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Kenya Exports Performance Overview

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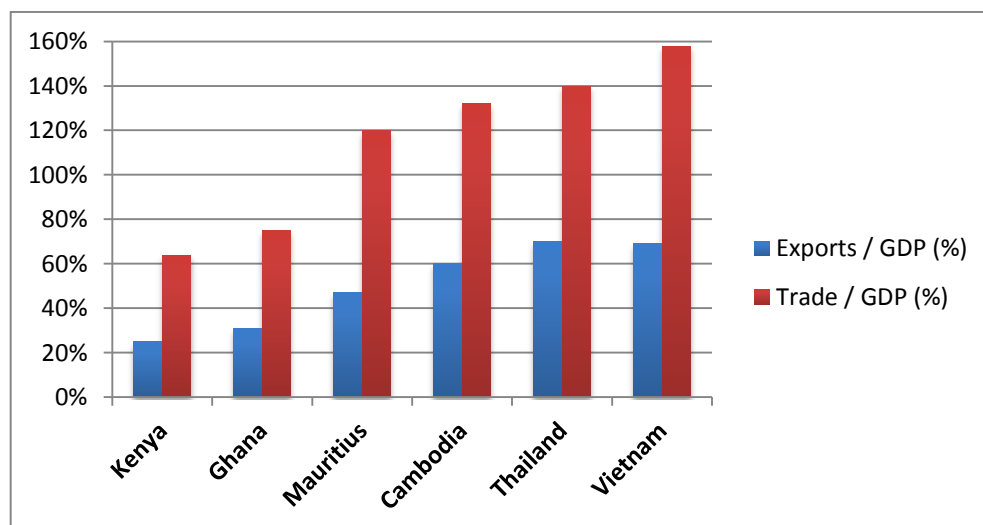
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Executive Summary

1. **Kenya's economy has been running on one engine.** Kenya's strong engine is domestic consumption, which accounts for 75 percent of GDP. Kenya's weak engine remains its exports, which have been declining sharply in relative importance. In 2011 a number of external shocks further exposed Kenya's unsustainable position. Imports soared (mainly due to higher oil and food costs) while exports remained stagnant. The gap between imports and exports of goods and services, known as the *current account deficit*, now stands at above 10 percent of GDP, which is even higher than in Greece. Kenya's top four main exports do not earn enough to pay for oil imports, not to mention other imports. It will be very difficult for Kenya to achieve high growth over an extended period of time because of its existing economic imbalances.
2. **Kenya needs to increase its export competitiveness.** It is clear that Kenya's trade performance is below its potential. The focus of analytical work has largely been on the shocks that led to high import costs and there has been limited analytical work to assess the performance and structure of Kenya's exports. The objective of this overview is to provide some of that analysis and to contribute to the policy dialogue on the role of exports Kenya's future growth. This paper focuses on five issues (i) overall trade orientation and export growth (ii) merchandise export trends (iii) merchandise exports by sector (iv) merchandise exports by destination and (v) diversification.
3. **Kenya's trade performance is below its potential.** While the trade/GDP ratio has increased from about 48% to 64% over the study period (1996-2009), Kenya's trade performance and export performance significantly lags the study comparators (Cambodia, Ghana, Mauritius, Thailand and Vietnam), as illustrated in Figure 1. Furthermore the gap between potential and actual engagement has widened. The analysis shows that for its level of economic development Kenya's trade/GDP ratio should be at least 80% (the comparators have ratios of 100% - 160%).

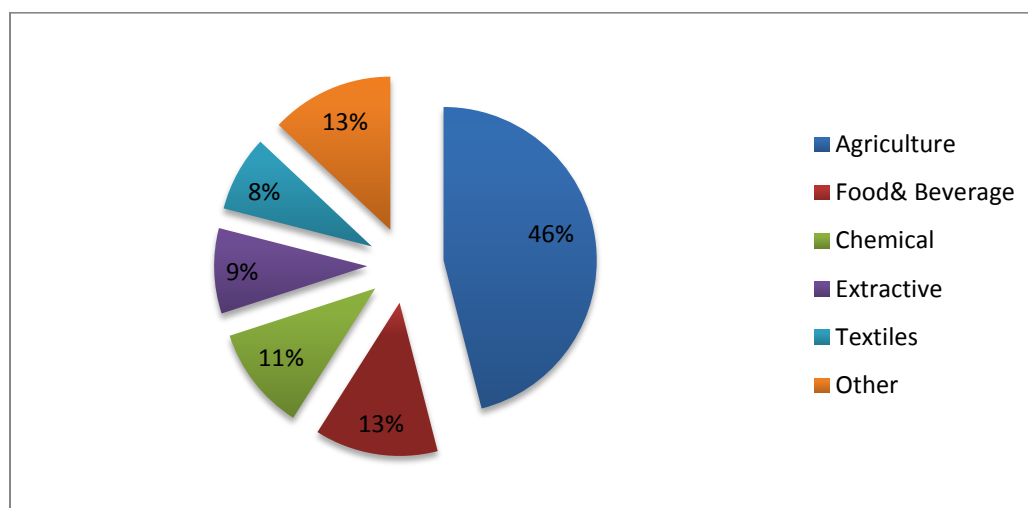
Figure 1: Kenya's Trade Performance



4. **The growth of merchandise exports has been slow and volatile.** The average annual growth rate of merchandise exports has been only 10%. And while countries such as Vietnam have had a distinct export growth trajectory with steady growth in merchandise exports year after year, Kenya's pattern has been rather volatile with a few good years followed by major falls.

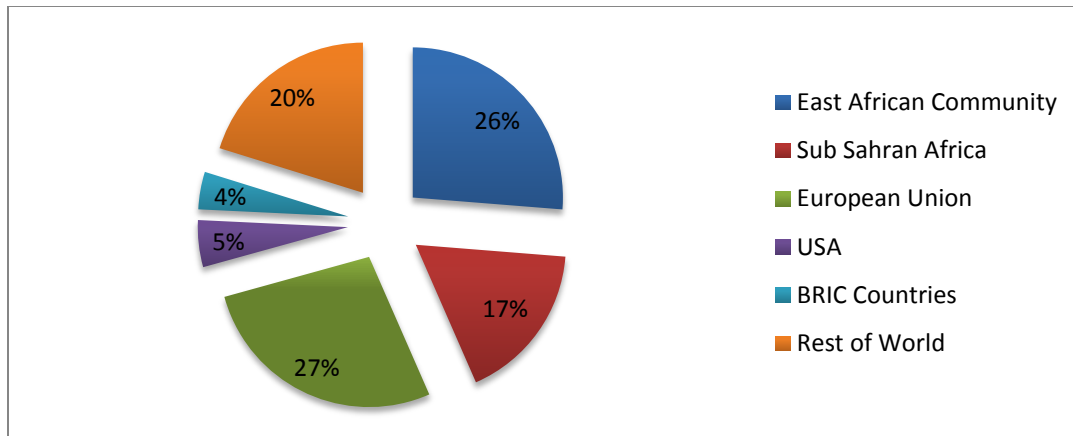
5. **The agriculture sector continues to be the main driver of growth of Kenyan merchandise exports (Figure 2).** Agriculture (primarily coffee and tea) accounted for a large part of the 31% growth in merchandise exports between 2005 and 2009. And agricultural products still form the bulk of the top ten product categories (at the 6 digit HS level).

Figure 2: Key Export Sectors



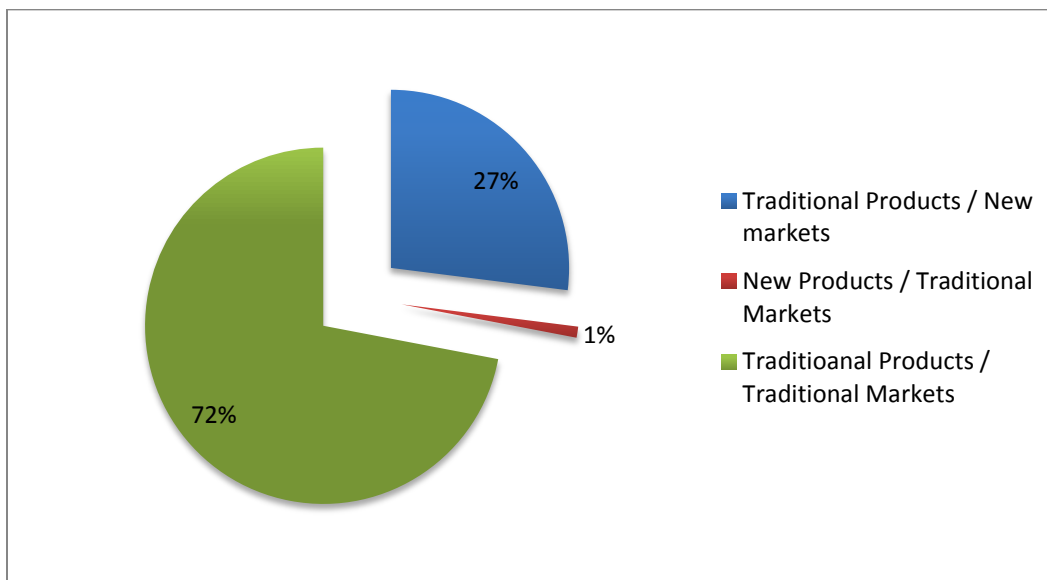
6. **Of the new sectors, Chemicals has shown noticeable increase.** While the top five categories remain the same, the share of the top five (at the 6 digit HS level) has decreased from 64% to 48% of total merchandise exports. The share of coffee and tea decreased from 39% to 25%.
7. **Kenya's exports within Africa are increasing.** The main export partners are high income OECD countries and low income countries in Africa. The share of exports to Kenya's traditional trade partners - the high income OECD countries (primarily Europe, Japan and USA) has decreased from 41% to 34%. At the same time exports within Africa have increased from 34% to 43%, while exports to low income countries have increased from 32% to 38%. The share of exports to BRIC countries is still low at 3%.
8. **Kenya under-exports to high growth emerging markets like China, Turkey, Brazil and India (see Figure 3).** There is untapped potential to increase exports to the countries that play an important role on global markets. The study includes results from a bilateral gravity model which is a framework to evaluate the observed bilateral trade in relation with the projected trade estimated by the model. The analysis shows that Kenya's actual exports are in line with predictions for partners such as Europe, US and Japan but are below potential to some high growth countries. However if the countries are above the 45-degree line, there is untapped potential to increase exports to that partner. In Kenya's case, the model suggests that Kenya under-exports to high growth emerging markets like China, Turkey, Brazil, and India.

