

# Dhows to Planes: Trade Relations between the Arabian Gulf and Africa and their Impacts on Development

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ABSTRACT: The relationship between the Arabian Gulf and the African continent is a long standing one. While the contacts after the rise of Islam in the 7<sup>th</sup> Century are well documented there is evidence of contact between the regions prior to that period going back as early as the first century AD. While the size of the trade itself is impressive, more impressive are the long lasting effects of growth and development that came out of the trade- the growth and development of the Sudanic empires of West Africa and the city-states of the East African coast. Today, fueled not by the mineral riches of Africa but those of the Oil rich Arabian Gulf trade between the regions continues. Although this trade is no longer at the center of world trade as it once was, it is an important part of the trade of many of the African countries. In this paper we will examine the recent history of trade between the countries of the Gulf Cooperation Council namely, Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates and African countries and its potential impact on industrialization. We will briefly discuss the relationship between trade and industrialization and the degree to which this relationship has held in the post-independence period of African countries. This will be followed by an examination of the volume and trend in trade between Africa and the Gulf and a first estimation of how it has changed. After establishing what the volume of trade is we examine what kind of trade occurs. In other words we examine the sophistication of exports from both regions to each other in an attempt to uncover whether the trade of today has the ability not only to affect growth because of its size but also to impact the process of industrial transformation because of the kind of goods traded. We will examine the sophistication of exports using the ten groups of exports created by Sanjaya Lall as well as the Lall-Weiss-Zhang index of sophistication (Lall, 2000; Lall et al., 2006). We will end the paper with some suggestions on the lessons that policy makers should take away from our exercise.

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## Introduction

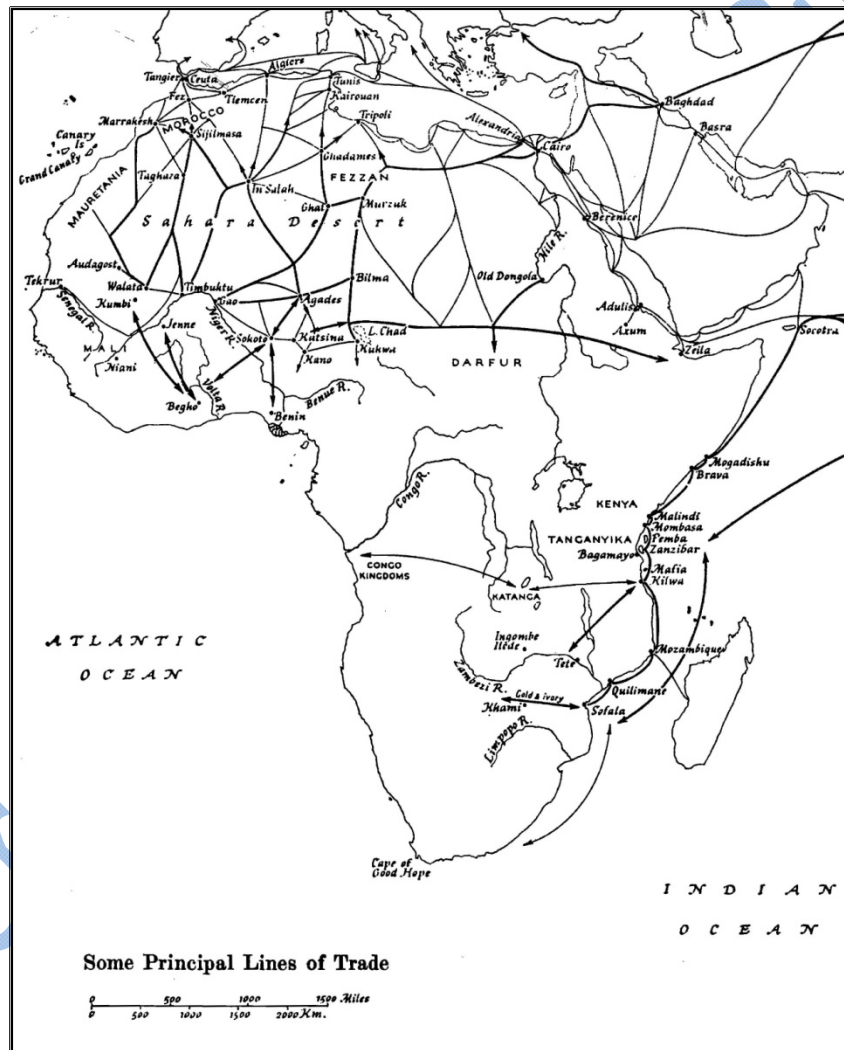
The relationship between the Arabian Gulf and the African continent is a long standing one. While the contacts after the rise of Islam in the 7<sup>th</sup> Century are well documented there is evidence of contact between the regions prior to that period going back as early as the first century AD as documented by Greeks from Ptolemaic Egypt who describe the trade between Egypt, the East African coast and the far east that occurred through the Gulf region (Anon, 1989; Davidson, 1991). During the well documented period of the spread of Islam, camel caravans from West Africa and the Sudanic Kingdoms of Ghana, Mali, Songhai, Kanem Bornu and others connected to the Gulf via North Africa and the Trans-Saharan routes which brought West African gold among other products to world markets. This trade was itself built on existing local African trading networks. For example archaeological evidence suggests that Timbuktu which was incorporated into Mali in the 14<sup>th</sup>. Century emerged before the 12<sup>th</sup>. Century as a local center of trade (Insoll, 2000). In the east the trade which took part over sea using dhows and the favorable monsoons connected the gulf with the city states of eastern Africa again bringing primarily gold, ivory and iron to world markets including markets as far away as China (See Figure 1 – following page). In both instances while we do not have actual measures of the trade we have indications that it was large. West African gold prior to the discovery of the Americas was the major source of gold for the vast markets of Europe, North Africa and parts of Asia that were connected via the Mediterranean. In fact the size of the deposits were so large that when Mansa Musa the ruler of Mali did his hajj in 1324 it is said he distributed so much gold along the way that the price of gold in Cairo was depressed for numerous years thereafter. On the east coast we know that once the Portuguese, then one of the world's naval superpowers, controlled the east coast of Africa despite their superior firepower they did not have sufficient vessels to keep the trade going and the volume of trade collapsed during this era (Davidson, 1991). The importance of the east coast of Africa was such that the empire of Oman moved its capital from its homeland in the Gulf to the island of Zanzibar in the 1800s.

While the size of the trade itself is impressive, more impressive are the long lasting effects of growth and development that came out of the trade. In West Africa there was an expansion of the existing African urban centers fueled by the proceeds of the trade. The centers not only expanded as centers of

commerce but also became centers of learning renown across the world. Davidson (1991) describes the way Leo Africanus<sup>1</sup> conveyed the wonders of Timbuktu to a medieval Italian audience:

“‘Here in Timbuktu’ he noted, ‘there is a big market for manuscript books from the Berber countries, and more profit is made from the sale of books than any other merchandise.’”

