TRADE WITHIN AFRICA: A THEORETICAL AND EMPIRICAL ANALYSIS OF INTRA-AFRICAN TRADE

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Abstract

According to the United Nation's Economic Commission for Africa (2004), Africa's trade performance is weak in comparison to other world regions. Indeed, Africa's share in world merchandise exports fell from 6.3% in 1980s to 2.5% in 2000 in value terms. It recorded a meagre 1.1% average annual growth over the 1980-2000 period compared to 5.9% in Latin America and 7.1% in Asia. The report blames trade policies of rich countries for these developments together with Africa's internal problems. In this paper we will concentrate on the latter.

While much is researched and written about Africa's trade with countries outside Africa, few studies focus on trade within Africa. This is not surprising because as the results show, the African nations trade more with countries around the world than with each other. Nonetheless, understanding the current nature of trade within Africa is important as they move towards African regional integration. The paper also hopes to review discussions on "South-South" trade, which scholars such as Geda (2002) propose as solution for the current global trade inequities. Thus, this paper aims to shed light on current trade patterns within Africa between African nations (intra-Africa trade). Furthermore, the paper will examine which of the four most common trade theories -- Ricardo's comparative advantage theory, intra-industry trade theory, the economies of scale theory and the Heckscher-Olin theorem appear to explain these patterns.

In reference to methodology, cross-sectional analysis will be conducted taking a snapshot at the patterns of trade within Africa around 2003. The following methodological limitations ought to be kept in mind when reading this paper. First, data were missing for some key

countries for the target year (2003). In such instances, data from 2001 and 2002 were used as proxies.

What the paper hopes to achieve is a picture of the trade patterns within Africa and which of the trade theories mentioned, appear on the surface (or prima facie) to explain such patterns. Perhaps, more in-depth studies using more specific commodity data could follow this cursory analysis at some later stage.

The paper begins by examining the four common trade theories mentioned and their predictions of trade patterns. Then a picture is painted of African trade within the global context. The third section delves into the nature and patterns of intra-African trade while the fourth section applies the stated theories in an attempt to explain the patterns noted. The concluding section wraps up the discussion, summing up the main findings of the study.

INTRODUCTION

According to the *United Nation's Economic Commission for Africa (2004: xi)*, *Africa's* trade performance is weak in comparison to other world regions. Africa's share in world merchandise exports fell from 6.3% in the 1980s to 2.5% in 2000 in value terms. It recorded a meager 1.1% average annual growth over the 1980-2000 period compared to 5.9% in *Latin America* and 7.1% in *Asia*. The report singles out trade policies of rich countries as blameworthy for these developments. It also blames *Africa's* internal problems. In this paper we will focus on the latter.

While much is researched and written about *Africa's* trade with countries outside Africa, few studies focus on trade within *Africa*. This is not surprising because as we shall see, African nations trade more with countries around the world than with each other. Nonetheless, understanding the current nature of trade within Africa is important as the move towards African regional integration gains momentum among African policymakers. The paper also seeks to inform discussions on *"South-South" trade*, which scholars such as *Geda (2002)* propose as a solution for the current global trade inequities. Thus, this paper aims to shed light on current trade patterns within Africa between African nations (*intra-Africa trade*). Furthermore, it will examine which of the four most common trade theories -- *Ricardo's comparative advantage theory, intra-industry trade theory, the economies of scale theory or the Heckscher-Olin theorem* appear to explain these patterns.

In reference to methodology, cross-sectional analysis will be conducted taking a snapshot of the patterns of trade within Africa around 2003. The following methodological limitations should be kept in mind when reading this paper. First, data were missing for some key countries for the target year (2003). In such instances, data from 2001 and 2002 were used as proxies. This obviously created distortions in value terms because trade figures may vary drastically from one

year to the next. Nonetheless, we hope this analysis still gives a useful, though somewhat rough, depiction of the trade patterns at hand.

What the paper hopes to achieve instead, is to provide a picture of the trade patterns within Africa and to explore which of the trade theories mentioned, *appear on the surface* (or prima facie) to explain such patterns. Perhaps, more in-depth studies using more specific commodity data could follow this cursory analysis at some later stage.

The paper begins by examining the four common trade theories mentioned and their predictions of trade patterns. Then a picture is painted of African trade within the global context. The third section delves into the nature and patterns of intra-African trade while the fourth section applies the stated theories in an attempt to explain the patterns noted. The concluding section wraps up the discussion, summing up the main findings of the study.

THEORETICAL UNDERPINNINGS: THE FOUR TRADE THEORIES

Geda (2002: 52-58) cautions against applying conventional *Western-devised trade theories* to the African context. He explains that neoclassical trade theories such as the *Heckscher-Ohlin (H-O) theorem* were developed at the turn of the century in response to the rigidity of the classical school's assumptions in relation to trade. They emphasized factor endowment differentials as the source of trade thereby relegating Africa and other developing countries (the South) to the marginal and volatile role of primary commodity producer.

The importance of technology by the 1950s and 60s led to an evolution of other theories based on technological gaps (*Posner 1961 and Vernon 1966).* These theories also continued to place the South in a disadvantageous position, promoting Western (the North) economic interests. According to these theories, technological advances required high levels of infrastructure and semi-skilled labor based in manufacturing, which the South, especially most of Africa, did not have. Nonetheless, these theories even failed to explain the patterns of trade in developed countries. In response, *"new trade theories"* emerged in the 1980s *(Lancaster 1980, Helpman (1981), Krugman (1979-81)).*

The "new trade theories" emphasize the importance of increasing returns to scale as a cause of trade and the need for models embedded within imperfectly competitive markets. They focus on intra-industry trade and intra-firm trade. *Geda cites Stewart (1984)* explaining that these models too are designed primarily to explain trade patterns in developed countries, which have similar trade preferences *(Linder 1961).* The South is perceived to be at a great disadvantage since it does not have large markets and endures transportation costs which jeopardize its benefits from trade. For various other reasons, he concludes that this type of analysis and set-up effectively biases development against the South.