Figure 3: Exports by Destination



9. **Kenya's exports have become less concentrated over the last decade.** Over the last decade the index of export market penetration has increased from 14 to 25, indicating that Kenya has become better at accessing markets for its export products. The Herfindal index for products has decreased from 0.1 to 0.05 indicating reduced concentration. Kenya has also improved its relative competitive position (as measured by the revealed comparative advantage or RCA) in some new product categories such as inorganic chemicals, glass/glassware, beverages/spirits, metals manufacturing, and select apparel categories.
10. **Export growth has been driven primarily by existing products in existing markets.** Export growth can be decomposed into two broad categories – intensive margin and extensive margin. Growth at the intensive margin involves existing products and existing markets. Growth at the extensive margin can be of three types – existing products into new markets, new products into existing markets, and new products into new markets. Analysis of Kenya's trade statistics for the period 20005 and 2009 reveals that export growth has been primarily at the intensive margin – with existing products in existing markets.

Figure 4: Exports Growth Pattern



11. **Overall there has been little new product/new market discovery.** Cumulatively, between 2005 and 2009, approximately 72 percent of export growth was at the intensive margin. At the same time only 28% of the growth was at the extensive margin. And the bulk of this was an increase in exports of existing products to new markets. Discovery (new products exported to either new or existing markets) accounted for less than 1 percent of growth.
12. **Further analysis is needed to understand the full potential of Kenya's exports.** This study provides a snapshot of Export Performance. It does not attempt to provide any specific policy recommendations. In order to develop useful policy recommendations it would be necessary to do further analysis on some key areas. These could include:
- A study of Kenya's trade patterns with a few key partners in Africa, in order to ascertain what could be done to either increase the total exports or to diversify
 - A study of Kenya's trade patterns with BRIC countries (and Turkey). This would help identify the causes for Kenya's relative inability to capitalize on this untapped potential
 - Field research on a couple of sectors (in line with the detailed TCD methodology) to identify the factors behind growing sectors (e.g. Chemicals) and declining sectors.

Background

13. **Kenya's economy has been running on one engine¹.** Even as the country copes with various internal and external shocks, it will be very difficult for Kenya to achieve high growth over an extended period of time because of its existing economic imbalances. Kenya's strong engine is domestic consumption, which accounts for 75 percent of GDP. Kenya's weak engine remains its exports, which have been declining sharply in relative importance.

Table 1: GDP Growth and Fiscal Performance

	2007	2008	2009	2010	2011**
GDP Growth rates (%)	7	1.6	2.6	5.6	4.3
Agriculture	2.3	-4.3	-2.5	6.3	3.5
Industry	7.1	4.7	2.7	5.3	3.6
Services	8.1	2.7	4.6	5.8	4.4
Fiscal Framework (FY) % of GDP					
Total Revenue	22	21.8	22.3	24.0	24.5
Total expenditure	27.3	26.6	29.5	29.2	30.6
Grants	1.3	0.8	0.8	0.7	1.3
Budget Deficit (incl grants)	4.0	4.0	6.4	4.5	4.8
Total debt	34.6	41.7	45.0	48.8	46.1
External Account % of GDP					
Current account Balance	-3.8	-6.4	-5.6	-7.5	-10
Memo items					
Inflation (average)	4.3	16.2	10.5	4.1	13.0
Exchange rate (Ksh/\$) *	67.3	69.2	77.4	79.2	88.5

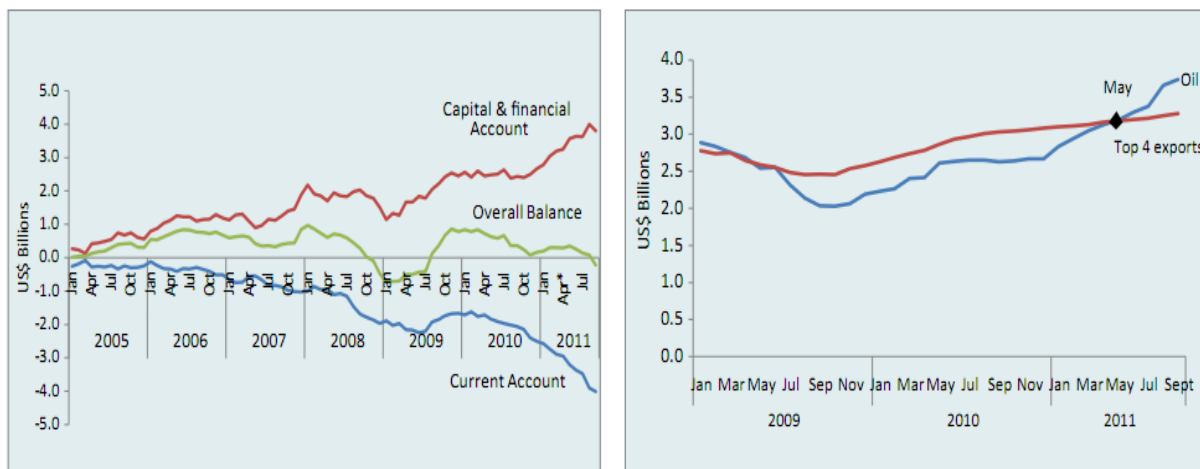
Source: World Bank / Ministry of Finance

14. **In 2011 a number of external shocks further exposed Kenya's unsustainable position².** Kenya's economy is increasingly imbalanced, with a growing gap between exports and imports. This makes the economy particularly vulnerable to external shocks. In 2011 imports soared (mainly due to higher oil and food costs) while exports remained stagnant. The gap between imports and exports of goods and services, known as the *current account deficit*, now stands at above 10 percent of GDP, which is even higher than in Greece. Kenya's top four main exports do not earn enough to pay for oil imports, not to mention other imports (see Figure 5).

¹ Kenya Economic Update June 2010

² Kenya Economic Update December 2011

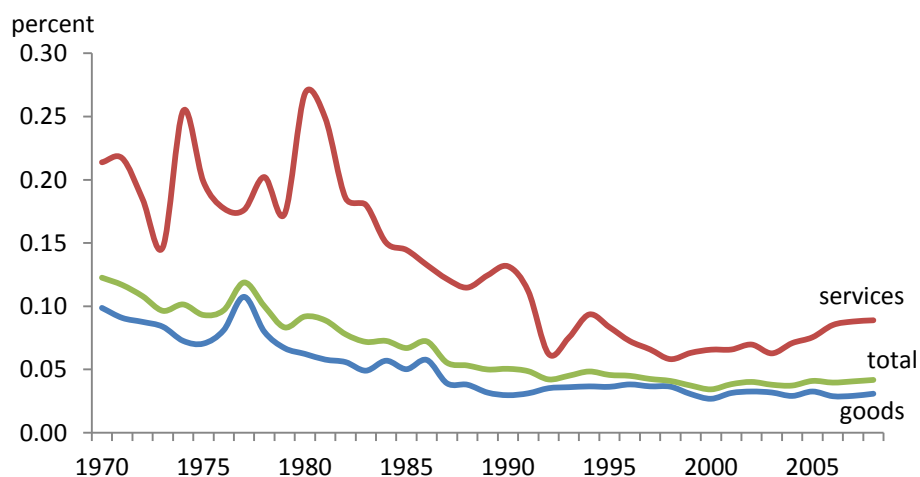
Figure 5: Kenya's Current Account Deficit and Oil Imports



Source: World Bank computations based on CBK data

- 15. Kenya needs to increase its export competitiveness.** It is clear that Kenya's trade performance is below its potential. Kenya's share of world exports has been declining steadily since the 1960s (see figure 6). However while the focus has largely been on the shocks that led to high import costs there has been limited analytical work to assess the performance and structure of Kenya's exports. The objective of this overview is to provide some of that analysis and to contribute to the policy dialogue on the role of exports Kenya's future growth.

Figure 6: Kenya's share in World Exports of Goods and Services. 1970-2008



- 16. Kenya needs to undergo a structural transformation and manufacturing can be a key engine of growth.** Recent research and experiences from other economies suggests that economic development requires structural change from low to high productivity activities and that the manufacturing sector is a key engine of growth in the development process (see UNCTAD 2011, Lall 2005; Rodrik 2007; Hesse 2008). Virtually all cases of high, rapid and sustained economic growth in modern economic development have been associated with industrialization, particularly growth in manufacturing production (Szirmai 2009). Commodity exports can lead to high but not sustained economic growth.