**Figure 1: Trade Routes between Africa and the World before the 14<sup>th</sup> Century.**



Source: Davidson (1991)

<sup>1</sup> Author of book on Africa entitled “Description of Africa”. Also known as Hassan ibn Muhammed al Wazzan, al Fassi

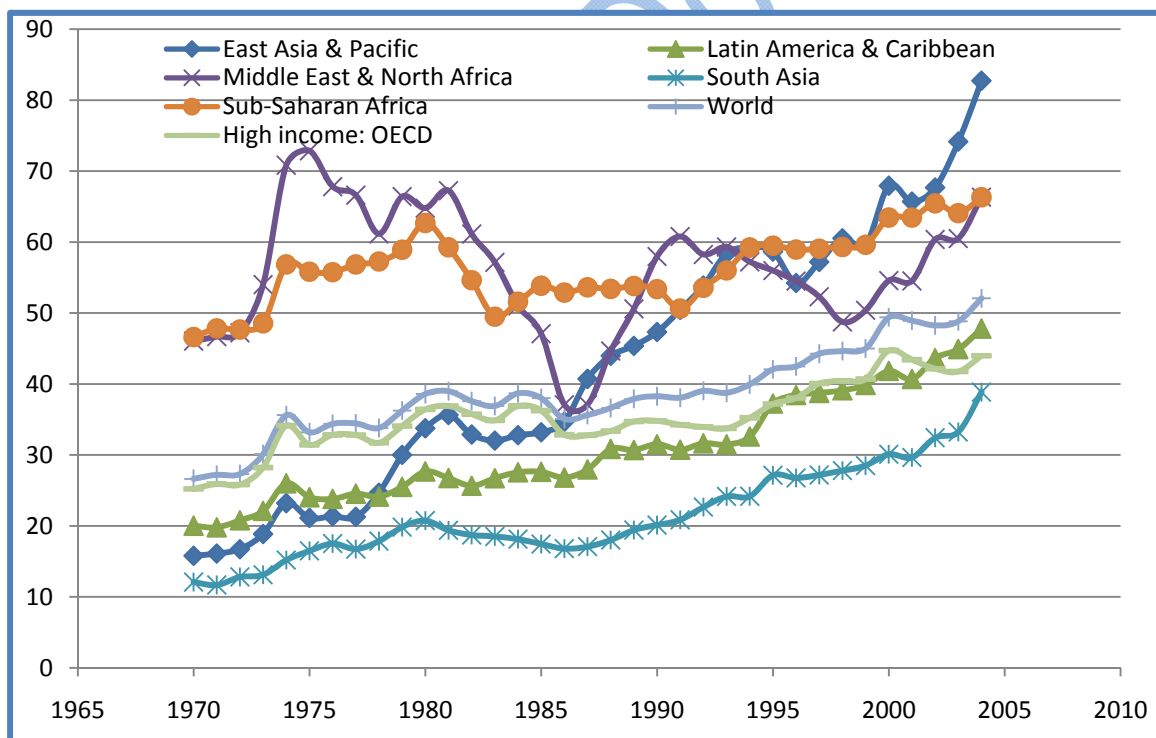
In Eastern Africa, on the foundation of the existing urban centers grew larger Islamic city states, and a new civilization peopled by the Swahili, borne out of the encounter between African and Arab. This new civilization spread from the coasts of modern Somali to those of Mozambique left a long learning legacy, not least of which is a language and culture that today binds tens of millions of east Africans. Not only was the effect felt on the coasts but along the entire inland trading routes that supported the commerce impressive growth took place resulting in Kingdoms such as those of Monomotapa and structures such as the Great Zimbabwe. Although the establishment and expansion of this trade like trade in much of the world then and since was accompanied by violence, bloodshed and the abominable trade in humans its impacts point to the possible catalytic role that trade can play in the economic development of a region or state.

Today, fueled not by the mineral riches of Africa but those of the oil rich Arabian Gulf trade between the regions continues. Although this trade is no longer at the center of world trade as it once was, it is an important part of the trade of many of the African countries. In this paper we will examine the recent history of trade between the countries of the Gulf Cooperation Council namely, Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates and African countries and its potential impact on industrialization. In the next section we will briefly discuss the relationship between trade and industrialization and the degree to which this relationship has held in the post-independence period of African countries. This will be followed by an examination of the volume and trend in trade between Africa and the Gulf and a first estimation of how it has changed. After establishing the volume of trade we examine what kind of trade occurs. In other words we examine the sophistication of inter-regional exports in an attempt to uncover whether the trade of today has the ability not only to affect growth because of its size but also to impact the process of industrial transformation because of the kind of goods traded. We will examine the sophistication of exports using the ten groups of exports created by Sanjaya Lall as well as the Lall-Weiss-Zhang index of sophistication (Lall, 2000; Lall et al., 2006). We will end the paper with some suggestions on the lessons that policy makers should take away from our exercise.

## The Relationship between Trade and Industrialization

It is generally accepted today that trade plays an important role in the process of industrialization and development. Following the success of the East Asian countries a fair amount of attention has been paid to the export-led strategies of development. Unfortunately for many less industrialized countries that were dependent on the International financial Institutions, during the decades of eighties and nineties they were encouraged to liberalize trade broadly under the mistaken idea that trade itself led to development rather than a specific kind of trade. The message was preached with much gusto to the economies of Africa and the Middle East. The assumption being that they were not large traders. While it is true that these regions are not in volume large traders given the relatively small size of their economies, trade as a proportion of GDP is quite large. In the diagram below we chart trade namely exports and imports as a proportion of GDP for various regions across the world.

**Figure 2: Trade as Proportion of GDP 1965-2005**



Source: World Development Indicators as cited in Githinji (2009 )

What is clear from the diagram above is that African and Middle Eastern countries have always been heavily engaged in trade. Between 1965 and 1985 these regions alone led the world in trade as a

proportion of GDP. Around 1985 they were joined by East Asian and Pacific countries with the engagement of China with the world economy. It took however till 1998 before the East Asian block of countries were bigger traders as a proportion of GDP than the African and Middle East Countries. While in the case of African countries imports have been larger than exports but the exports were substantial. In practically all cases being over 40 per cent of GDP (Githinji, 2009 ). If particularly African countries were such big traders relative to GDP why have they not seemed to have reaped the same rewards from trade that the East Asian countries have. Although there are a variety of factors that differentiate the East Asian countries trade from African countries, one factor that stands out is the nature of exports that were produced by East Asian countries versus those produced by African countries. Whereas African countries depended on primary products for the bulk of their exports during this period the east Asian countries changed their exports from primary exports to more technologically intensive manufactures. With the expansion of World income during this period the amount of consumption of higher value manufactures increased at a rate much higher than that of primary products. While African countries remained exporters of primary products whose prices briefly saw an upswing in the nineteen seventies followed by a downward trend since then until the recent past, East Asian countries were diversifying away to more sophisticated exports. These more sophisticated exports required higher human capital and also resulted in higher wages for the producers. The overall impact was one of industrialization in East Asia and stagnation in Africa.

These paths can be illustrated quite easily by examining the path of prices for the leading exports over time for African countries in comparison to East Asian countries. In the diagrams below we chart the exports of two African countries Cote d'Ivoire and Cameroon and compare that to the exports of South Korea over time. We do not want to claim that all African countries follow this exact pattern but these two countries exhibit a pattern that is fair typical across the continent. There are two series in each graph. These are *Beg\_five* and *end\_five*. *Beg\_five* is a price index of a basket of goods comprising the top five exports of the country in 1965. *End\_five* is a similar basket but comprised of the top five exports in 2005. Because most African countries exports are fairly limited these indices actually cover a substantial amount of the exports of the country.