He thus proposes *"non-orthodox"* models of trade as alternative models for analyzing gains from trade. These take into account the South's particular characteristics such as primary commodity production and their vulnerabilities to external shocks, which traditional models ignore. Such models include *Emmanuel's unequal exchange theory (1972) and the Prebisch-Singer hypothesis and Patnaik (1996)'s thesis (pp.56-7).*

It is with these admonitions in mind that the paper now proceeds to examine four of the most popular trade theories – the H-O theorem, Ricardo's comparative advantage theory, the intra-industry trade theory and the economies of scale argument. The H-O theorem and Ricardo's comparative advantage theory fall under *Geda (2002)'s* category of neoclassical theories, while the intra-industry trade and economies of scale theories fall under his *"new trade theory"* umbrella.

Ricardian Theory of Comparative Advantage

This is the basic model of international trade. It posits that trade between two countries can benefit both countries if each country exports the goods in which it has a comparative advantage.[1] *Krugman and Obstfeld (2005: 44-5)* explain that factors such as high transport costs could discourage trade so that potentially tradable goods could become nontraded in spite of their comparative advantage. Furthermore, in some cases such as with services, trade is virtually impossible. They conclude that in reality, many goods end up being nontraded either because of the absence of strong national cost advantages or because of high transportation costs. They also explain that most nations do spend a large share of their income on nontraded goods (ibid).

Though limited in a number of ways, *Krugman and Obstfeld* contend that the *Ricardian model* of international trade is still extremely useful in thinking about the reasons why countries trade and the effects of international trade on national welfare. The limitations of this theory include its prediction of an extreme degree of specialization, which is not observed in the real world due to factors such as transportation costs. It also ignores the income disparities within countries and assumes that everyone in the economy will benefit from trade. Further, it does not allow for differences in resources among countries as a cause of trade, which fails to explain the large trade flows normally evidenced between similar nations. However, its wisdom that productivity differences play an important role in international trade and that it is comparative advantage and not absolute advantage that matters have been illuminating and supported by evidence (ibid.).

The Heckscher-Ohlin Model

According to *Krugman and Obstfeld (2005)*, this model posits that differences in resources are what explain patterns of world trade. In brief, the theory proposes that countries tend to produce

[1] A country has a comparative advantage in producing a good if the opportunity cost of producing that good in terms of other goods is lower in that country than it is in other countries (Krugman and Obstfeld 2005: 26)

relatively more of the goods that use its abundant resources intensively. Thus, a labor-abundant country will specialize in and export labor-intensive goods, while a capital-abundant country will specialize in and export capital-intensive goods. However, as Krugman and Obstfeld contend, trade often does not run in the direction that the H-O model predicts (p.74). Tests conducted by scholars such as *Leontief (1953), Bowen, Leamer and Sveikauskas (1987) and Trefler (1995)* showed the limitations of this theory.

Nonetheless, *Krugman and Obstfeld* assert that this theory does better explain North-South trade patterns in manufacturing since, for instance, China, being labor-abundant exports products that are to a large extent labor-intensive such as clothing, while the United States, being capital-intensive exports sophisticated, skill-intensive products such as chemicals and machinery. This model is based on the assumption of similarities in technologies between countries (i.e. a given amount of land and labor yields the same output of either product in two countries), constant factor prices, as well as similarities in tastes and preferences between the trading countries. Krugman and Obstfeld argue that this is a severe limitation given today's substantial differences in technology levels (p.77). Nonetheless, scholars such as Brecher et al (1993) did find some support for at least the production side of the H-O theorem.

The Economies of Scale Argument

This is a modification of Ricardo's model of comparative advantage, which is based on the assumption of constant returns to scale – if inputs to an industry were doubled, industry output would also double. The economies of scale argument to trade takes into account the reality that in practice, constant returns to scale is rare. What is more common in many industries is the economies of scale, which means production is more efficient the larger the scale at which it takes place. Because of economies of scale, countries specialize in a narrow range of products, which enables them to produce these goods more efficiently than if they tried to produce everything for themselves. Thus, it is goods with high economies of scale that will be exported because economies of scale generate a commodity surplus.

Nonetheless, Krugman and Obstfeld warn that economies of scale typically lead to imperfect competition, especially if the economies of scale is internal.[2] Thus, they propose that models for imperfect competition, such as the monopolistic competition model, need to be applied in analyzing the effect of economies of scale.

[2] There are two kinds of economies of scale – external and internal economies of scale. External economies of scale occur when the cost per unit depends on the size of the industry but not necessarily on the size of any one firm. Here efficiency of the firm is increased by having a larger industry, without changing the size of the firm. Internal economies of scale occur when the cost per unit depends on the size of an individual firm and not on that of the industry.

In monopolistic competition, an industry contains a number of firms producing differentiated products. These firms act as individual monopolists but additional firms enter a profitable industry until monopoly profits are competed away. Equilibrium is affected by the size of the market so that a large market (as fostered by regional integration) will support a larger number of firms, each producing at larger scale, thus lowering average cost more than in a small market. Each country can specialize in producing a narrower range of products than it would in the absence of trade and by buying goods that it does not make from other countries, each nation can simultaneously increase the variety of goods available to its consumers. In these ways, trade offers mutual gains even when countries do not differ in their resources or technology (Krugman and Obstfeld 2005: 120-123).

Furthermore, Krugman and Obstfeld explain that when economies of scale occur at the level of the industry instead of the firm (external economies), patterns of trade is determined more by history or accident. When external economies are important, a country starting with a large industry may retain that advantage even if another country could potentially produce the same goods more cheaply. Countries can conceivably lose trade under these circumstances.

Intra-Industry Trade (IIT) Argument

Combining comparative advantage with the economies of scale thesis allows us to determine trade patterns through the model of intra-industry trade. This model assumes that the goods under consideration are not in a perfectly competitive market producing a homogenous product. Rather, it is a monopolistically competitive industry in which a number of firms all produce differentiated products. Thus, because of economies of scale, neither country is able to produce the full range of any one product by itself, although both countries may produce different components of the same product or different versions of the same product.

Krugman and Obstfeld explain that this occurs because even though a country may be a net exporter of a certain product, its consumers may demand a similar product or varieties of the same export produced by a different country. The end result is trade within the industry (intra-industry trade), which has nothing to do with comparative advantage. In other words, even if countries had the same overall capital-labor ratio, their firms would continue to produce differentiated products while the demand of their consumers for products made abroad would continue to generate intra-industry trade.