17. **The manufacturing sector has strong linkage and spill-over effects.** For example, manufacturing is a critical source of demand for other sectors. In particular, manufacturing firms are important consumers of banking, transport, insurance and communication services. Furthermore, manufacturing provides demand stimulus for growth of the agricultural sector. Consequently, manufacturing has high forward and backward linkages, thereby contributing to domestic investment, employment and output in the development process.
18. **Manufacturing provides opportunities for export market expansion and job creation.** Countries that have derived significant benefits from the tremendous increase in merchandise trade over the past three decades are those that have been able to increase their exports of dynamic products, particularly manufactures, with high income elasticity of demand. One of the major challenges which Kenya currently faces is to generate productive jobs and livelihoods for the 600,000 young people entering the labor force each year. This is difficult to achieve simply through commodity exports but rather requires a complementary process of agricultural productivity growth and development of non-agricultural employment opportunities in both industry and services.
19. **This paper focuses on understanding the export patterns of merchandise goods and in particular on manufacturing exports.** The study team³ has used elements of the Trade Competitiveness Diagnostic (TCD) framework to develop an assessment of Kenya's export market.⁴ This paper is structured as follows: section 1 provides an overview of Kenya's trade orientation⁵; section 2 details export growth trends; section 3 assesses export performance by sector; section 4 assesses exports performance by destination; and section 5 analyses the diversification of Kenya's exports.

³ The study was conducted by a joint FPD/PREM team comprising Ravi Ruparel, Jane Kiringai, John Randa, Taye Mengistae, and Edward Al-Hussainy, led by Yira Mascaró. The team received valuable guidance from Thomas Farole, Alvaro Gonzales and Ganesh Rasagam .

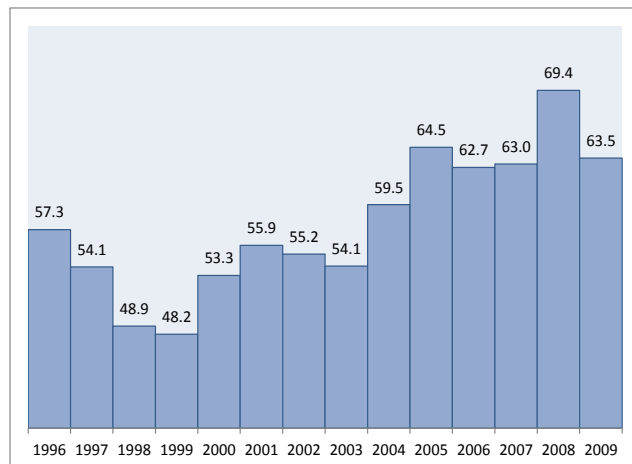
⁴ The TCD is a framework that facilitates a systematic assessment of a country's position, performance, and capabilities in export markets. It allows for an analysis at the national level (looking at the export basket and the cross-cutting environment for export competitiveness). The TCD was developed by the World Bank's PREM Trade group who have used the framework to undertake assessments in Senegal, Russia, Pakistan and Indonesia.

⁵ The comparators used for this analysis are medium sized countries with high export growth over the period 1995-2009. The key reason is that this is the kind of growth and trajectory that Kenya aspires to and therefore these are suitable comparators even if some of them have higher GDP per capita. The list does not include large countries or major oil exporters (Ghana began exporting oil at the end of 2010 and this development is not captured in this analysis). Nor does it include the "traditional" comparators – Kenya's neighbors with similar or lower export performance and GDP per capita. We focus on three export-driven economies in East Asia (Cambodia, Thailand and Vietnam) and two African export successes (Mauritius and Ghana).

Section 1: Trade Orientation and Exports Growth

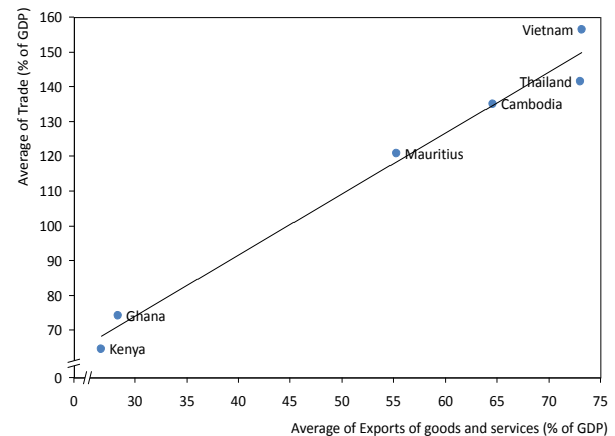
20. **Kenya's trade performance has improved gradually over the last fifteen years.** The trade/GDP ratio has increased from about 48% to 64% over the period (see Figure 7). However even at a ratio of close to 70%, Kenya's engagement in trade significantly lags the high export growth comparators such as Cambodia, Thailand and Vietnam, which have trade/GDP ratios of 130%-150%. (See Figure 8).

Figure 7. Kenya: Trade/GDP (in percent)



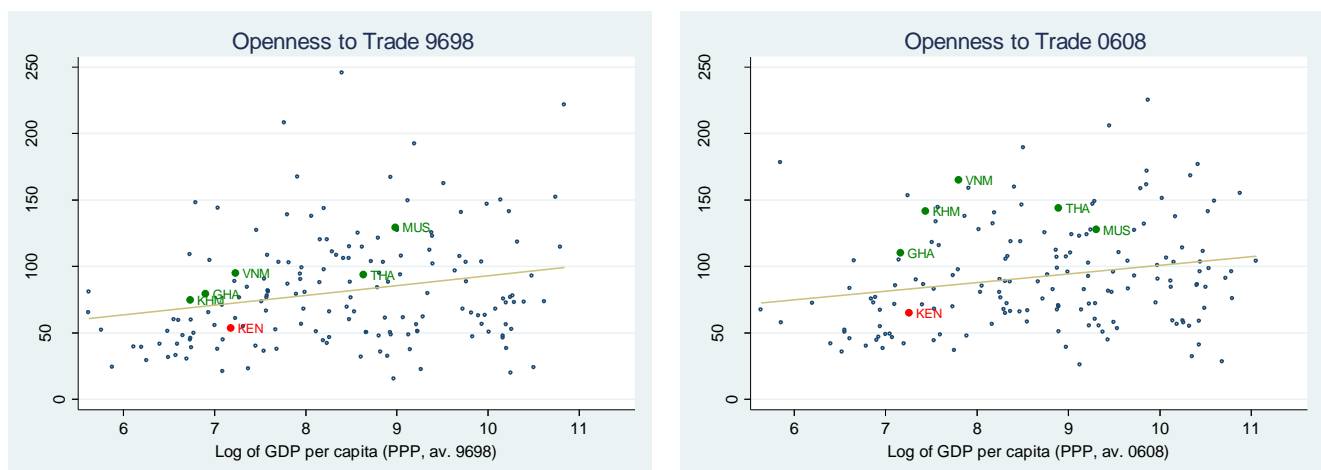
Source: WDI

Figure 8. Trade vs Exports Relative to GDP



21. **Kenya's trade performance is below its potential.** The gap between potential and actual engagement has widened and Kenya has been unable to ramp up trade to accelerate growth. As illustrated in figure 9 below, if a country is above the line its openness to trade is below its potential (given its level of economic development). If a country is below the line, the country is performing above expectations. While Kenya's ratio of trade to GDP increased during the study period it is still below the benchmark of about 80%. By comparison, countries on export-driven growth trajectories significantly outperformed their trade to GDP benchmarks for their level of economic development.

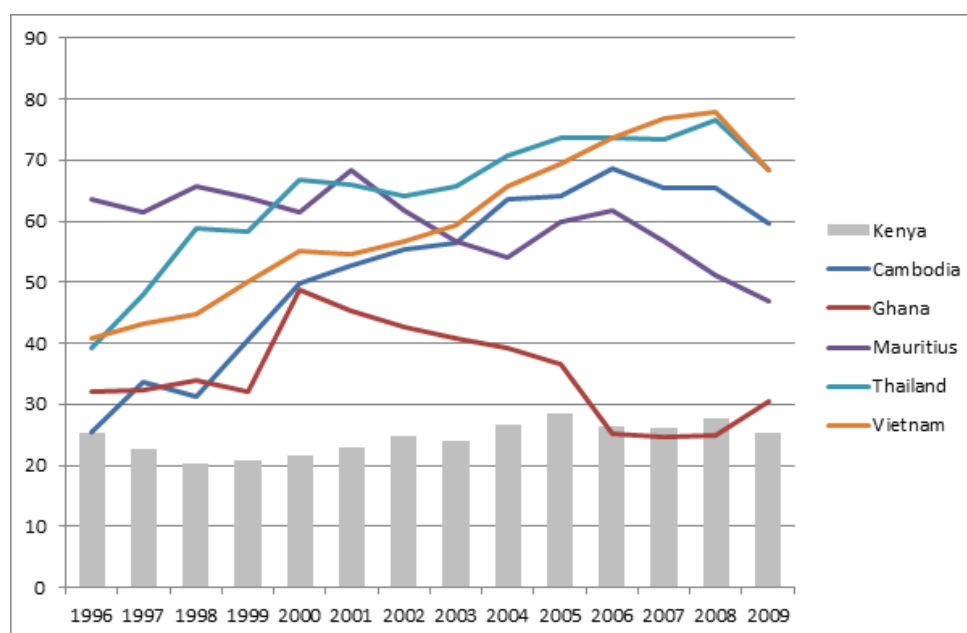
Figure 9: Openness to Trade 1996-1998



Source: WDI; Country codes: KEN: Kenya, GHA: Ghana, KHM: Cambodia, MUS: Mauritius, THA: Thailand, VNM: Vietnam

22. **Kenya's export performance is poor compared to high growth exporters.** The ratio of total exports (goods and services) to GDP has fluctuated between 20% and 28% (See Figure 10). In comparison, the ratios for Thailand and Vietnam increased from 20% to 60% over the same period.