Figure 3: Price Indices of Leading Exports for Cote d'Ivoire 1965-2005

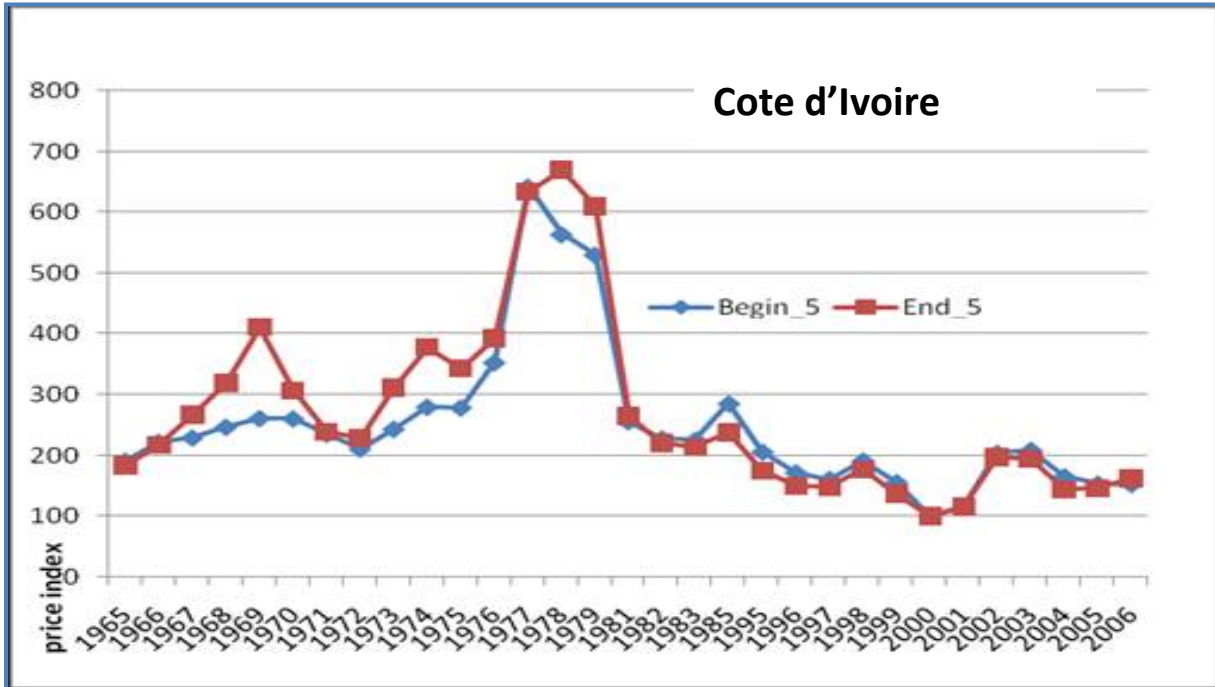
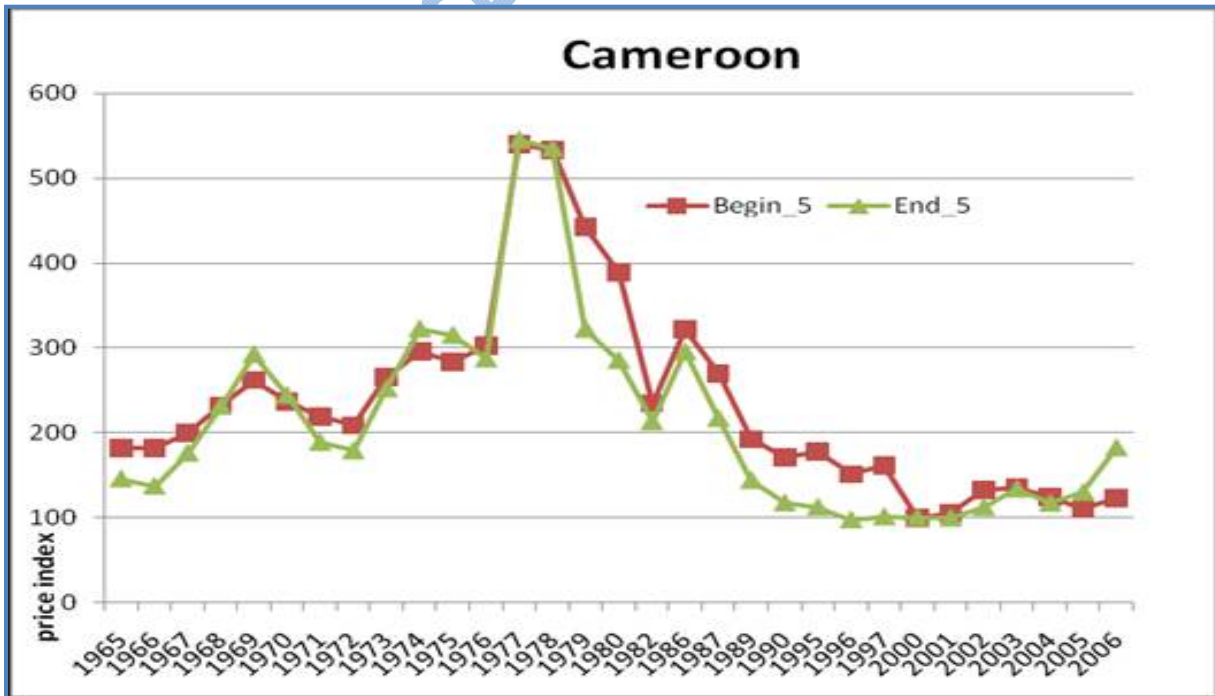


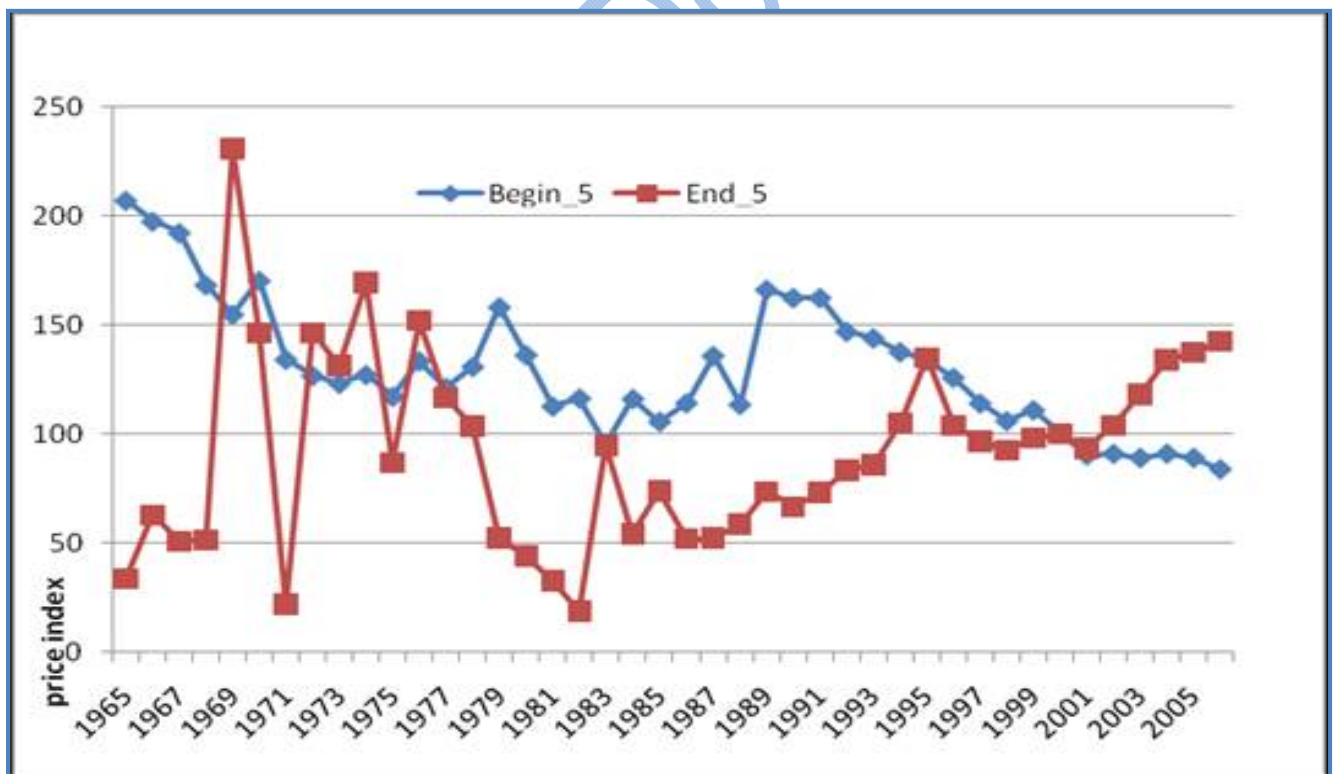
Figure 4: Price Indices of Leading Exports for Cameroon 1965-2005



Source: Comtrade Database (UNCTAD, 2007)

Before comparing South Korea to the two African examples, let us first take note of two characteristics of the paths of the African price indices. First we note that the two price indices practically overlap in the case of both countries. This is because the primary exports of both countries hardly changed during this period. African countries in many instances are still dependent on a pattern of exports first established in the colonial era – and not established to benefit African economies. The second thing to note is that the price indices are practically a depiction of the pattern of growth in Africa. An early increase in growth in the 1960s and early 1970s due to the high commodity prices that existed and then with the collapse in demand for the commodities after the oil crises of the mid to late 1970s a fall in the prices of commodities and African growth that lasts through the 1990s and only begins to ameliorate in the new century.