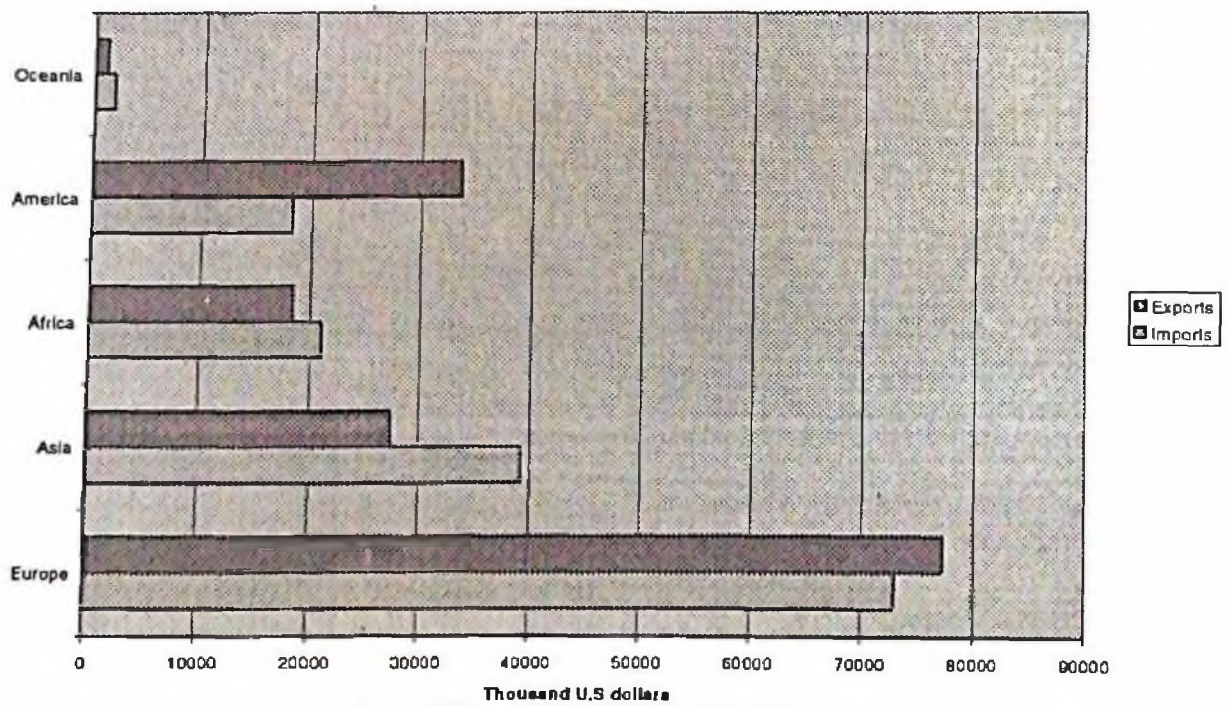
Countries with similar capital-labor ratios have higher intra-industry trade. Intra-industry trade plays a large role in the trade of manufactured goods among industrialized nations (in goods such as chemicals, pharmaceuticals and power-generating equipment) which also accounts for most of the world trade. Overall, it is dominant between countries at a similar level of economic development. Krugman and Obsteld explain that this is because such countries' levels of technology have become similar as well as their availability of capital and skilled labor. Thus

there is no clear comparative advantage within their manufacturing industries but economies of scale drives the two-way exchanges within their industries. Also noteworthy is the point made by Krugman and Obstfeld that industries for which exports and imports are almost equal have a high intra-industry. Lastly, gains from this trade are high when economies of scale are strong and products are highly differentiated as is more characteristic of sophisticated manufactured goods than raw materials. Labor intensive products such as footwear and apparel tend to have little intra-industry trade. Having established what the stated trade theories predict in terms of world trade patterns, the discussion can now focus on Africa's trade patterns.

AFRICAN TRADE WITHIN THE GLOBAL CONTEXT

According to the *Economic Commission for Africa (ECA hereafter) (2004),* trade amongst African countries accounts for only about 10% of their total exports and imports (see Appendix 1). This means that over 80% of the trade Africa conducts is with countries outside Africa. *Appendix 1* suggests that intra-African trade has been slightly increasing over the last decade. *The International Monetary Fund (IMF) (2000)* attributes this increase to the trade and exchange liberalization attempts that most African nations undertook in the 1990s, often in the context of World Bank and IMF's Structural Adjustment Programs.

Figure 1: Direction of Africa's trade by continent in 2003



Source: UN Economic Commission for Africa 2005

Figure 1 above shows that most of *Africa's trade (imports and exports) in 2003* was conducted with *Europe*, suggesting an ongoing strong economic links with its former colonizers. This is followed by trade with *Asia* and *America*, with *Asia* serving as the second highest

importer and *America* serving as the second highest exporter. By comparison, intra-African trade is the second lowest, after trade with *Oceania*. Table 1 gives a breakdown of trade destinations of African goods for selected regions and countries. This table shows that within Europe, most of Africa's trade is conducted with the *EU* (over 90% for both exports and imports); within the Americas it is the United States that is the leading destination for Africa's products.

The *ECA* blames the noted low levels of intra-African trade on poor transportation systems. They explain that Africa's network of transportation infrastructure and services is still "*disjointed*" and Africa's transport costs are among the world's highest.[3] The slow trade progress is also seen due to "a low level of implementation of treaty obligations, an inability to prevent and resolve conflicts decisively, and a lack of resources to support integration." Too many regional economic communities with overlapping memberships duplicate efforts and waste scarce resources. Of sub-Saharan Africa's 53 countries, 6 are members of a one regional economic community, 26 belong to two and 20 are members of at least three. Fewer regional bodies would reduce administration costs and provide funds to improve day to day operations and finance projects.

Source: UN Economic Commission for Africa 2005

Table 1: Breakdown of African Trade by destination to some countries around the world 2003

To/From	Imports	Exports	Imports as % Regional Trade	Exports as % of Total Regional Trade
FOR EUROPE				
Europe	72992	77328		
Eastern Europe	4738	1004	6.5	1.3
EU	66034	70516	90.5	91.2
European Free Trade Area	2191	3545	3.0	4.6
Russia	2184	460	3.0	0.6
FOR AMERICA				
Total America	18264	33579		
USA	11823	27443	64.7	81.7
Latin America	4116	3892	22.5	11.6

[3] They give an example of how trade along the West African corridor -- which provides port access to Burkina Faso, Madi and Niger -- trucking companies, in 1997, paid an estimated $320 million for drivers to pass through various national police and customs checkpoints; fees that would not be payable if the regional transport accord eliminating such fees had been implemented.