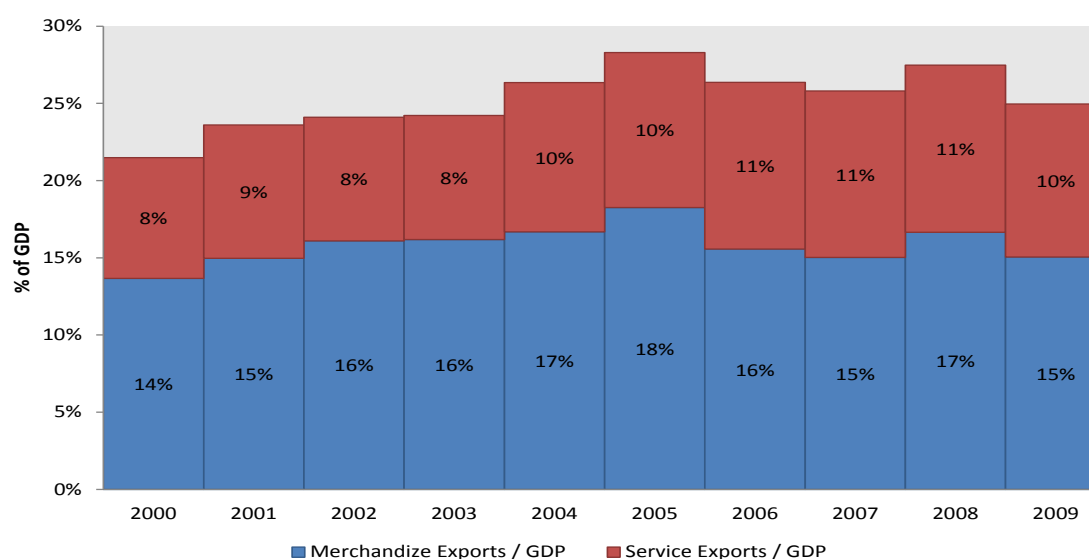
Figure 10: Trend in Exports / GDP



Source: WDI

23. **There has also been little growth in service exports (as % of GDP).** Merchandise exports as a % of GDP have remained fairly constant at about 15% - 17% of GDP (See Figure 11). Service exports have also remained fairly stagnant at around 9%-11% of GDP.

Figure 11: Merchandise and Service Exports Relative to GDP



Source: WDI

Section 2: Merchandise Export Trends

24. **The average annual growth rate of merchandise exports has been relatively low.** While there have been a couple of years with annual growth rates of over 20%, over the period the average annual growth rate has been about 10 percent. In contrast Vietnam and Cambodia have had average annual growth rates of 18 and 15 percent (see Table 2).

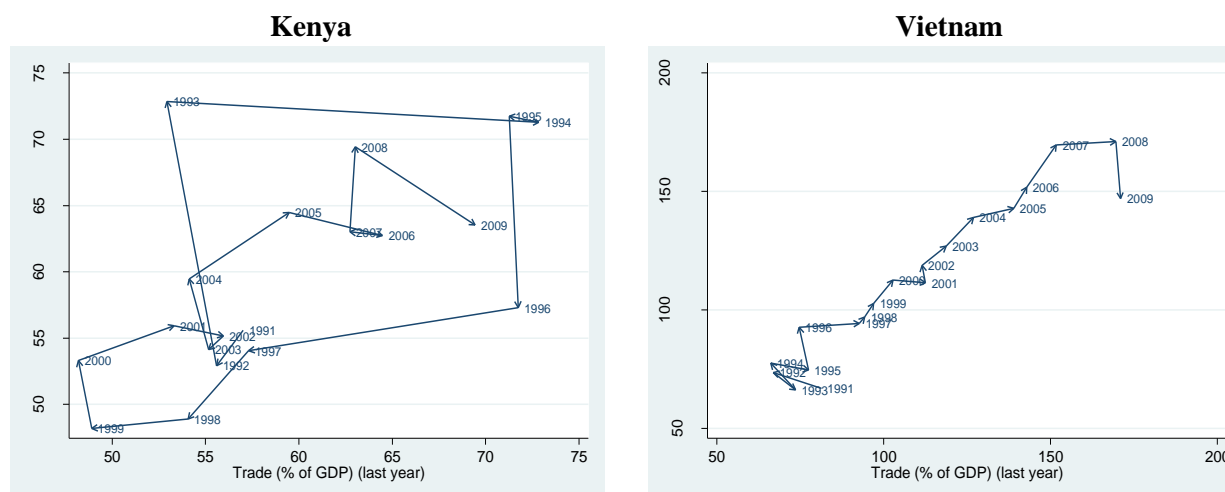
Table 2: Merchandise Export Growth Rates

	y/y growth					
	Cambodia	Ghana	Kenya	Mauritius	Thailand	Vietnam
2000	23%	-3%	-1%	14%	18%	26%
2001	8%	3%	12%	-10%	-6%	4%
2002	28%	8%	9%	11%	5%	11%
2003	10%	26%	14%	5%	18%	21%
2004	32%	5%	11%	5%	20%	31%
2005	4%	14%	23%	7%	14%	22%
2006	27%	33%	4%	9%	19%	22%
2007	11%	16%	19%	-4%	17%	22%
2008	15%	31%	22%	7%	13%	30%
2009	-12%	3%	-10%	-19%	-12%	-11%
2000-2009 Average	15%	14%	10%	3%	11%	18%

Source: COMTRADE

25. **There has been considerable volatility in the rate of merchandise exports growth (see Figure 12).** Vietnam, a successful example of export-led growth, has had a distinct export growth trajectory with steady growth in merchandise exports year after year. In contrast Kenya has had little positive momentum and in fact has had some particularly challenging years.

Figure 12: Export Growth Volatility: Kenya and Vietnam (1990-2009)