**Figure 5: Price indices of leading Exports for South Korea 1965-2005**



Source: Comtrade Database

The price indices for South Korea in comparison are substantially different. We note first that the two indices are very different and do not coincide in trend. In fact they portray a very telling story. The index for South Korea's initial basket of goods has a downward trend while that of the dominant goods at the end has an upward trend. These facts point to some important differences between South Korea specifically and East Asia more generally and African countries. The first is that the basket of goods that dominated exports in South Korea in the 1960s was not the same as the basket of goods that dominates the exports today. Secondly the price of the initial basket of goods falls while that of the final basket rises over time. In fact these two series form a scissors of sorts. What is occurring is that South Korea diversifies away from primary goods that have a downward trend in prices as world income and trade expands and moves to more sophisticated goods that have an upward trend in prices. The result is higher incomes to South Korean exporters and industry resulting in higher income for the South Korean population.

## **Some Basic Comparisons of African and Gulf States**

African countries and their Gulf counterparts have a number of differences and similarities that have an impact on the nature of trade between the regions. In figure 2 below we present some basic facts on the two regions. In this section we use data for 2005 for the present as it is the most recent year that we have data on a large number of African and Gulf States. On average the Gulf States are much richer in per capita income terms. The average income for Gulf residents is PPP\$ 39756, while that for Africa is slightly less than one tenth of that at PPP\$3459, The difference is also captured in the range of incomes for African states versus Gulf states, while the range for African countries starts at PPP\$ 267 and runs to PPP\$ 28536, the range for Gulf states starts at the high end of the African range at PPP\$ 20350, and runs all the way to PPP\$ 70716. So while African states are dominated by low income states, the oil rich Gulf States are dominated by upper middle income to high income states. There are also significant differences in population size and some demographic characteristics; The African region has a total population of close to a billion people while the Gulf region is under 40 million. The countries in the Gulf tend to be small with the largest being only 23 million. African populations on average are larger, with most having over 10 million people and the largest country Nigeria coming in at around 150 million. In demographic characteristics African countries have much smaller immigrant communities and more often than not are net exporters of labor while the Gulf States are heavily dependent on immigrant labor ranging from 28 to 80 per cent of their populations being made up of immigrants. Given these

differences one would expect that trade would involve export of primary products from African countries as well as labor and the import of more sophisticated exports from the Gulf to Africa. We shall return to the exact nature of trade later on in the paper.

**Figure 6: Basic Comparison of African Countries to Gulf States**

	AFRICA	GULF STATES
GDP per Capita (PPP) 2005	\$3459	\$39756
<i>Range</i>	<i>\$267-\$28536</i>	<i>\$20350-\$70716</i>
Annual Growth per capita 1980-2005	0.7	0.6
<i>Range</i>	<i>-5.5 to 15</i>	<i>-1.8 to 4</i>
Population	915 Million	33 Million
<i>Range</i>	<i>0.08M to 149M</i>	<i>0.7M-23M</i>
Immigrants (% of Population)	3.4	52
<i>Range</i>	<i>0 to 18</i>	<i>28-80</i>

Source: World Development Indicators (IBRD, 2007)

## Basic Trade Patterns between African and Gulf States

In figures 7-9 below, we present some basic trade statistics for trade between the two regions. The information is derived from the Comtrade data base and is at SITC 1 level 3 aggregation. Figure 7 is the level of Gulf exports to Africa. Figure 8 is composed of African exports to the Gulf, while Figure 9 contains data on the balance of trade between the regions.

From figures 7 and 8 a number of things are clear. First although trade between the regions not corrected for population<sup>2</sup> is relatively small. Only 5 per cent of African imports were from the Gulf and only 2 per cent of African exports went to the Gulf. The level of trade has grown substantially between 1980 and 2005. In real terms Gulf exports to Africa have grown by 292 per cent from \$2.8 billion in 1980

<sup>2</sup> If one was to calculate a population based measure of trade given the small population of the Gulf region the amount of trade is relatively high.

to \$11 billion in 2005. In 1980 these exports accounted for between 0.03 per cent and 4.8 per cent of individual Gulf countries exports. In 2005 the proportion of countries exports was between 0.3 and 5 per cent. In three countries out of five of Gulf countries that we have data for the absolute level of exports and the amount as a proportion of total exports grew. That is to say in three of the five countries Gulf countries exports to Africa in this period grew at a rate faster than their exports to the rest of the world. In the case of two countries the level of exports as a proportion of total exports fell, although in the case of Bahrain the absolute level grew. This means that while exports to Africa from Bahrain expanded exports from Bahrain to the rest of the world grew faster. In the case of Kuwait the absolute level and as a proportion of total exports both fell, this may be connected to the changes in relationship with the world that the Kuwaiti economy underwent after the invasion by Iraq and the subsequent Gulf war.

**Figure 7: Gulf Exports to Africa for 1980 and 2005<sup>3</sup>**

COUNTRY	1980 (Millions of \$)	% OF TOTAL EXPORTS	2005 (Millions of \$)	% OF TOTAL EXPORTS
BAHRAIN	\$11.6	4.8	\$74	0.7
KUWAIT	\$225	1.1	\$89	0.3
OMAN	\$1.2	0.03	\$177	0.95
QATAR	\$		\$354	1.38
SAUDI ARABIA	\$1461	1.34	\$9055	5.02
UAE	\$26	2.48	\$3814	3.30
TOTAL	\$1726		\$13566	
<i>TOTAL (REAL TERMS-2000)</i>	<i>\$2806</i>		<i>\$11009</i>	
			<i>AS % OF TOTAL AFRICAN IMPORTS</i>	<i>5.06</i>

<sup>3</sup> All trade figures from this point on are calculated by the author from the Comtrade database.

**Figure 8: African Exports to the Gulf for 1980 and 2005**

COUNTRY	1980 (Millions of \$)	% OF TOTAL IMPORTS	2005 (Millions of \$)	% OF TOTAL GULF IMPORTS
BAHRAIN	\$5.7	0.43	\$61	0.7
KUWAIT	\$31	0.47	\$201	1.6
OMAN	\$16	0.97	\$65	0.7
QATAR	\$9	0.7	\$94	0.9
SAUDI ARABIA	\$508	1.7	\$1708	2.9
UAE	\$29	0.36	\$1566	1.9
TOTAL	\$601		\$3698	
<b>TOTAL (REAL TERMS-2000)</b>	<b>\$977</b>		<b>\$3001</b>	
			<i>AS % of TOTAL AFRICAN EXPORTS TO THE WORLD</i>	<i>2%</i>

Although African exports to the Gulf are smaller the broad trends are similar. During the period exports from African countries to the Gulf have grown from just under a billion dollars in 1980 to slightly over 3 billion dollars in 2005 in real terms, representing a threefold increase. In this case both the absolute level of African exports to the Gulf and the percentage of these exports as part of overall Gulf imports have grown for each Gulf country. In 1980 the total absolute level of African exports ranged between 9 to 508 million dollars and accounted for between 0.4 to 1.7 per cent of total imports. By 2005 the absolute level had risen to a range of between \$ 61 million and \$ 1 billion and a range of 0.7 to 2.9 per cent as a percentage of total Gulf imports. That is to say that African exports to the Gulf grew faster than exports from the rest of the world to the Gulf. In the case of the United Arab Emirates in particular the growth has been spectacular. In 1980 total imports were only 29 million dollars representing only 0.36 per cent of all imports. By 2005 this had grown to 1.6 billion dollars representing 1.9 per cent of all imports.