PATTERNS OF INTRA-AFRICAN TRADE

Who is Trading with Whom?

As already mentioned, despite an abundance of trade liberalization schemes and reforms to open African markets, intra-community and inter-Africa trade remains low and undiversified. According to the *IMF (2000),* such liberalization throughout Africa in the 1990s took place during a period of increasing globalization of trade and investment, the conclusion of the *Uruguay Round of trade negotiations*, and the creation or expansion of regional integration, resulting in the establishment or renewal of regional organizations and bilateral as well as *Regional Trade Agreements (RTAs)* such as the *Cross-Border Initiative (CBI), the Common Market for Eastern and Southern Africa (COMESA) and the West African Economic and Monetary Union (WAEMU).*

In Africa, there are currently about 18 functioning *RTAs*, according to *Kirkpatrick (2005).* These agreements take a variety of forms, including free trade agreement *(FTA),* common market and customs union. Trade liberalization is not uniform within these *RTAs* though. *The ECA (2004)* reports that the *Southern African Development Community (SADC)* accounts for the largest shares of exports (31%) and imports (30%), followed by the *Economic Community of West African States (ECOWAS)* in both exports (almost 20% of the intra-community total) and imports (21%).

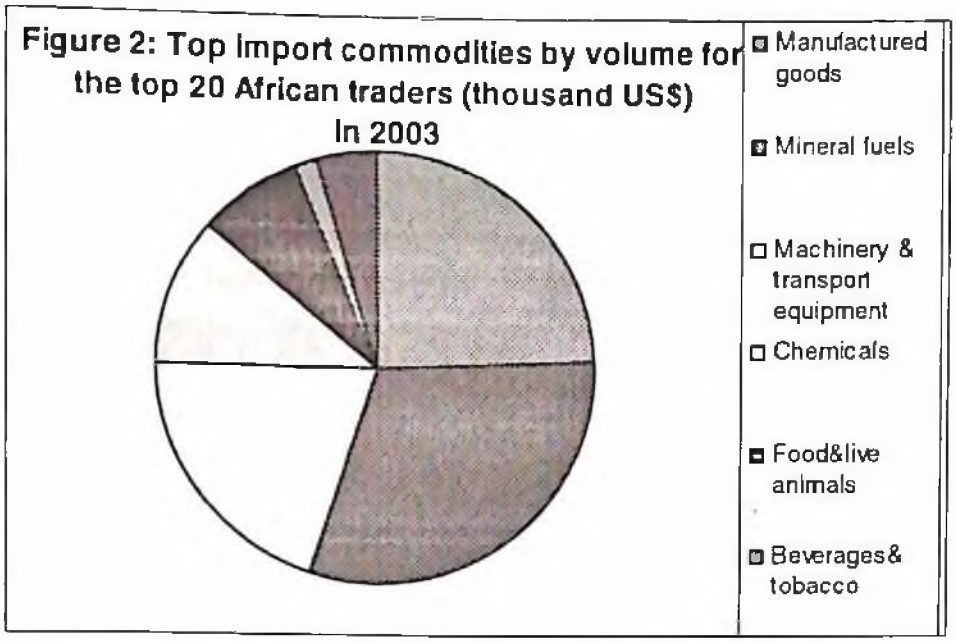
Not surprisingly, color-coded data in *Appendix* 2 shows that Southern African countries dominate the list of the continent's top 20 trading partners. *Mozambique* and *Botswana* (both SADC members) are the continent's largest importers, while South Africa is by far the most dominant exporter, followed by *Nigeria. Cote D'Ivoire* and *Ghana (ECOWAS members)* are also amongst the top 5 importers. *Appendix 2* also demonstrates that indeed most of the trade occurs within sub-regions rather than across them. The majority of the anomalies to this trend involve South Africa and, to a lesser extent, a few other southern African countries (notably Zimbabwe and Swaziland) and Nigeria.

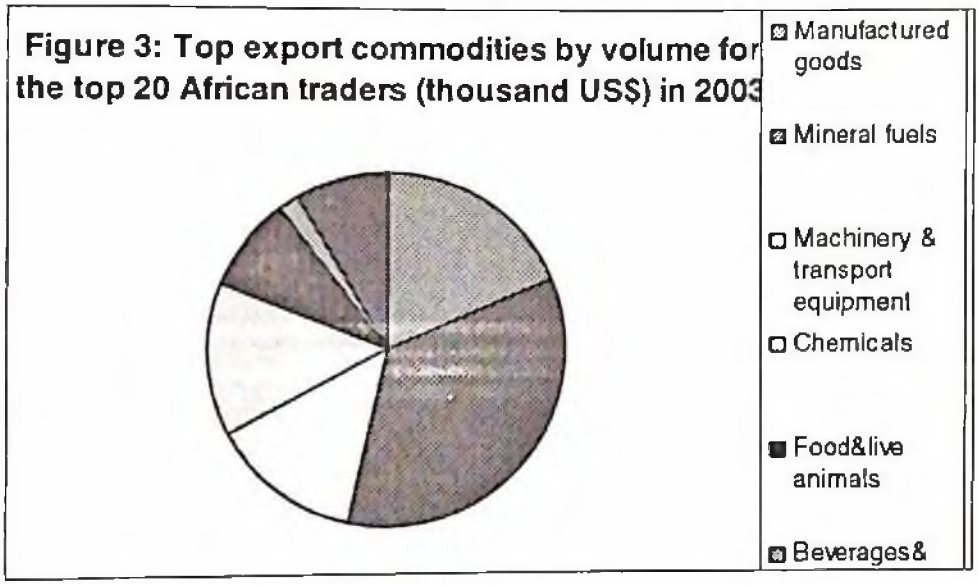
What is Being Traded?

According to the *ECA (2004: 81),* for most African countries, the structure of trade over the past 40 years can be characterized as follows (see *Appendix 6* for classification description):

- A commodity structure of exports dominated by primary products in Standard International Trade Classification *(SITC)* categories 0–4.
- More than 80% of export earnings from primary commodities *(ADB 2000).*
- A commodity composition of imports heavily weighted in manufactured goods in SITC product categories 5–8.
- A heavy concentration of exports (more than 80%, mostly primary commodities) and imports (a similar share) in markets in Europe, Asia, and North America.