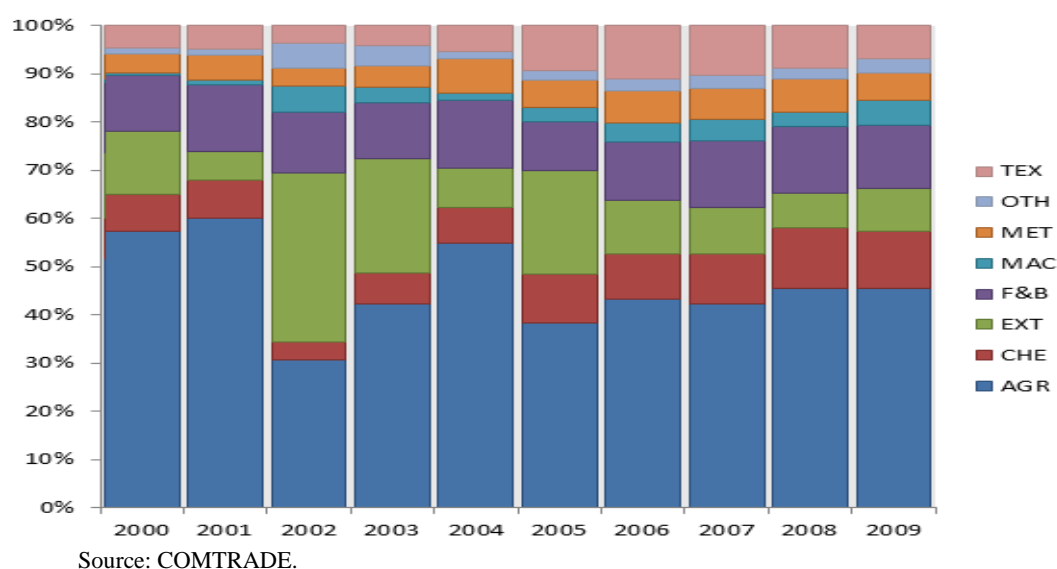


Source: WDI

Section 3: Merchandise Exports by Sector

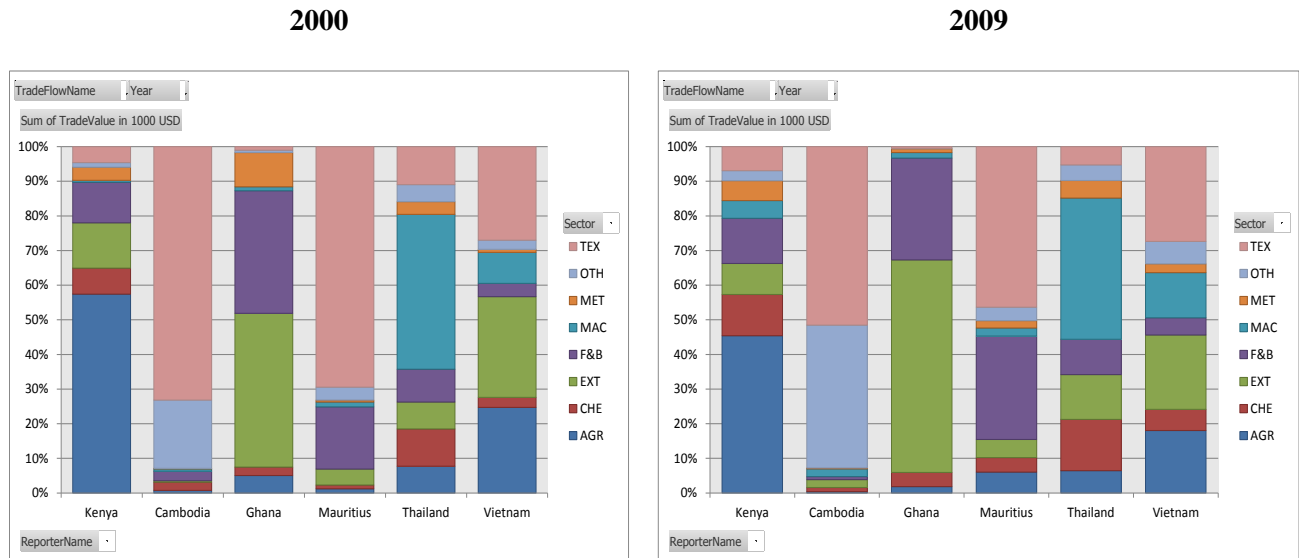
26. **The composition of merchandise exports has been changing slowly over time.** Kenya's exports are still dominated by the agriculture, meat and dairy and seafood sector⁶, which contributed 43 percent of total merchandise exports in 2005-2009 periods. Food and beverages is the second largest export category and its share of total merchandise exports has remained fairly constant. Chemicals plastics and rubber is becoming an import export commodity as its share has grown from 7 percent in 1998-2002 to 11 percent in 2005-2009 periods. This pattern is similar to that of the high growth comparators (See Figures 13-15). Cambodia and Mauritius appear to have decreased their dependence on the textiles sector while Ghana has increased its share of exports from extractive industries. The sectoral composition for Thailand and Vietnam has changed little over time.

Figure 13: Sectoral Composition of Exports: Kenya Over Time



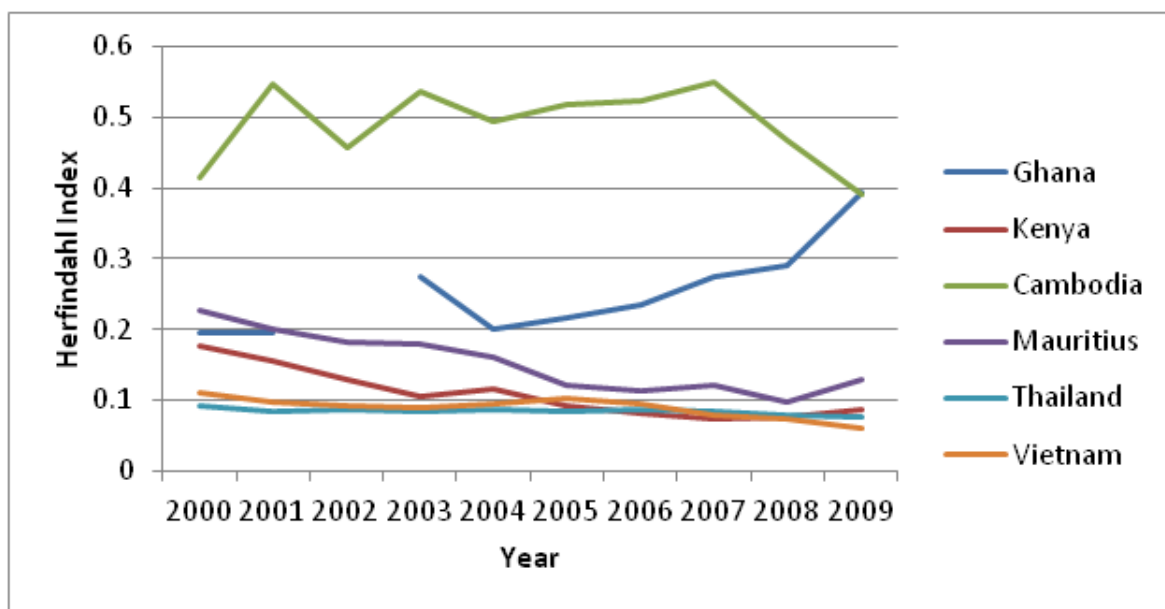
⁶ Sector Classification is based on the two digit HS codes: AFR =Agriculture, meat and dairy, seafood; CHE=Chemicals, plastics, rubber; EXT=Extractive industries; F&B= Food, beverages, tobacco, wood, paper; MAC= Machinery, electronics, transportation equipment, MET=Iron, steel and other metals; TEX=Textiles, apparel, leather, footwear; OTH=Other.

Figure 14: Sectoral Composition of Exports: Kenya vs. Peers



Source: COMTRADE

Figure 15: Kenya Herfindahl Index vs. Peers



27. **However, none of the sectors have had consistent export growth.** As illustrated in Table 3, the picture for all the sectors is similar to that for total merchandise exports. Only the agriculture, metals and food & beverage sectors managed to string together some consistent growth over the 2005-2008 period.

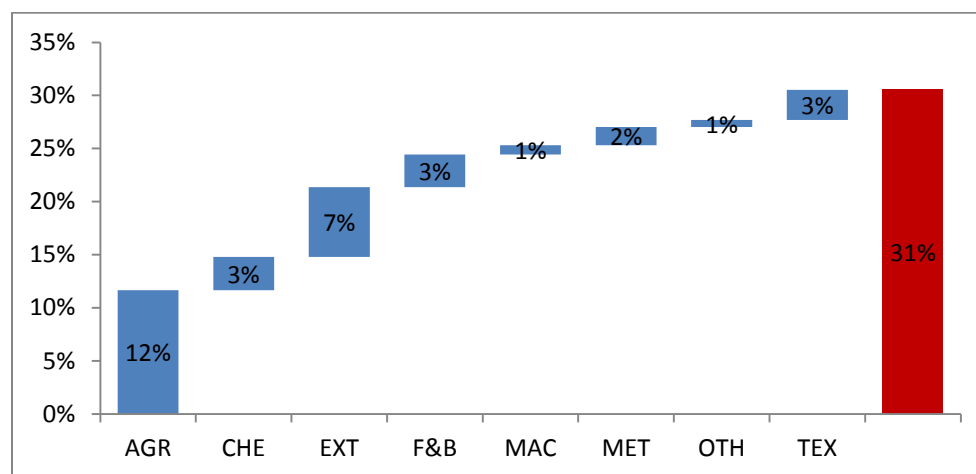
Table 3: Merchandise Exports: Sectoral Growth Rates

	AGR	CHE	EXT	F&B	MAC	MET	OTH	TEX	Grand Total
2000	2%	-11%	-3%	-21%	-45%	-15%	-14%	-9%	-5%
2001	1%	2%	-57%	14%	103%	27%	-1%	3%	-3%
2002	-53%	-58%	453%	-16%	334%	-31%	245%	-30%	-8%
2003	150%	228%	23%	71%	4%	124%	46%	102%	82%
2004	4%	-8%	-73%	-4%	-60%	25%	-73%	5%	-20%
2005	17%	133%	344%	20%	213%	34%	151%	188%	68%
2006	16%	-7%	-48%	25%	40%	19%	20%	22%	2%
2007	13%	31%	2%	30%	36%	14%	26%	8%	17%
2008	23%	36%	-13%	16%	-26%	22%	-4%	-1%	15%
2009	-5%	-9%	17%	-10%	65%	-20%	22%	-25%	-5%

28. The agriculture sector continues to be the main driver of growth of Kenyan merchandise exports.

Total merchandise exports grew by 31% over the period 2005-2009 (see Figure 16). Of this amount, 12% of the growth was from the agriculture sector while 7% was from extractive industries. Of new emerging sectors the only noticeable increase was in the chemicals sector.

Figure 16: Merchandise Exports: Growth Decomposition (2005-2009)



29. The top five merchandise categories still comprise the major share of total merchandise exports.

Table 3 shows the top 10 export product categories (at the 6 digit HS level). The share of the top 10 product groups has decreased from 76% to 61% and that of the top 5 product groups has decreased from 64% to 48% (Table 4). Furthermore while agriculture is still dominant (with the top three product groups) the share of coffee and tea has decreased from 39% to 25%. Aside from this change, the top five product groups remain the same. Two new product groups, Chemicals and Tobacco, have entered the top 10.