**Figure 9: Trade Balances between the African and Gulf Regions 1980 and 2005.**

	1980	2005
EXPORTS	\$1726	\$13566
IMPORTS	\$601	\$3698
TRADE BALANCE	\$1125	\$9868
TRADE BALANCE (REAL TERMS-2000)	\$1829	\$ 8009

Over this period the direction of trade has strongly favored the Gulf region (see figure 9). In nominal terms exports from the Gulf grew eightfold while imports to the Gulf from African countries grew only six fold. The result is that in real terms the trade balance in favor of the Gulf States grew slightly more than fourfold from \$ 1.8 billion dollars to \$ 8 billion dollars.

In the previous two pages we established a number of key characteristics at the regional level for Africa and at the regional and country level for Gulf States. These included the following three important characteristics. First trade as proportion of each regions exports or imports is relatively small. Second though small the trade is growing rapidly, in most instances both at regional and country level for the Gulf countries it is growing faster than trade with the rest of the world. Lastly trade is overwhelmingly in favor of the Gulf States as measured by the overall balance of trade, and this in fact had become more favorable to the Gulf over the period we examine 1980-2005.

In the following pages we examine the same issues at the level of individual countries in Africa. In the figures below we present, the major trading partners in Africa to the Gulf. In figure 10 we present African countries whose exports or imports to and from the Gulf region account for more than 2 per cent of total African exports or imports. The first thing we note is that trade between the Gulf and African countries is dominated by countries along the North African or the Eastern Africa coasts. Second all the countries with the exception of Zambia have significant Muslim communities. Geographic

and cultural ties therefore may play an important role in the trade between the regions. The ties may be historic as is the case with many North African and East African countries or may be also based on participation in common organization such as the organization of Islamic states in the case of Nigeria (the only west African country with significant trade ties).

**Figure 10: Major African Exporters and Importers to and from the Gulf**

COUNTRY	% OF AFRICAN EXPORTS	COUNTRY	% OF AFRICAN IMPORTS
EGYPT	34	SOUTH AFRICA	25
SOUTH AFRICA	30	EGYPT	19
ZAMBIA	6	MOROCCO	10
SUDAN	5	SUDAN	7
MOROCCO	4	DJIBOUTI	6
SOMALIA	3	KENYA	6
ETHIOPIA	3	LIBYA	4
TANZANIA	3	TANZANIA	4
TUNISIA	3	ALGERIA	3
LIBYA	2	NIGERIA	2
KENYA	2	SOMALIA	2

For two of Africa's larger economies namely South Africa and Egypt the trade is extremely important. In the case of South Africa it accounts for 30 per cent of all exports and 25 per cent of imports from the region. In the case of Egypt it accounts for 34 per cents of exports to the Gulf region while it imports 19 percent of all imports from the region. The other top eleven countries in Africa export between 2 to 6 per cent of total exports to the Gulf and 2 to 10 per cent of the imports. On average most of these countries have significant trade imbalances with the Gulf countries (see figure 11). Most of the countries have negative trade balances running from US\$ 56 million for Tunisia to US\$2.2 billion for South Africa. In fact of the top trading partners in Africa in 2005, only Zambia had a positive trade balance vis-à-vis the Gulf. In fact only, three African countries in our sample have positive trade balances, and the other two had relatively small balances of under US 16 million dollars.

**Figure 11: Gulf Trade Balances with leading Trade Partners in Africa.**

COUNTRY	\$ (Millions)
SOUTH AFRICA	2209
EGYPT	1304
MOROCCO	1265
SUDAN	759
DJIBOUTI	856
KENYA	756
LIBYA	513
TANZANIA	447
ALGERIA	421
NIGERIA	245
SOMALIA	141
ETHIOPIA	42
TUNISIA	56
ZAMBIA	-192

In this section we establish that while trade is not large at the regional level it is important for specific African countries. This importance seems to be dominated by geographical (cost) and cultural ties. Compared to the ancient trade with Africa-missing is the entire west African region, which played an extremely important role in the trade of the middle ages. In the next section we will examine the sophistication of trade in order to explore the likely impact of Africa-Gulf trade on industrialization in both regions.

## The Sophistication of Exports and Industrialization

In the following section we will examine the sophistication of exports between the two regions. To do this we break up all commodities traded as reported at the 3 digit SITC (rev. 1) level into ten groups that are based on the degree of technology embodied in the production of the good. We use rev. 1 data which allows us to go back to 1980. These groups are based on the work of Sanjaya Lall (2000). Why is it important to analyze exports based on the technological structure? The first reason is that exports that are more technologically intensive command higher prices, and as we shall see have expanding markets as world income increases. The higher prices are a reflection of the technology embodied in the goods and the higher human capital required. The returns to the higher human capital is higher income and thus potentially higher levels of human development. When these higher wages are dominant in a society they reflect the fact that the society has transformed from a primary producing country, where wages are anchored by a low production subsistence sector, to a higher technology industrial society. A second reason is that the production of the technologically sophisticated product is an expression of the use of the human capabilities that arise from the capacity that has been created via education and learning by doing. The aim of human development is to enhance capabilities. Creation of the products is an example of the use of human capabilities.

Sanjay Lall (2000) divides all exports into ten groups based on technology. The first four are groups that have relative low technological intensity. The first three are heavily pre-determined by the resources that a country naturally has, whether it be minerals or tropical agriculture. Group 1 involves the simple production of these goods e.g. the mining of minerals or the growing of crops. Groups 2 and 3 involve basic processing of the product. In these groups often the products go through some basic processing that allows them to become the inputs in a further process of production. There are some more skill intensive processes within this group but often the location of this basic processing is determined not so much by skills but rather the ready availability of the primary products themselves. Group 4 is slightly less dependent on presence of raw material and more so, on the availability of large numbers of low skilled workers. This group includes all textiles, leather and footwear industry. Group 5 is other low tech industry such as furniture, plastic products, toys etc. Group 6 through 8 are considered medium technology industries. Group 6 is the cluster of industries around automobile production, while Group 7 is heavily dominated by chemical industries. Group 8 is non automotive engineering. The last two

groups are the high technology sector. Group 9 is electrical and electronic appliances, while Group 10 is dominated by pharmaceuticals and the aerospace industry.

**Figure 12: Lall-Weiss-Zhang Index for Groupings of Products based on Technical Sophistication (2005)**

Group	Name/Description	Lall Weiss Zhang (LWZ) Sophistication Index	Average Per Capita Income of Countries exporting Products within group (US\$)
1	Primary Products	0.47	22576
2	Resource Based Manufacture Agriculture	0.52	24543
3	Resource Based Manufacture Other ( <i>mainly minerals</i> )	0.55	25767
4	Textiles Garments and Footwear	0.35	18679
5	Other Low Tech	0.52	24597
6	Medium Tech Automotive	0.63	28255
7	Medium Tech Process Industries ( <i>such as synthetic fibers, plastics, paints etc.</i> )	0.55	25697
8	Medium Tech engineering industries ( <i>such as engines, industrial machinery etc.</i> )	0.67	29911
9	High Technology Manufactures ( <i>Electronics and Electrical Products</i> )	0.51	24248
10	Other High Technology ( <i>Pharmaceuticals, aerospace, optical measuring instruments</i> )	0.78	33776

To give a feeling of how these groups compare we have also calculated the Sophistication index designed by Lall Weiss and Zhang (2006)<sup>4</sup>. This is a simple index that represents the average income of the producing countries of each of the goods normalized to run between 0 and 1. The goods at the three level SITC code that is on average produced by mostly the poorest countries gets a ranking closer to zero, while those that are produced by the richest countries gets a ranking closer to one. As one would expect the first five groups on average have a lower index than the last five. Group 2 and 3