Figures 2 and 3 below suggest that around 2003, a majority of intra-African trade was in mineral fuels (for both imports and exports) then followed by manufactured goods. Furthermore, *Appendix 3* shows that the top mineral fuel importers (Cote D'Ivoire, South Africa and Ghana) import mineral fuels from Nigeria. Nigeria's top mineral fuel export destination is South Africa. Algeria, Kenya and South Africa also supply mineral fuels to many of the top 20 mineral fuel importers.





Source: UN Economic Commission for Africa 2005

Also suggested by *Appendix 3* is that the top importers of manufactured products *(Botswana, Zimbabwe, Swaziland, Kenya and Tanzania)* all import their manufactured products from South Africa. South Africa's top destination for its manufactured goods is Zimbabwe followed by Mozambique and Kenya. Manufacturing and transport equipment come third in trade volume for both imports and exports. The imports are led by Zimbabwe, Botswana, Swaziland and Mozambique who all import this equipment from South Africa. Here too, South Africa's top export destination for this commodity is Zimbabwe, followed by Zambia, Angola and Mozambique. Fourth in trade volume are chemicals for both imports and exports, led by South Africa as their main source. The bulk of the trade in this commodity goes to southern Africa.

Nonetheless, in terms of overall economic growth, surprisingly, North Africa saw the highest sub-regional growth (see *Appendix 7*). Furthermore, within southern Africa, varying levels of economic growth were seen for the year 2003, as suggested by SADC Review 2006. The World Bank classifies 7 out of the 14 SADC countries as low income, 5 out of 14 as lower-middle income and 2 out of 14 as upper-middle income (South Africa and Botswana). According to *Appendix 2*, South Africa is conducting the most trade with low-income countries, Mozambique, Zimbabwe and Nigeria.

THEORETICAL ANALYSIS OF AFRICA'S INTRA-AFRICAN TRADE

In short, the description of intra-African trade given above suggests that first and foremost, southern Africa (the SADC community) is most active in intra-African trade, followed by western Africa (ECOWAS members). More specifically, for the most part, Nigeria supplies the continent with its number-one trade commodity (mineral fuels), while South Africa produces the second, third and fourth most traded commodities – manufactured goods, manufacturing and transport equipment and chemicals. Most of the trade among the continent's top 20 traders occurs within the SADC community, with a few extra-regional trade instances involving the main export suppliers South Africa and Nigeria. This section will attempt to explain these findings using the four trade theories mentioned. In order to do so effectively, the findings will be parsed into three separate questions, each addressing an element of the findings described.

Why the predominance of SADC trade?

At first glance, one would surmise that geography has something to do with this pattern. SADC countries are close together distance-wise, meaning transportation costs would be relatively lower. Indeed, as discussed in relation to the Ricardian model, transport costs can impede trade, turning goods with a comparative advantage into nontraded goods. This point is supported by the IMF (2000)'s contention already discussed, arguing that transportation is one of the biggest hurdles Africa faces in relation to trade. Notably, this could explain why trade is low across

regions and especially in relatively poorer regions of Africa where transportation infrastructure might not exist.

One could also point to the 1990s liberalization process and subsequent regional integration efforts as additional factors contributing to this high level of trade among southern African nations. However, without further analysis of the respective countries' productivity levels it is not possible to draw any further conclusions about the relevance of the notion of comparative advantage to the observed trade patterns.

The IMF (2000: 23) explains that with the exception of South Africa, most African countries have insignificant levels of intra-industry trade. They claim that even South Africa is mediocre in comparison to its global emerging market counterparts on this measure (see *Appendix 5*). This assertion is indeed supported by *Appendix 4*, which shows no signs of countries engaging in reciprocal trade in the same commodity type. Furthermore, the fact that South Africa, an upper-middle income country, is conducting most of its trade with low-income countries (Mozambique, Zimbabwe and Nigeria) is a testament that intra-industry trade is likely not to be an explanatory factor here. Intra-industry trade works best between countries at similar levels of development as discussed.

Why are mineral fuels Africa's number one trade commodity followed by manufactured goods, transportation equipment and chemicals?

The simplest explanation to this question could be that Africans need fuel and they happen to be endowed with generous amounts of it, a tentative absolute advantage or even comparative advantage explanation. As already mentioned, Nigeria tops the mineral fuel producer list, but most other African countries also possess some mineral fuels (see *Appendix 4*), which they export. Mineral fuels entail high levels of infrastructure investment and sunk costs, but also high potential for returns based on economies of scale.

Appendix 3 demonstrates that in fact, the production of manufactured goods, manufacturing equipment and chemicals is done almost solely by South Africa. The explanation for this is given in the next section.

Why does Nigeria predominantly export mineral fuels to the continent while South Africa exports manufactured goods, transport equipment and chemicals?

Appendix 4 which depicts the top commodities traded by Africa's biggest traders (top 20) intimates the possibility of comparative advantage playing a role in the trade patterns at hand. The appendix shows that some countries seem to engage in reciprocal trade in the goods that they are renowned for. For instance, Nigeria, being one of the world's largest oil producers, is seen to export mineral fuels to South Africa in this appendix, while South Africa, being more

developed than Nigeria and thus having a higher manufacturing capacity, exports manufacturing goods to Nigeria in exchange for Nigeria's mineral fuels.

Without knowing the two countries' productivity capacities, one could not verify the seeming role of comparative advantage here. However, the described exchange is very much in line with the extrapolations made in relation to Ricardo's theory earlier in the paper. Put differently, it appears Nigeria could have a comparative advantage in mineral fuels and that it is *actually* specializing in and exporting them, while South Africa might have a comparative advantage in manufactured goods, which it is also specializing in and exporting to Nigeria.

The H-O theorem proposes that countries export those goods which utilize their abundant factor intensively. Returning to the example of South Africa and Nigeria, the two commodities traded by the two countries, mineral fuels and manufactured goods are capital-intensive. Nigeria, like most low-income countries is labor abundant and South Africa is relatively more capital abundant. If the H-O theorem held, Nigeria would export to South Africa a labor-abundant good. This is clearly not the case, even though South Africa's exporting of manufactured goods to Nigeria is in line with the H-O theorem. Thus, it does not appear that the H-O theorem is playing a role here. Even outside the South Africa-Nigeria trade relationship, it does not appear that the H-O theorem has much explanatory power since none of the remainder of the top 20 traders exchange the same two commodities.