Table 4: Top 10 Merchandise Export Products (6-digit HS level)

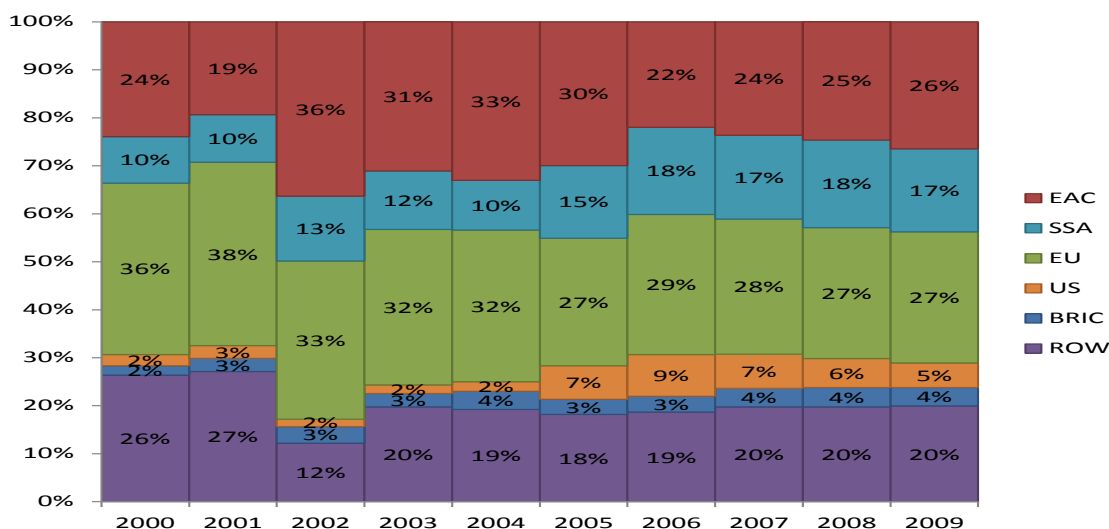
(In mil. current USD)

2000					2009				
		Value	Export Share	Cumulative		Value	Export Share	Cumulative	
	TOTAL	\$ 3,142				\$ 8,927			
1	Coffee, tea, mati and spices.	\$ 1,237	39%	39%		\$ 2,209	25%	25%	
2	Mineral fuels, oils & product of their distill	\$ 255	8%	47%		\$ 959	11%	35%	
3	Edible vegetables and certain roots and tubers	\$ 207	7%	54%		\$ 450	5%	41%	
4	Live tree & other plant; bulb, root; cut flowe	\$ 200	6%	60%		\$ 378	4%	45%	
5	Salt; sulphur; earth & ston; plastering mat; l	\$ 119	4%	64%		\$ 282	3%	48%	
6	Prep of vegetable, fruit, nuts or other parts	\$ 112	4%	68%		\$ 272	3%	51%	
7	Fish & crustacean, mollusc & other aquatic inv	\$ 78	2%	70%		\$ 270	3%	54%	
8	Plastics and articles thereof.	\$ 71	2%	72%		\$ 229	3%	57%	
9	Pharmaceutical products.	\$ 61	2%	74%		\$ 223	2%	59%	
10	Iron and steel.	\$ 60	2%	76%		\$ 209	2%	61%	

Section 4: Merchandise Exports by Destination

30. **Kenya's exports within Africa are increasing.** The main export partners are high income OECD countries and low income countries in Africa. The share of exports to Kenya's traditional trade partners - the high income OECD countries (primarily Europe, Japan and USA) has decreased from 41% to 34% (see Figure 17). At the same time exports within Africa have increased from 34% to 43%, while exports to low income countries have increased from 32% to 38%. The share of exports to BRIC countries is still low at 3%.

Figure 17: Merchandise Exports by Destination



Source: COMTRADE; Key: EAC= East African Community; SSA=Sub Saharan Africa (excluding EAC); EU=European Union; US=United States of America; BRIC= Brazil, Russia, India, China; ROW=Rest of World.

31. **At the country level, the relative importance of Kenya's market destinations has changed little over the last decade.** The share of commodity exports to the top 10 destinations reduced from 33.4% in 2000 to 31.9 percent in 2009 signaling some de-concentration. Uganda became the most important trading partner for 2009 and displacing the United Kingdom. But there was little overall change in top 10 markets except for Sudan and Congo Democratic replacing Germany and the United Arab Emirates, joining as Kenya's top commodity exports destination while United Arab Emirates and Germany falling from 10 top destinations.

Table 5: Merchandise Exports: Top Destinations

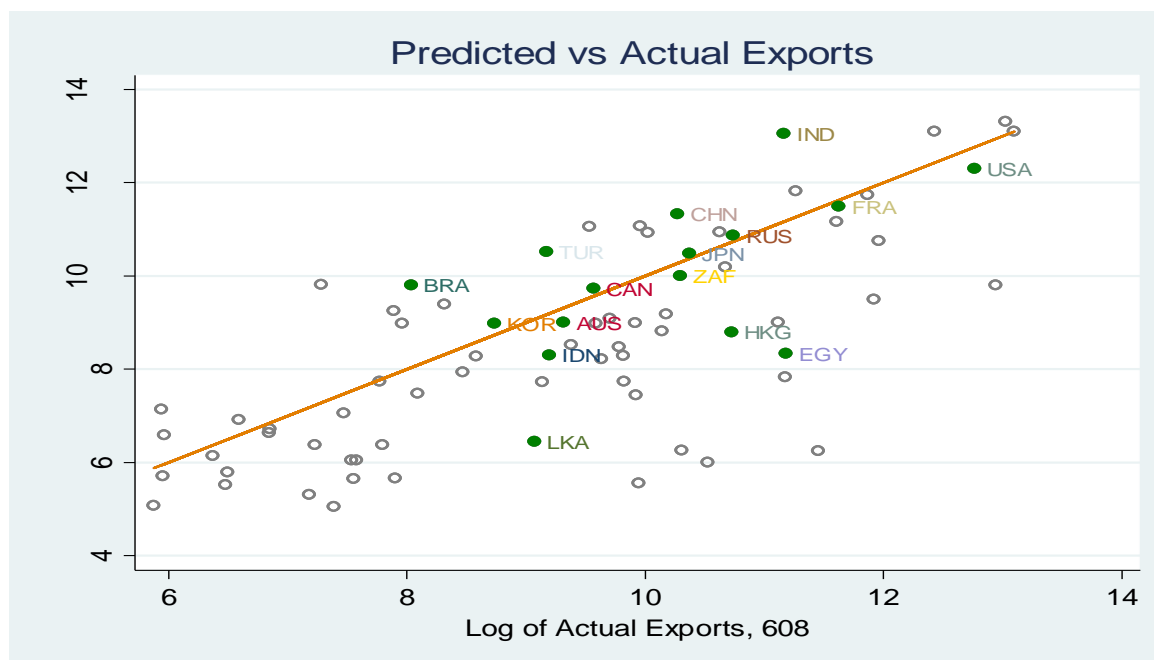
(In mil current USD)

	2000			2009		
	Value	Export Share		Value	Export Share	
TOTAL	\$ 3,142			\$ 8,927		
United Kingdom	\$ 244	7.8%	Uganda	\$ 598	6.7%	
Uganda	\$ 226	7.2%	United Kingdom	\$ 498	5.6%	
Pakistan	\$ 131	4.2%	Tanzania	\$ 389	4.4%	
Tanzania	\$ 114	3.6%	Netherlands	\$ 341	3.8%	
Netherlands	\$ 96	3.0%	United States	\$ 226	2.5%	
Egypt, Arab Rep.	\$ 93	3.0%	Pakistan	\$ 196	2.2%	
Germany	\$ 73	2.3%	Sudan	\$ 165	1.8%	
United States	\$ 36	1.2%	Egypt, Arab Rep.	\$ 154	1.7%	
United Arab Emirates	\$ 34	1.1%	Congo, Dem. Rep.	\$ 147	1.6%	
Somalia	\$ 33	1.1%	Somalia	\$ 145	1.6%	

Source: COMTRADE

32. **There is untapped potential to increase exports to the countries that play an important role on global markets.** As illustrated in Figure 18 the results from a bilateral gravity model,⁷ which is a framework to evaluate the observed bilateral trade in relation with the projected trade estimated by the model. If a partner is on the 45-degree line, the exports are in line with predictions (as is the case for Europe, US and Japan). However if the countries are above the 45-degree line, there is untapped potential to increase exports to that partner. In Kenya's case, the model suggests that Kenya under-exports to high growth emerging markets like China, Turkey, Brazil, and India.

Figure 18: Gravity Model: Predicted vs. Actual Exports, by Destination

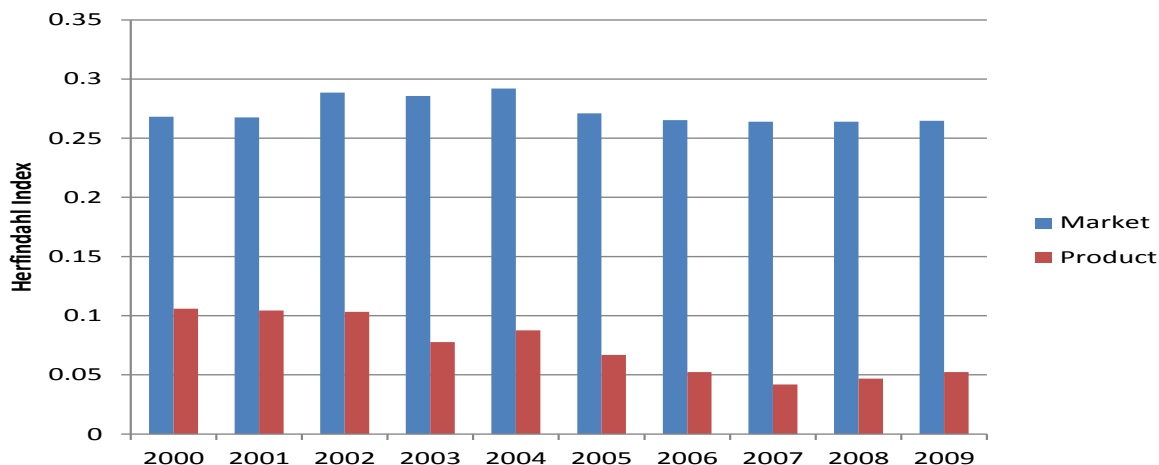


Section 5. Export Diversification

33. **Kenya's exports have become less concentrated over the last decade (see Figure 19).** The total number of markets has not changed much. The Herfindal index for markets has remained between 0.26 and 0.29 over the period. However for products the Herfindal index has decreased from 0.1 to 0.05 indicating reduced concentration.