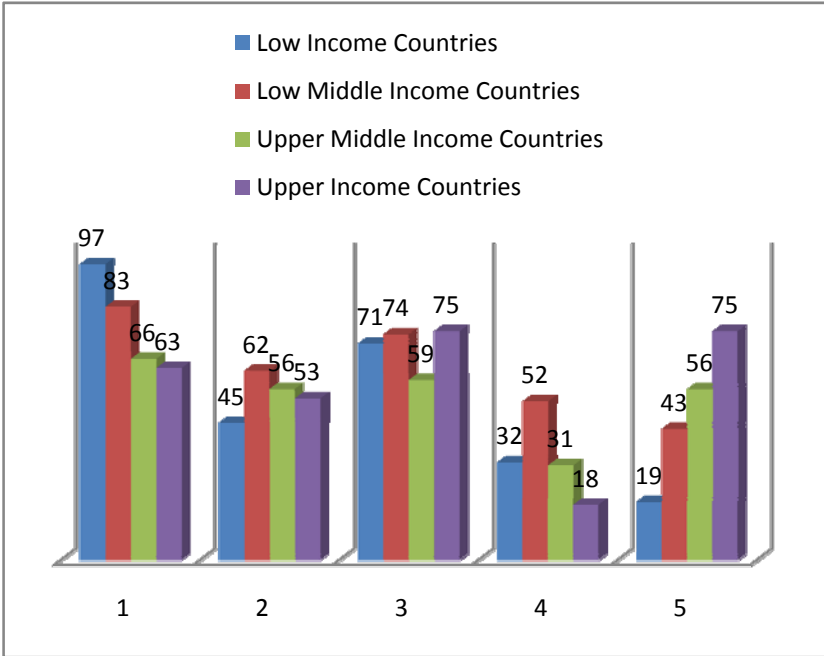
<sup>4</sup> See full description in the appendix.

because they are location plus technology based tend to be associated with slightly higher incomes than group 1 and 4. This is because the occurrence of natural resources is not determined by technology but rather geography. Rich countries that have them will continue mining them as well as processing them. We should note that Group 9 because of the continual breakdown in electronic production which allows for more labor intensive, less skills intensive production of components has a lower index than one might expect. Along with the index we present the associated average income of the countries that export within this group. Because international trade is dominated by richer countries the averages are all rather high although those from Group 1 to 5 which run from US\$ 18679 to US\$ 25767 are on average lower than those from Group which range from US\$ 24248 to US\$33776. Countries that specialize in production in the sectors with lowest income tend to produce items that on average are more labor intensive and less skills intensive and thus command lower prices per labor hour on the international market. The process of development/industrialization is essentially one of moving from producing and exporting labor intensive commodities (Groups 1-5) to producing and exporting skills intensive goods (group 6-10).

To illustrate the relationship between the ten groups and income a little more clearly we present below two charts that capture the relationship. We have divided countries into the standard income groupings used by the World Bank, namely Low income, Lower Middle income, Upper Middle income and High Income countries. For each commodity group we have classified a country as an exporter only if its exports are at least 5% of its total trade. We do this in order to capture meaningful exports. If we did not use such a criteria then most countries produce and export at least minute quantities within each category and the relationship would not be so easily presented with a simple chart as below.

In the chart, we present the data for the first five categories which tend to be more labor intensive. As is obvious, the percentage of low income countries that produces and exports in categories 1-3 is extremely high ranging from 45 per cent to 97 per cent of the countries within the group. As skills become more important in Categories 4 and 5, this drops off to between 19 and 32 per cent. It is also the case that within these categories most countries regardless of income are well represented. However we note that for the two highest income groups their representation in textiles and footwear which are at the lowest level of skill intensity and not geography dependant, is the lowest or near lowest.

**Figure 13: Percent of Countries within Income Group by Export Sophistication Level (2005) for Low Technology Exports<sup>5</sup>**

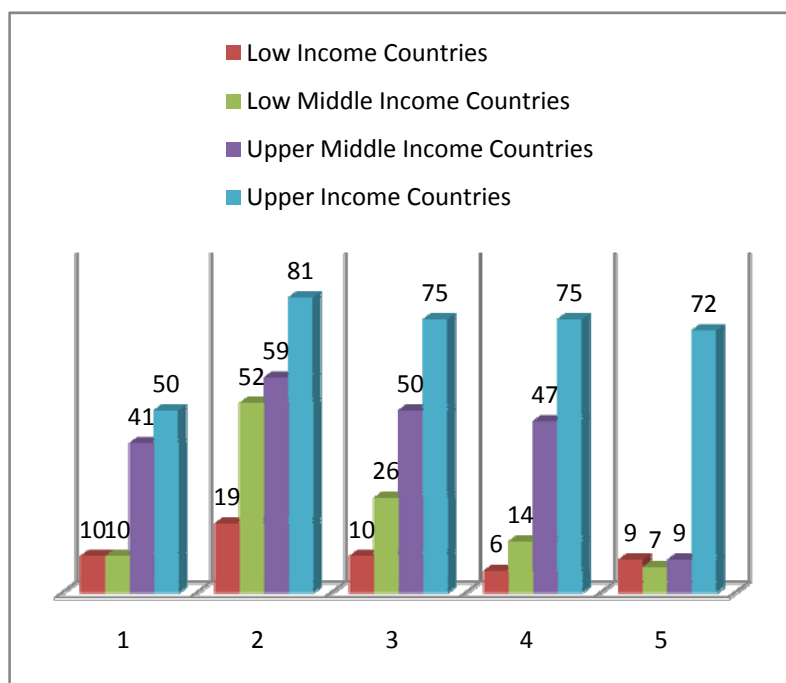


1='Primary Products' 2='Resource Based Manufacture Agriculture' 3='Resource Based Manufacture Other' 4='Textile Garments & Footwear' 5='Other Low Tech.'

In Figure 14, we present the distribution across the five more technology intensive groups. For poor countries, the trend of lower representation on average continues with countries participating in these industries being only between 6 to 19 percent of the group. The two highest income groups are well represented in all the groups with the exception of the last category where only the richest countries are well represented.

<sup>5</sup> Comtrade Data and World Development Indicators (2008)

**Figure 14: Percent of Countries within Income Group by Export Sophistication Level (2005) for High Technology Exports<sup>6</sup>**



1='Medium Tech-Auto' 2='Medium Tech Process' 3='Medium Tech Engineering' 4='High Tech Electric' 5='High Tech other'

## The Sophistication of African and Gulf Trade

In this section we will examine whether African exports to the Gulf are more sophisticated than all African exports and whether Gulf exports to Africa are more sophisticated than Gulf exports to the world as a whole. We do this using the ten Lall groups. The aim of this is to examine whether trade between the regions has the potential to be transformative in the same manner that the earlier trade between the regions had been.

In figure 15 we present our findings for Gulf exports to Africa, for the years 1980 and 2005. There are three striking results that we should take account of. The first is that in this period there was a drastic change in the type of exports from the Gulf to African countries. In 1980 these exports were overwhelmingly dominated by unprocessed primary products mainly crude oil. By 2005 this had been

<sup>6</sup> Comtrade Database and World Development Indicators (2008)

reduced from just under 84 per cent of all Gulf exports to Africa to under 38 per cent in the context of growing trade between the regions. Further this occurred while Gulf trade with the world was still dominated by unprocessed crude oil exports which were 72.4 per cent of all Gulf exports in 2005.