The explanation for South Africa's dominance in the production of manufactured goods, machinery and transport equipment and chemicals may have to do with its relatively higher capital endowments. These are capital-intensive commodities and in comparison to most other African countries, South Africa has the most capacity to produce them. This could be a comparative advantage argument, though without productivity data, it would be hard to validate the argument.

SUMMARY AND CONCLUSIONS

In spite of decade-long trade liberalization efforts, Africa's share of global trade is still low in comparison to other regions. The bulk of African trade is with Europe and America, the EU and the United States in particular. Intra-African trade is even lower (only 10% of Africa's total trade) in spite of the proliferation of regional trading blocs in the 1990s. The IMF blames this poor performance, first and foremost, on high transportation costs.

According to data around 2003, within Africa, southern Africa dominates trade then followed by West Africa. The single most traded commodity in Africa is mineral fuels, which many African countries possess in abundance. Nigeria supplies the continent with most of its mineral fuels. After mineral fuels, manufacturing goods are the second most traded commodity. Exports of this commodity are led by South Africa, which also supplies the continent with the

third and forth most traded commodities (machinery and transport equipment, as well as chemicals).

Although scholars such as Geda (2002) argue that mainstream trade theories developed in the North (developed countries) cannot adequately explain Africa's trade patterns, the cross-sectional analysis undertaken in this paper suggest, that some aspects of the four main theories may indeed apply to intra-African trade. Though the lack of experimental depth precludes any firm conclusions being drawn from this study, it appears that *on the surface*, some findings can be explained in terms of the theories of comparative advantage, economies of scale and intra-industry trade. The findings appear to contradict more strongly explanations along the lines of the H-O theorem. Thus, in spite of theoretical imperfections, it appears that some of the traditional trade theories may offer plausible explanations for trade patterns within Africa. Empirical studies testing trade theories more rigorously like Helpman (1981) and Lancaster's (1980) could indeed lead to the refinement of whatever theoretical shortcomings exist with the four theories mentioned. Throwing out the baby with the bathwater as Geda (2002) suggests may not be the wisest move regarding theoretical advancement!

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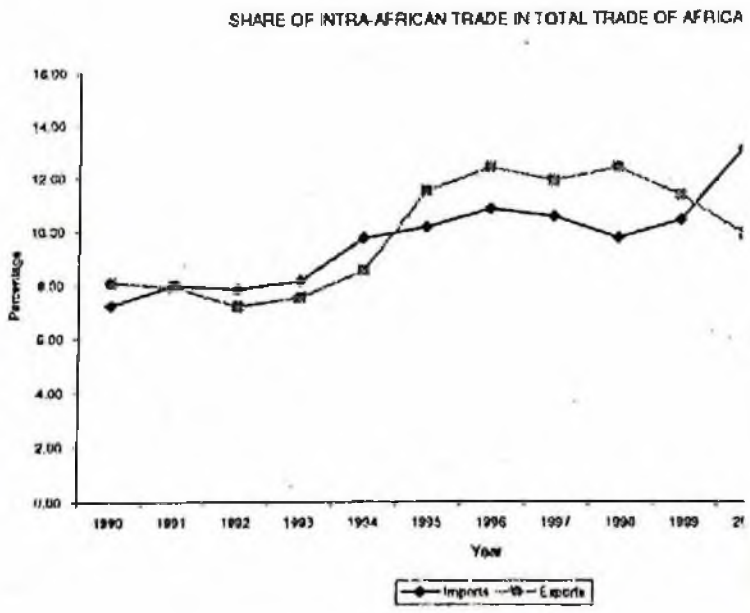
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Appendix 1



Source: UN Economic Commission for Africa 2005

Appendix 2: Volume of Intra-African Trade of the top 20 trading countries by sub-region (in thousands US dollars) in 2003 (arranged from highest to lowest volume trade)

Imports			Exports		
Of	From		Of	To	
Mozambique	South Africa	712337	South Africa	Zimbabwe	858565
Botswana	Namibia	654990	South Africa	Mozambique	745476
Cote D'Ivoire	Nigeria	509811	Nigeria	South Africa	589809
Ghana	Nigeria	491497	South Africa	Zambia	536880
South Africa	Nigeria	405060	Nigeria	Ghana	454751
Zimbabwe	Malawi	383580	South Africa	Angola	447327
Botswana	South Africa	368480	Zimbabwe	Malawi	387975
Uganda	Kenya	357194	Nigeria	Cote D'Ivoire	360309
Libya	Tunisia	352794	Tunisia	Libya	352128
Botswana	Zimbabwe	348589	South Africa	Nigeria	334077
South Africa	Zimbabwe	347784	Nigeria	Cameroon	313144
Angola	South Africa	334629	Algeria	Egypt	307143
Zimbabwe	Mozambique	329445	South Africa	Kenya	287684
Swaziland	South Africa	324065	South Africa	Mauritius	271327
Zimbabwe	South Africa	314625	Nigeria	Senegal	254168
Egypt	Algeria	312612	South Africa	Tanzania	248816
Tanzania	South Africa	306263	South Africa	Malawi	224031
Kenya	South Africa	296329	Swaziland	South Africa	192289
Malawi	South Africa	291000	Swaziland	Kenya	178398
Nigeria	South Africa	290867	Algeria	Morocco	167514
Mauritius	South Africa	288658	Cote D'Ivoire	Nigeria	164394
Zimbabwe	Kenya	269557	South Africa	DRC	163521
Swaziland	Ethiopia	266999	Zimbabwe	South Africa	162276
Zimbabwe	Mauritius	248541	Zimbabwe	Kenya	161892
Nigeria	Togo	242636	South Africa	Ghana	151078
Angola	Namibia	226543	Libya	Tunisia	146886
Swaziland	Uganda	213842	Cote D'Ivoire	Equitorial Guinea	130854
Lesotho	South Africa	192642	Cote D'Ivoire	Ghana	124357
Sudan	Egypt	186990	Cote D'Ivoire	Togo	121206
Morocco	Algeria	174869	Botswana	South Africa	116957
	Source: UN Economic Commission for Africa 2005				
KEY:					
North Africa					
West Africa					
Central Africa					
East Africa					
Southern Africa					