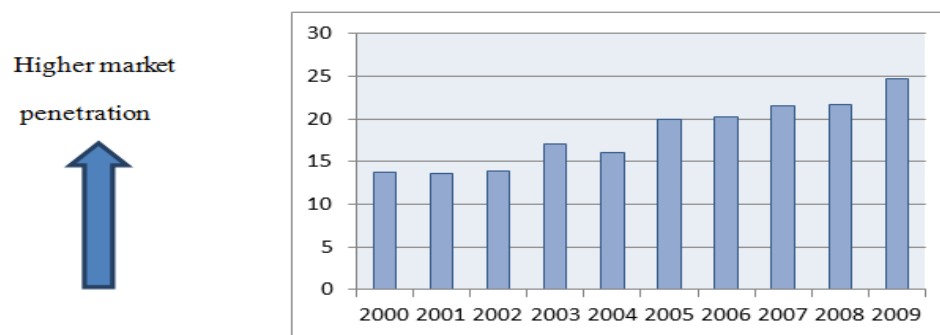
⁷ We run a cross-country regression on Kenya's exports on the following bilateral characteristics with trading partners: distance, contiguity, common language, colony, common colonial power, as well as log of GDP, and log of GDP per capita. Key: BRA=Brazil, TUR= Turkey

Figure 19: Export Diversification: Herfindahl Index for Products and Markets



- 34. There is some improvement in export market penetration (see Figure 20).** The Index of Export Market Penetration (IEMP) measures the number of markets reached by a particular country's exports compared to the potential number of markets those exports would reach if they were solid in all possible exports markets (i.e. in all countries that import that product). Over the last decade the index has increased from 14 to 25, indicating that Kenya has become better at accessing markets for its export products (confirming the analysis in Section 4).

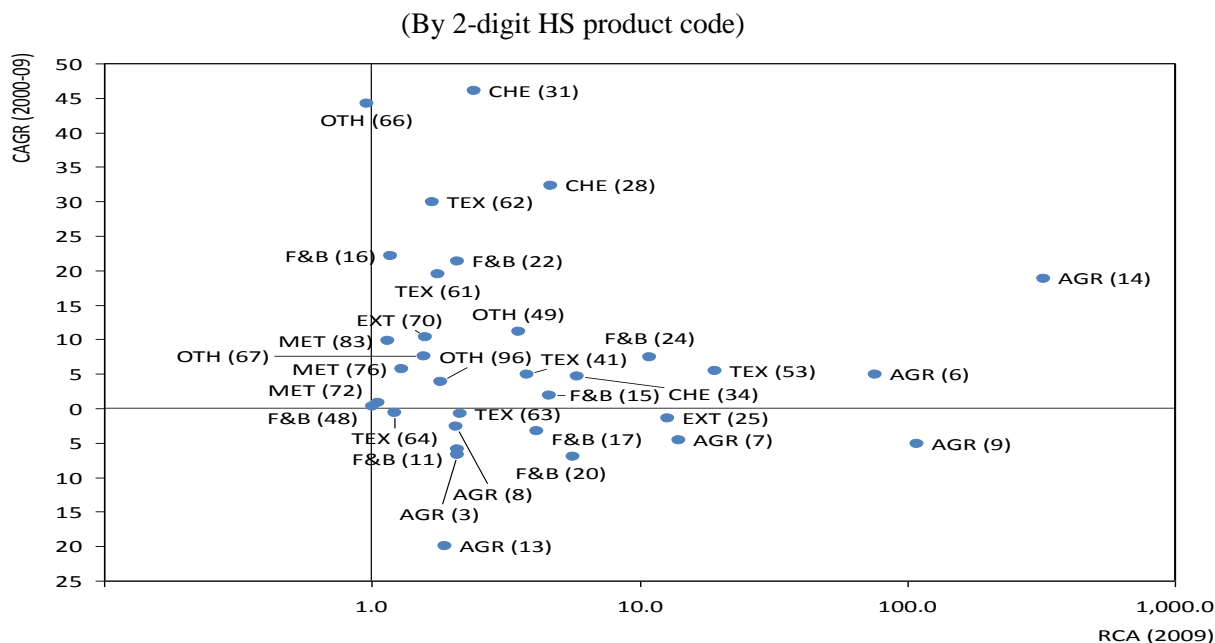
Figure 20: Index of Export Market Penetration



Source: COMTRADE

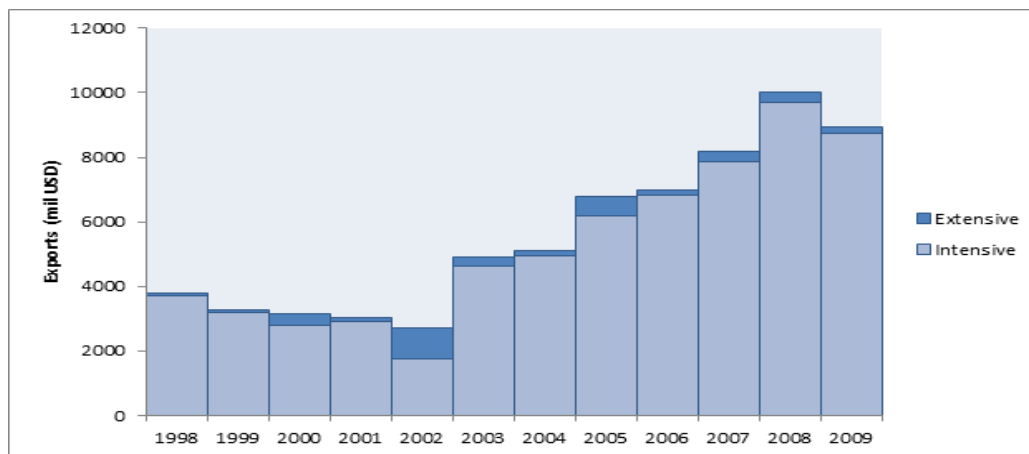
- 35. Kenya has also improved its relative competitive position in some new product categories.** Measures of revealed comparative advantage (RCA) have been used to help assess a country's export potential. The RCA indicates whether a country is in the process of extending the products in which it has a trade potential. If the RCA is above 1 then the country is said to have a revealed comparative advantage in that product category. A full list of RCA calculations for 2009 (in Appendix 1), illustrates key merchandise categories that became economically competitive over the period: inorganic chemicals, glass/glassware, beverages/spirits, metals manufacturing, and select apparel categories. The upper right quadrant of Figure 21 shows the product categories with a favorable RCA and a positive annual growth rate.

Figure 21: Evolution of Revealed Comparative Advantage (2000-09)



36. **Export growth has been driven primarily by existing products in existing markets.** Export growth can be decomposed into two broad categories – intensive margin and extensive margin. Growth at the intensive margin involves existing products and existing markets. Growth at the extensive margin can be of three types – existing products into new markets, new products into existing markets, and new products into new markets. Analysis of Kenya’s trade statistics for the period 2005 and 2009 reveals that export growth has been primarily at the intensive margin – with existing products in existing markets (see Figure 22).

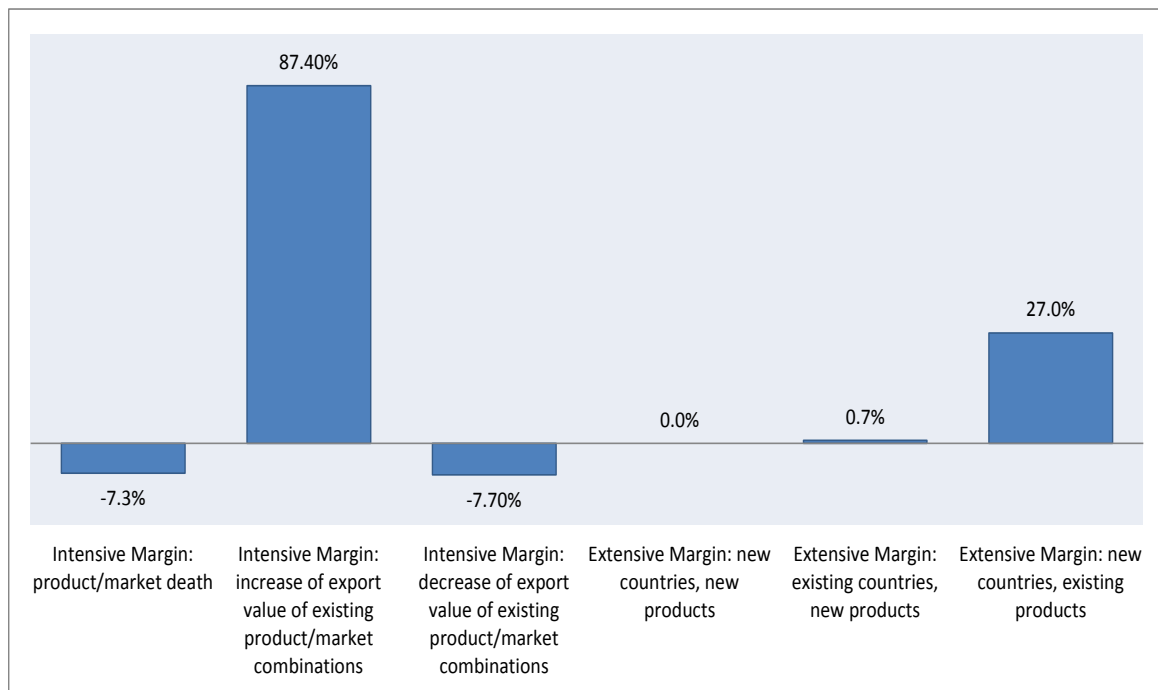
Figure 22: Kenya Export Growth - Intensive and Extensive Margins



37. **Overall there has been little new product/new market discovery** (see Figures 23-25). Cumulatively, between 2005 and 2009, approximately 72 percent of export growth was at the intensive margin. At the same time only 28% of the growth was at the extensive margin. And the bulk of this was an increase in

exports of existing products to new markets. Discovery (new products exported to either new or existing markets) accounted for less than 1 percent of growth.