**Figure 15: The Sophistication of Gulf Exports to Africa and the World**

NAME/DESCRIPTION	1980	2005	2005 WORLD
PRIMARY PRODUCTS -NO PROCESSING	83.7	37.8	72.4
RESOURCE BASED MANUFACTURE -AGRICULTURE	0.6	3.8	1.1
RESOURCE BASED MANUFACTURE-OTHER	4.1	20.6	14.7
TEXTILES GARMENTS AND FOOTWEAR	0.5	4.26	0.7
OTHER LOW TECH	1.4	6.6	1.6
MEDIUM TECH - AUTOMOTIVE	6.6	7.3	1.2
MEDIUM TECH PROCESS INDUSTRIES –SYNTHETIC FIBRES, PLASTICS, PAINTS ETC	1.1	12.2	5
MEDIUM TECH ENGINEERING INDUSTRIES – ENGINES, INDUSTRIAL MACHINERY ETC.	0.9	3.2	1.3
HIGH TECH MANUFACTURES - ELECTRONICS AND ELECTRICAL PRODUCTS	0.3	3.7	1.7
OTHER HIGH TECH-PHARMACEUTICALS, AEROSPACE, OPTICAL MEASURING INSTRUMENTS	0.8	0.5	0.4

This means that while the overall export structure of the Gulf is still dominated by crude oil exports its exports to Africa have significantly changed. This point is more clearly brought out by examination of groups 2-10 of Lall sophistication groups. We find that with the exception of the “other high tech manufactures” two important things hold. The first is that there has been an increase in all these groups between 1980 and 2005, with the greatest gains being in the exports of higher value oil based manufactures. For example basic resource based manufactures rose from being 4 per cent of total Gulf exports to being 20.6 per cent of all exports to Africa. More impressively medium technology process industries such as plastics and synthetic fibers rose from being a mere 1.1 per cent of exports to Africa to 12.2 per cent of exports to Africa, The other important finding along these lines is that in all these cases the proportion of exports to Africa in these groups above group one are higher than the

exports of these products world as a whole. This means that Gulf firms are more competitive in Africa across a range of more technology sophisticated exports than they are in the world as a whole.

**Figure 16: The Sophistication of African Exports to the Gulf and the World**

NAME/DESCRIPTION	1980	2005	2005 (without South Africa)	2005 WORLD
PRIMARY PRODUCTS -NO PROCESSING	82.4	39.2	2.5	48.7
RESOURCE BASED MANUFACTURE - AGRICULTURE	5.9	11.5	7.3	6.3
RESOURCE BASED MANUFACTURE-OTHER	2.9	7.2	1.6	21.2
TEXTILES GARMENTS AND FOOTWEAR	2.4	3.2	12.9	2.3
OTHER LOW TECH	2.3	14.2	15.5	3.8
MEDIUM TECH - AUTOMOTIVE	0.3	1.7	26	3.8
MEDIUM TECH PROCESS INDUSTRIES – <i>SYNTHETIC FIBRES, PLASTICS, PAINTS ETC</i>	1.5	15.7	10	7
MEDIUM TECH ENGINEERING INDUSTRIES – <i>ENGINES, INDUSTRIAL MACHINERY ETC.</i>	0.8	3.6	9.9	4.1
HIGH TECH MANUFACTURES - <i>ELECTRONICS AND ELECTRICAL PRODUCTS</i>	0.2	1.1	13.1	1.3
OTHER HIGH TECH- <i>PHARMACEUTICALS, AEROSPACE, OPTICAL MEASURING INSTRUMENTS</i>	1.4	2.8	1.1	1.6

In figure 16 we examine the same issues from the perspective African exports to the Gulf. Because the South African economy is considerably more industrialized than all other African economies we present these figures both with South Africa included in 2005 and without it. Across the board we find very similar results to those that hold for Gulf exports to Africa. First and foremost primary product exports have fallen from 82.4 per cent in 1980 to 39.2 per cent in 2005. The numbers are more impressive in fact without South Africa as they fall to 2.5 per cent of exports. Both these numbers are significantly below the 48.7 per cent which represent the proportion of African primary product exports to the rest of the world. Even without examining the other African exports to the Gulf the trend is clear. African exports to the Gulf are more technologically sophisticated than exports to the rest of the world.

Examining groups 2 through 10 reinforces this point. With the exception of non agricultural resource based manufacture, African countries export higher levels of sophisticated products to the Gulf countries than they do to the world. In all instances even when South Africa is removed this is the case. Particular striking cases in this instance are group 6 -medium tech automotive - which becomes 26 per cent of African exports in the absence of South African from 1.7 per cent and compared to the 3.8 per cent of exports to the world. The other case is that of high tech manufactures, which is only 1.1 per cent of exports with South Africa, and 13.1 per cent of exports without South Africa compared to 1.3 per cent to the world on average.

Our basic finding from this examination of exports is simple but powerful both the Gulf region and Africa trade in more technologically sophisticated products with each other than they do with the world as a whole. This potentially has significant implications for industrialization and development strategies in both regions.

## Summary of Findings and Policy Implications

Our study of trade between the Gulf and African countries points to four main findings:

1. While trade between the regions is small as a per cent of their total trade it is growing rapidly.
2. The balance of trade heavily favors the Gulf countries.
3. The trade is dominated by countries with Geographic and cultural ties.
4. Over the last twenty years trade has changed over time from being dominated by primary products to more technologically sophisticated products.

There are two main contexts which we should consider our findings. The first is the context of export led development strategies that many African countries are taking up, while the second is in the context of recurrent cyclical crises that the world faces.

The fact that on average, inter-regional exports are more sophisticated compared to exports to the world, suggests that firms in the region are competitive. This may be due to proximity thus lowering total costs of transportation, cultural and religious ties, or other forms of privileged market access. This

success gives firms an opportunity to practice before taking on the broader world market. An examination of why specifically firms are competitive in the region should be undertaken at country level with the aim of exploring whether the competitive advantages can be replicated in other regions of the world. For African firms this is particularly important as the Gulf markets with their high incomes are sought by firms from across the world. Understanding how firms have been successful there could be very instructive for participation in other competitive markets.

The second context in which we should consider our results is that of the current world cyclical downturn and more importantly in the context of repeated cyclic events that affect the global market economy, In this respect the increased trade and sophistication of exports to each other is good because it is diversification at two levels. The first is that in increasing their trade to each other countries in both regions are diversifying to whom they export, Rather than simply exporting to the former colonial powers or primarily OECD countries as has been the case in the past. This diversification is important in the event of a global down turn because of the differential impact of down turns on various parts of the world. Thus diversification can be important in reducing the magnitude of losses during a slowdown of the world economy. The second level of diversification is that of products, Particularly for African countries the dependence on primary products has been fraught with negative consequences due to the high volatility of prices and cyclical long term down turn in prices. Diversification to other products will lower volatility in prices and a relative upward trend in prices of the more sophisticated products may cushion the impact of the downturn to which African countries have traditionally been subject.

Beyond the two contexts there are two other policy related issues that arise from consideration of our findings. The first is the need to explore the broader relationships between Gulf countries and African countries in terms of migration, human capital, remittances and investments and the relationship to trade. The second is the need for Individual African countries in the context of this growing trade with potential large positive externalities for industrialization, to establish coherent trade strategies vis-à-vis Gulf countries and for that matter other emerging trade partners.

## Appendix 1 - The Lal-Weiss-Zhang Index

The Lal-Weiss-Zhang (2006) is calculated as follows:

$$SI(i) = 100 * (US(i) - US(\min)) / (US(\max) - US(\min))$$

Where SI is the index and US(i) is the average per capita income of all countries producing the good. US(max) is the average income for the most sophisticated product and US(min) is the average income for least sophisticated. Both these are averages of incomes of countries producing the good.

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## Appendix 2. Technological Groupings ( Based on Lall 2000)

SITC 3 Digit Code	PRIMARY PRODUCTS	Technical Level
001	Live animals	1
011	Meat, fresh, chilled or frozen	1
013	Meat in airtight containers nes & meat preptns	1
022	Milk and cream	1
025	Eggs	1
031	Fish,fresh & simply preserved	1
032	Fish,in airtight containers,nes & fish preptns.	1
041	Wheat including spelt and meslin, unmilled	1
042	Rice	1
043	Barley, unmilled	1
044	Maize corn unmilled	1
045	Cereals,unmilled excl.wheat,rice,barley & maize	1
051	Fruit, fresh, and nuts excl. Oil nuts	1
052	Dried fruit including artificially dehydrated	1
054	Vegetables, roots & tubers, fresh or dried	1
071	Coffee	1
072	Cocoa	1
074	Tea and mate	1
075	Spices	1
081	Feed. Stuff for animals excl.unmilled cereals	1
091	Margarine & shortening	1
121	Tobacco, unmanufactured	1
211	Hides & skins, exc.fur skins undressed	1
212	Fur skins, undressed	1
221	Oil seeds, oil nuts and oil kernels	1
241	Fuel wood & charcoal	1
244	Cork, raw and waste	1
261	Silk	1
262	Wool and other animal hair	1
263	Cotton	1
271	Fertilizers, crude	1
273	Stone, sand and gravel	1
274	Sulphur & unroasted iron pyrites	1
275	Natural abrasives incl.industrial diamonds	1
276	Other crude minerals	1
285	Silver & platinum ores	1
291	Crude animal materials,nes	1
292	Crude vegetable materials,nes	1
331	Petroleum, crude and partly refined	1
341	Gas,natural and manufactured	1
681	Silver and platinum group metals	1
682	Copper	1
683	Nickel	1
684	Aluminium	1
685	Lead	1
686	Zinc	1