	Appendix 3: Imports & Exports of top commodities within the top 20 intra-African traders by volume (in thousands US$) , 2003 approximations from highest to lowest importer							
				Imports				
Of	From	Manufactured goods	Mineral fuels	Machinery & transport equipment	Chemicals	Food&live animals	Beverages& tobacco	Crude material except fuel
*Mozambique	South Africa	84775	73385	100116	27148	24168	3029	4397
*Botswana	Namibia	42	3156	347	45	1467	246	70
Cote D'Ivoire	Nigeria	1021	506359		2397	8		
*Ghana	Nigeria	4544	311276	2491	982	678	16	576
South Africa	Nigeria	735	399159	306	914	1771	8	2173
*Zimbabwe	Malawi	244		225	266	695		744
*Botswana	South Africa	488873	117653	416203	112712	184456	24897	25795
Uganda	Kenya	90912	183478	12740	32047	15556	2260	18988
*Libya	Tunisia	79332			34758			
*Botswana	Zimbabwe	21543	236	3819	1511	21103	159	4738
South Africa	Zimbabwe	89205	9401	13174	4040	20958	25319	185582
Angola	South Africa							
*Zimbabwe	Mozambique	269	41073	480	55	1827		1509
*Swaziland	South Africa	198850	112758	181535	97273	125576	17488	24661
*Zimbabwe	South Africa	349744	65435	419392	267390	97398	13304	49251
Egypt	Algeria	481	310986	32	876	82		155
Tanzania	South Africa	113113	30889	99119	38961	19978	1857	2023
Kenya	South Africa	137904	7464	61971	58953	24443	2045	3502
Malawi	South Africa	67615	64452	73983	61462	15026	1923	4456
Nigeria	South Africa	79771	2327	89050	66908	28349	20703	3734
	TOTAL	1808973	2239487	1474983	808698	583539	113254	332354

Appendix 4: Top commodities imported/exported by the top 20 African trading countries data for 2003 unless specified otherwise

Imports			Exports		
Of	From	SITC	Of	To	SITC
*Mozambique	*South Africa*	*Machinery& transport equipment/ manufactured goods/ mineral fuels 2002*	South Africa	Zimbabwe	Machinery& transport equipment/ manufactured goods/food & live animals
*Botswana	*Namibia*	*Mineral fuels/food& live animals 2001*	South Africa	Mozambique	Machinery& transport equip/ manufactured goods/food & live animals
Cote D'Ivoire	Nigeria	Mineral fuels	Nigeria	South Africa	Mineral fuels
*Ghana	*Nigeria*	*Mineral fuels 2000*	South Africa	Zambia	Machinery& transport equip/ manufactured goods/chemicals
South Africa	Nigeria	Mineral fuels	Nigeria	Ghana	Mineral fuels
*Zimbabwe	*Malawi*	*Crude material except fuel/food& live animals 2002*	South Africa	Angola	Manufactured goods/chemicals/ beverages & tobacco
*Botswana	*South Africa*	*Manufactured goods 2001/ machinery&trans equipment*	*Zimbabwe	*Malawi*	*Manufactured goods/food& live animals 2002*
Uganda	Kenya	Mineral fuels/ Manufactured goods	Nigeria	Cote D'Ivoire	Mineral fuels
*Libya	*Tunisia*	*Manufactured goods 1998/ Chemicals*	Tunisia	Libya	Manufactured goods/food& live animals
*Botswana	*Zimbabwe*	*Manufactured goods/ food& live animals 2001*	South Africa	Nigeria	Manufactured goods/machinery & transport equipment
South Africa	Zimbabwe	Crude material except fuel/manufactured goods	Nigeria	Cameroon	Mineral fuels/ machinery & trans equip
Angola	South Africa		Algeria	Egypt	Mineral fuels

***Zimbabwe**	***Mozambique**	*Mineral fuels 2002*	**South Africa**	**Kenya**	Manufactured goods/chemicals
***Swaziland**	***South Africa**	*Chemicals/ manufactured goods 2002*	**South Africa**	**Mauritius**	Manufactured goods/food& live animals
***Zimbabwe**	***South Africa**	*Machinery& transport equipment/ Manufactured goods/chemicals*	**Nigeria**	**Senegal**	Mineral fuels
Egypt	**Algeria**	Mineral fuels	**South Africa**	**Tanzania**	Manufactured goods/machinery & transport equipment
Tanzania	**South Africa**	Manufactured goods/machinery& transport equipment/chemicals	**South Africa**	**Malawi**	Machinery& transport equipment/ manufactured goods
Kenya	**South Africa**	Manufactured goods/machinery& transport equipment/chemicals	***Swaziland**	***South Africa**	*Chemicals/ Manufactured goods 2002*
Malawi	**South Africa**	Machinery& transport equipment/ Manufactured goods/mineral fuels	***Swaziland**	***Kenya**	*Chemicals 2002*
Nigeria	**South Africa**	Manufactured goods/machinery& transport equipment/chemicals	**Algeria**	**Morocco**	Mineral fuels/ chemicals

Appendix 5

Selected Eastern and Southern African Countries: Intra-Industry Trade Ratios, 1988 and 1996

Country	Year	Intra-Industry Trade Ratios[1]		
		Transport and machinery	Other manufactures	All manufactures
Kenya	1988	0.04	0.10	0.07
	1996	0.05	0.14	0.11
Madagascar	1988	0.01	0.06	0.04
	1996	0.03	0.13	0.09
Malawi	1988	0.02	0.05	0.04
	1996	0.01	0.11	0.08
Mauritius	1988	0.04	0.20	0.15
	1996	0.09	0.18	0.15
South Africa	1988	0.07	0.25	0.18
	1996	0.30	0.16	0.30
Uganda	1988	0.02	0.02	0.02
	1996	0.02	0.02	0.02
Zambia	1988	0.03	0.05	0.04
	1996	0.01	0.04	0.03
Zimbabwe	1988	0.02	0.07	0.06
	1996	0.02	0.13	0.10
Memorandum items				
Brazil	1996	0.53	0.50	0.53
Chile	1996	0.08	0.28	0.22
Rep. of Korea	1996	0.56	0.56	0.85
Turkey	1996	0.23	0.34	0.28
Taiwan, Province of China	1996	0.64	0.58	0.67

[1]The intra-industry trade index for any industry i is calculated as $B_i = 1 - (|X_i - M_i| / (X_i + M_i))$, where X_i and M_i are the industry's exports to and imports respectively. The value of the index lies between 0 (no intra-industry trade) and 1 (full intra-industry trade).

