578	29	10	10.7	3.2	1828	1	0
Zambia	16	2000	37359	30	10	10.6	3	1828	1	0
Zambia	16	2001	100895	31	10	10.7	3.3	1828	1	0
Zimbabwe	17	1994	115393	26.28571	10.28571	8.585714	7.38571429	1928	1	0
Zimbabwe	17	1995	45453	27	11	9.1	6.5	1928	1	0

Zimbabwe	17	1996	122464	27	11	8.7	6.8	1928	1	0
Zimbabwe	17	1997	229635	29	11	9.7	8.2	1928	1	0
Zimbabwe	17	1998	187306	29	12	10.2	7.2	1928	1	0
Zimbabwe	17	1999	61096	29	12	10.7	6.3	1928	1	0
Zimbabwe	17	2000	69699	30	13	10.6	5.9	1928	1	0
Zimbabwe	17	2001	38810	31	13	10.7	6.2	1928	1	0
Germany	18	1994	61326	26.2857 1	82	8.58571 4	2519.357 14	6366	0	0
Germany	18	1995	55280	27	82	9.1	2415.7	6366	0	0
Germany	18	1996	76829	27	82	8.7	2364.6	6366	0	0
Germany	18	1997	73493	29	82	9.7	2321	6366	0	0
Germany	18	1998	32112	29	82	10.2	2179.8	6366	0	0
Germany	18	1999	26153	29	82	10.7	2103.8	6366	0	0
Germany	18	2000	39353	30	82	10.6	2063.7	6366	0	0
Germany	18	2001	66423	31	82	10.7	1939.6	6366	0	0
India	19	1994	165312	26.2857 1	910.7 143	8.58571 4	300.3428 57	5436	0	0
India	19	1995	139413	27	929	9.1	324	5436	0	0
India	19	1996	245764	27	945	8.7	357.8	5436	0	0
India	19	1997	367731	29	962	9.7	357.2	5436	0	0
India	19	1998	211951	29	980	10.2	427.4	5436	0	0
India	19	1999	209940	29	998	10.7	441.8	5436	0	0
India	19	2000	200217	30	1016	10.6	454.8	5436	0	0
India	19	2001	331908	31	1032	10.7	477	5436	0	0
Italy	20	1994	477629	26.2857 1	57	8.58571 4	1119.442 86	5371	0	0
Italy	20	1995	365666	27	57	9.1	1086.9	5371	0	0
Italy	20	1996	372118	27	57	8.7	1140.5	5371	0	0
Italy	20	1997	350133	29	58	9.7	1160.4	5371	0	0
Italy	20	1998	256753	29	58	10.2	1157	5371	0	0
Italy	20	1999	137561	29	58	10.7	1162.9	5371	0	0
Italy	20	2000	195338	30	58	10.6	1163.2	5371	0	0
Italy	20	2001	107717	31	58	10.7	1123.8	5371	0	0
Japan	21	1994	20383	26.2857 1	125	8.58571 4	5147.028 57	11249	0	0
Japan	21	1995	22431	27	125	9.1	5108.5	11249	0	0
Japan	21	1996	16444	27	126	8.7	5149.2	11249	0	0
Japan	21	1997	16104	29	126	9.7	4812.1	11249	0	0
Japan	21	1998	9740	29	126	10.2	4089.1	11249	0	0
Japan	21	1999	13547	29	127	10.7	4054.5	11249	0	0
Japan	21	2000	17801	30	127	10.6	4519.1	11249	0	0
Japan	21	2001	17980	31	127	10.7	4523.3	11249	0	0
Netherlands	22	1994	48789	26.2857 1	15.42 857	8.58571 4	401	6663	0	0
Netherlands	22	1995	38154	27	15	9.1	395.5	6663	0	0
Netherlands	22	1996	39503	27	16	8.7	402.6	6663	0	0
Netherlands	22	1997	104252	29	16	9.7	403.1	6663	0	0
Netherlands	22	1998	73219	29	16	10.2	389.1	6663	0	0
Netherlands	22	1999	65152	29	16	10.7	397.4	6663	0	0
Netherlands	22	2000	94111	30	16	10.6	397.5	6663	0	0
Netherlands	22	2001	116358	31	16	10.7	390.3	6663	0	0
China	23	1994	308743	26.2857 1	38.42 857	8.58571 4	549.5857 14	6183	0	0
China	23	1995	148211	27	39	9.1	558.6	6183	0	0

Spain	23	1996	111306	27	39	8.7	563.2	6183	0	0
Spain	23	1997	62873	29	39	9.7	569.6	6183	0	0
Spain	23	1998	38714	29	39	10.2	555.2	6183	0	0
Spain	23	1999	37297	29	39	10.7	583.1	6183	0	0
Spain	23	2000	71734	30	39	10.6	595.3	6183	0	0
Spain	23	2001	44456	31	41	10.7	588	6183	0	0
UK	24	1994	546427	26.2857 1	58.85 714	8.58571 4	1027.614 29	6816	0	0
UK	24	1995	148100	27	59	9.1	1105.8	6816	0	0
UK	24	1996	187902	27	59	8.7	1152.1	6816	0	0
UK	24	1997	216302	29	59	9.7	1231.3	6816	0	0
UK	24	1998	144268	29	59	10.2	1264.3	6816	0	0
UK	24	1999	92849	29	60	10.7	1403.8	6816	0	0
UK	24	2000	147929	30	60	10.6	1459.5	6816	0	0
UK	24	2001	109630	31	59	10.7	1476.8	6816	0	0
USA	25	1994	267617	26.2857 1	257.2 857	8.58571 4	6344.942 86	12131	0	0
USA	25	1995	170943	27	263	9.1	6952	12131	0	0
USA	25	1996	287938	27	265	8.7	7433.5	12131	0	0
USA	25	1997	239678	29	268	9.7	7783.1	12131	0	0
USA	25	1998	299857	29	270	10.2	7903	12131	0	0
USA	25	1999	179327	29	278	10.7	8879.5	12131	0	0
USA	25	2000	222262	30	282	10.6	9601.5	12131	0	0
USA	25	2001	299587	31	285	10.7	9780.8	12131	0	0

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