Appendix 2 (Continued)

<b>SITC 3 Digit Code</b>	<b>Description</b>	<b>Technical Level</b>
<b>RESOURCE BASE MANUFACTURE - AGRICULTURE</b>		
012	Meat, dried, salted or smoked	2
023	Butter	2
024	Cheese and curd	2
046	Meal and flour of wheat or of meslin	2
047	Meal & flour of cereals,except wheat/meslin	2
048	Cereal preps & preps of flour of fruits & vegs	2
053	Fruit,preserved and fruit preparations	2
055	Vegetables, roots & tubers pres or prepared nes	2
061	Sugar and honey	2
062	Sugar confy, sugar preps. Ex chocolate confy	2
073	Chocolate & other food preptns cont. Cocoa, nes	2
099	Food preparations,nes	2
111	Non alcoholic beverages,nes	2
112	Alcoholic beverages	2
122	Tobacco manufactures	2
231	Crude rubber incl.synthetic & reclaimed	2
242	Wood in the rough or roughly squared	2
243	Wood,shaped or simply worked	2
251	Pulp & waste paper	2
264	Jute	2
265	Vegetable fibres,except cotton and jute	2
421	Fixed vegetable oils, soft	2
422	Other fixed vegetable oils	2
431	Anim./veg. Oils & fats,processed,and waxes	2
621	Materials of rubber	2
631	Veneers,plywood boards & other wood,worked,nes	2
632	Wood manufactures,nes	2
633	Cork manufactures	2
641	Paper and paperboard	2

Appendix 2 (Continued)

SITC 3 Digit Code	Description	Technical Level
<b>RESOURCE BASE MANUFACTURE - OTHER</b>		
281	Iron ore & concentrates	3
282	Iron and steel scrap	3
283	Ores & concentrates of non ferrous base metals	3
284	Non ferrous metal scrap	3
286	Ores & concentrates of uranium & thorium	3
321	Coal, coke & briquettes	3
332	Petroleum products	3
411	Animal oils and fats	3
514	Other inorganic chemicals	3
515	Radioactive and associated materials	3
521	Crude chemicals from coal, petroleum and gas	3
531	Synth. organic dyestuffs, natural indigo & lakes	3
532	Dyeing & tanning extracts, synth. tanning mat.	3
551	Essential oils, perfume and flavour materials	3
629	Articles of rubber, nes	3
661	Lime, cement & fabr. bldg. mat. Ex glass/clay mat	3
662	Clay and refractory construction materials	3
663	Mineral manufactures, nes	3
664	Glass	3
667	Pearls and precious and semi precious stones	3
688	Uranium and thorium and their alloys	3
689	Miscell. non ferrous base metals	3

**SITC 3  
Digit  
Code****Description****Technical  
Level****TEXTILES AND FOOTWEAR**

267	Waste materials from textile fabrics, incl.rags	4
611	Leather	4
612	Manuf.of leather or of artif.or reconst.leather	4
613	Fur skins, tanned or dressed, including dyed	4
651	Textile yarn and thread	4
652	Cotton fabrics,woven ex.narrow or spec.fabrics	4
654	Tulle, lace, embroidery, ribbons, trimmings	4
655	Special textile fabrics and related products	4
656	Made up articles,wholly or chiefly of text.mat.	4
657	Floor coverings, tapestries, etc.	4
831	Travel goods, handbags and similar articles	4
841	Clothing except fur clothing	4
842	Fur clothing and articles of artificial fur	4
851	Footwear	4

**OTHER LOW TECHNOLOGY MANUFACTURES**

642	Articles of paper, pulp, paperboard	5
665	Glassware	5
666	Pottery	5
673	Iron and steel bars,rods,angles,shapes,sections	5
674	Universals,plates and sheets of iron or steel	5
675	Hoop and strip of iron or steel	5
676	Rails & rlwy track constr mat. Of iron or steel	5
677	Iron and steel wire, excluding wire rod	5
679	Iron steel castings forgings unworked, nes	5
691	Finished structural parts and structures, nes	5
692	Metal containers for storage and transport	5
693	Wire products ex electric & fencing grills	5
694	Nails,screws,nuts,bolts,rivets and sim.articles	5
695	Tools for use in the hand or in machines	5
696	Cutlery	5
697	Household equipment of base metals	5
698	Manufactures of metal, nes	5
821	Furniture	5
891	Musical instruments,sound recorders and parts	5
893	Articles of artificial plastic materials nes	5
894	Perambulators,toys,games and sporting goods	5
895	Office and stationery supplies, nes	5
897	Jewellery and gold/silver smiths wares	5
899	Manufactured articles, nes	5

Appendix 2 (Continued)

<b>SITC 3 Digit Code</b>	<b>Description</b>	<b>Technical Level</b>
<b>MEDIUM TECHNOLOGY - AUTOMOBILES</b>		
732	Road motor vehicles	6
733	Road vehicles other than motor vehicles	6
<b>MEDIUM TECHNOLOGY - PROCESS</b>		
266	Synthetic and regenerated artificial fibres	7
512	Organic chemicals	7
513	Inorg.chemicals elems.,oxides,halogen salts	7
533	Pigments, paints, varnishes & related materials	7
553	Perfumery, cosmetics, dentifrices, etc.	7
554	Soaps,cleansing & polishing preparations	7
561	Fertilizers manufactured	7
571	Explosives and pyrotechnic products	7
581	Plastic materials,regenerd.cellulose & resins	7
599	Chemical materials and products,nes	7
653	Text fabrics woven ex narrow, spec, not cotton	7
671	Pig iron, spiegeleisen, sponge iron etc	7
672	Ingots & other primary forms of iron or steel	7
678	Tubes,pipes and fittings of iron or steel	7
731	Railway vehicles	7
862	Photographic and cinematographic supplies	7
<b>MEDIUM TECHNOLOGY - ENGINEERING</b>		
711	Power generating machinery, other than electric	8
712	Agricultural machinery and implements	8
715	Metalworking machinery	8
717	Textile and leather machinery	8
719	Machinery and appliances non electrical parts	8
723	Equipment for distributing electricity	8
725	Domestic electrical equipment	8
726	Elec.apparatus for medic.purp.,radiological ap.	8
735	Ships and boats	8
812	Sanitary,plumbing,heating & lighting fixtures	8
864	Watches and clocks	8
951	Firearms of war and ammunition therefor	8
<b>HIGH TECHNOLOGY ELECTRIC</b>		
714	Office machines	9
722	Electric power machinery and switchgear	9
724	Telecommunications apparatus	9
729	Other electrical machinery and apparatus	9
<b>HIGH TECHNOLOGY OTHER</b>		
541	Medicinal & pharmaceutical products	10
718	Machines for special industries	10
734	Aircraft	10
861	Scientific,medical,optical,meas./contr.instrum.	10

Appendix 2 (Continued)

<b>SITC 3 Digit Code</b>	<b>Description</b>	<b>Technical Level</b>
	<b>NOT CLASSIFIED</b>	
351	Electric energy	99
863	Developed cinematographic film	99
892	Printed matter	99
896	Works of art, collectors pieces and antiques	99
911	Postal packages not classified accord.to kind	99
931	Special transactions not classd.accord.to kind	99
941	Animals, nes incl.zoo animals,dogs and cats	99
961	Coin other than gold ,not being legal tender	99

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