Source: The International Monetary Fund 2000

Appendix 6: The United Nations' SITC classification categories

SITC Rev.3

Click on any code to see more detail. Click here for top level only.

- 0 - Food and live animals
  - 00 - Live animals other than animals of division 03
  - 01 - Meat and meat preparations
  - 02 - Dairy products and birds' eggs
  - 03 - Fish (not marine mammals), crustaceans, molluscs and aquatic invertebrates, and preparations thereof
  - 04 - Cereals and cereal preparations
  - 05 - Vegetables and fruit
  - 06 - Sugars, sugar preparations and honey
  - 07 - Coffee, tea, cocoa, spices, and manufactures thereof
  - 08 - Feeding stuff for animals (not including unmilled cereals)
  - 09 - Miscellaneous edible products and preparations
- 1 - Beverages and tobacco
  - 11 - Beverages
  - 12 - Tobacco and tobacco manufactures
- 2 - Crude materials, inedible, except fuels
  - 21 - Hides, skins and furskins, raw
  - 22 - Oil-seeds and oleaginous fruits

- 23 - Crude rubber (including synthetic and reclaimed)
- 24 - Cork and wood
- 25 - Pulp and waste paper
- 26 - Textile fibres (other than wool tops and other combed wool) and their wastes (not manufactured into yarn or fabric)
- 27 - Crude fertilizers, other than those of division 56, and crude minerals (excluding coal, petroleum and precious stones)
- 28 - Metalliferous ores and metal scrap
- 29 - Crude animal and vegetable materials, n.e.s.

- 3 - Mineral fuels, lubricants and related materials
  - 32 - Coal, coke and briquettes
  - 33 - Petroleum, petroleum products and related materials
  - 34 - Gas, natural and manufactured
  - 35 - Electric current
- 4 - Animal and vegetable oils, fats and waxes
  - 41 - Animal oils and fats
  - 42 - Fixed vegetable fats and oils, crude, refined or fractionated
  - 43 - Animal or vegetable fats and oils, processed; waxes of animal or vegetable origin; inedible mixtures or preparations of animal or vegetable fats or oils, n.e.s.
- 5 - Chemicals and related products, n.e.s.
  - 51 - Organic chemicals
  - 52 - Inorganic chemicals
  - 53 - Dyeing, tanning and colouring materials
  - 54 - Medicinal and pharmaceutical products
  - 55 - Essential oils and resinoids and perfume materials; toilet, polishing and cleansing preparations
  - 56 - Fertilizers (other than those of group 272)
  - 57 - Plastics in primary forms
  - 58 - Plastics in non-primary forms
  - 59 - Chemical materials and products, n.e.s.
- 6 - Manufactured goods classified chiefly by material
  - 61 - Leather, leather manufactures, n.e.s., and dressed furskins
  - 62 - Rubber manufactures, n.e.s.
  - 63 - Cork and wood manufactures (excluding furniture)
  - 64 - Paper, paperboard and articles of paper pulp, of paper or of paperboard
  - 65 - Textile yarn, fabrics, made-up articles, n.e.s., and related products
  - 66 - Non-metallic mineral manufactures, n.e.s.
  - 67 - Iron and steel
  - 68 - Non-ferrous metals
  - 69 - Manufactures of metals, n.e.s.
- 7 - Machinery and transport equipment
  - 71 - Power-generating machinery and equipment
  - 72 - Machinery specialized for particular industries
  - 73 - Metalworking machinery
  - 74 - General industrial machinery and equipment, n.e.s., and machine parts, n.e.s.

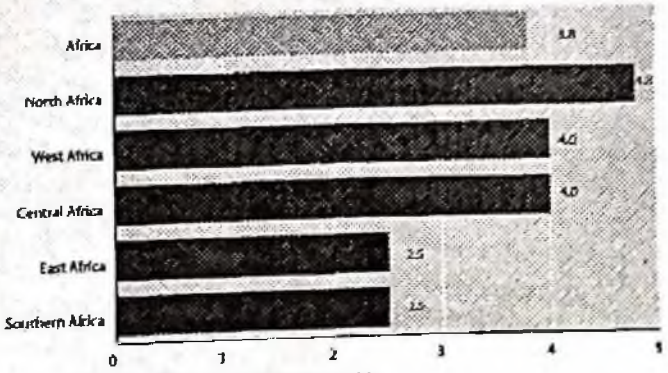
- 75 - Office machines and automatic data-processing machines
- 76 - Telecommunications and sound-recording and reproducing apparatus and equipment
- 77 - Electrical machinery, apparatus and appliances, n.e.s., and electrical parts thereof (including non-electrical counterparts, n.e.s., of electrical household-type equipment)
- 78 - Road vehicles (including air-cushion vehicles)
- 79 - Other transport equipment

- 8 - Miscellaneous manufactured articles
  - 81 - Prefabricated buildings; sanitary, plumbing, heating and lighting fixtures and fittings, n.e.s.
  - 82 - Furniture, and parts thereof; bedding, mattresses, mattress supports, cushions and similar stuffed furnishings
  - 83 - Travel goods, handbags and similar containers
  - 84 - Articles of apparel and clothing accessories
  - 85 - Footwear
  - 87 - Professional, scientific and controlling instruments and apparatus, n.e.s.
  - 88 - Photographic apparatus, equipment and supplies and optical goods, n.e.s.; watches and clocks
  - 89 - Miscellaneous manufactured articles, n.e.s.
- 9 - Commodities and transactions not classified elsewhere in the SITC
  - 91 - Postal packages not classified according to kind
  - 93 - Special transactions and commodities not classified according to kind
  - 96 - Coin (other than gold coin), not being legal tender
  - 97 - Gold, non-monetary (excluding gold ores and concentrates)
- I - Gold, monetary
- II - Gold coin and current coin

Source: http://unstats.un.org/unsd/cr/registry/regest.asp?Cl=14

Appendix 7

Figure 1.13
North Africa leads Africa's subregional growth, 2003 (%)



Source: UN Economic Commission for Africa 2004