Figure 23: Extensive and Intensive Margin Decomposition



Source: COMTRADE

Figure 24: Hummels-Klenow Intensive Margin (Markets): Kenya vs. Vietnam

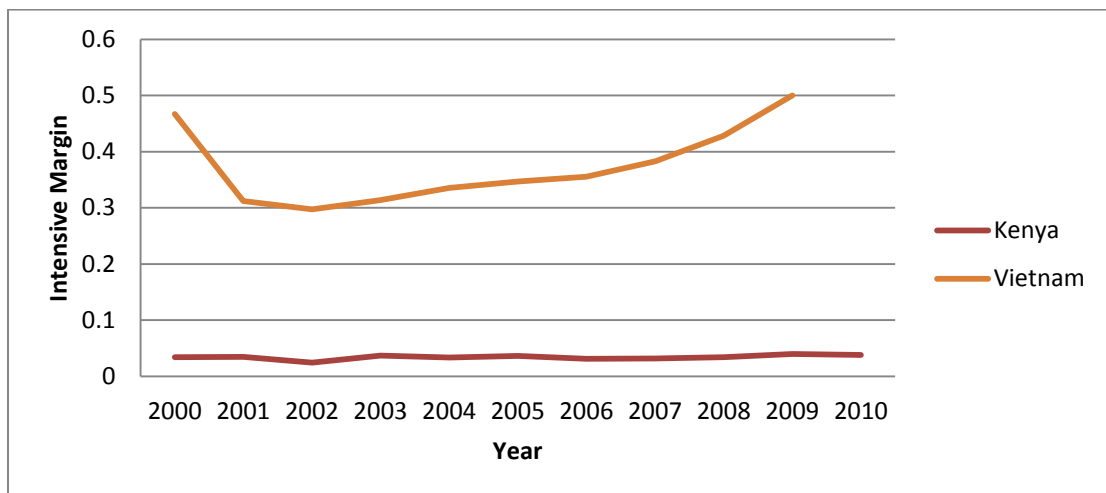
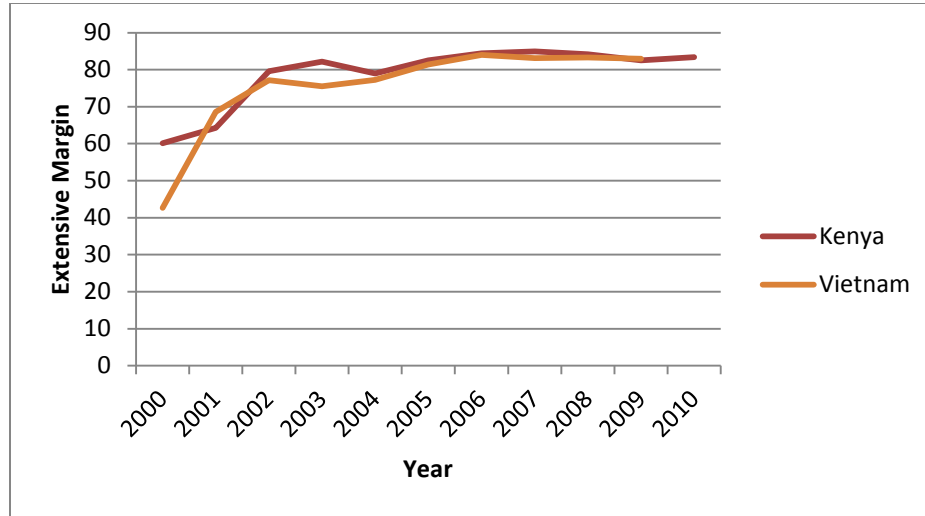


Figure 25: Hummels-Klenow Extensive Margin (Markets): Kenya vs. Vietnam



Appendix 1. Tables and Figures

Table A1. Revealed Comparative Advantage by Product (2000-2009)

Code (2-digit HS)	Product	2000	2005	2009	CAGR (2000-09)	Std Dev (2000-09)
AGR						
AGR (9)	Coffee, tea, mate and spices.	185.9	117.8	108.9	-5.2%	33.7
AGR (6)	Live tree & other plant; bulb, root; cut flowers	46.9	62.3	75.7	4.9%	13.9
AGR (14)	Vegetable planting materials; vegetable products	57.7	19.3	322.8	18.8%	95.0
AGR (7)	Edible vegetables and certain roots and tubers	22.4	18.5	14.0	-4.6%	2.4
AGR (13)	Lac; gums, resins & other vegetable saps & ext	17.6	12.5	1.9	-20.0%	6.3
AGR (3)	Fish & crustacean, mollusc & other aquatic inv	4.2	3.5	2.1	-6.7%	0.8
AGR (8)	Edible fruit and nuts; peel of citrus fruit or	2.7	1.9	2.1	-2.7%	0.7
AGR (12)	Oil seed, oleagi fruits; miscell grain, seed,	0.7	0.8	0.7	0.0%	0.3
AGR (5)	Products of animal origin, nes or included.	1.4	0.6	0.1	-20.7%	0.5
AGR (10)	Cereals	0.1	0.5	0.3	9.9%	0.2
AGR (4)	Dairy prod; birds' eggs; natural honey; edible	0.2	0.3	0.7	11.7%	0.3
AGR (1)	Live animals	0.1	0.4	0.6	16.3%	0.1
AGR (2)	Meat and edible meat offal	0.2	0.2	0.3	5.3%	0.1
CHE						
CHE (34)	Soap, organic surface-active agents, washing p	3.7	6.4	5.9	4.6%	1.5
CHE (28)	Inorgn chem; compds of prec mtl, radioact elem	0.3	4.1	4.7	32.2%	2.1
CHE (31)	Fertilisers.	0.1	1.0	2.4	46.0%	1.1
CHE (33)	Essential oils & resinoids; perf, cosmetic/toi	1.2	0.8	0.6	-6.9%	0.3
CHE (39)	Plastics and articles thereof.	0.7	0.7	0.8	1.0%	0.2
CHE (32)	Tanning/dyeing extract; tannins & derivs; pigm	0.7	0.5	0.7	-0.5%	0.2
CHE (30)	Pharmaceutical products.	1.1	0.4	0.4	-9.5%	0.2
CHE (38)	Miscellaneous chemical products.	0.5	0.8	0.5	1.0%	0.2
CHE (36)	Explosives; pyrotechnic prod; matches; pyrop a	0.2	0.4	0.7	12.0%	0.4
CHE (40)	Rubber and articles thereof.	0.4	0.4	0.4	-0.6%	0.0
CHE (35)	Albuminoidal subs; modified starches; glues; e	0.2	0.4	0.4	4.6%	0.1
CHE (29)	Organic chemicals.	0.0	0.0	0.1	14.6%	0.0
EXT						
EXT (25)	Salt; sulphur; earth & ston; plastering mat; l	14.8	8.3	12.8	-1.4%	2.5
EXT (27)	Mineral fuels, oils & product of their distill	0.9	1.6	0.4	-8.7%	1.2
EXT (70)	Glass and glassware.	0.6	1.1	1.6	10.3%	0.4
EXT (68)	Art of stone, plaster, cement, asbestos, mica/	0.4	0.3	0.3	-5.2%	0.1
EXT (71)	Natural/cultured pearls, prec stones & metals,	0.4	0.2	0.3	-2.4%	0.2
EXT (69)	Ceramic products.	0.1	0.3	0.3	9.2%	0.1
EXT (26)	Ores, slag and ash.	0.0	0.0	0.0	69.2%	0.0
F&B						
F&B (20)	Prep of vegetable, fruit, nuts or other parts	11.7	8.4	5.6	-7.1%	2.3
F&B (24)	Tobacco and manufactured tobacco substitutes	5.4	7.8	11.0	7.4%	3.2
F&B (17)	Sugars and sugar confectionery.	5.8	5.6	4.1	-3.2%	1.4
F&B (15)	Animal/veg fats & oils & their cleavage produc	3.9	4.1	4.6	1.9%	0.4
F&B (11)	Prod.mill.indust; malt; starches; inulin; wheat	3.9	2.5	2.1	-5.9%	0.6
F&B (46)	Manufactures of straw, esparto/other plaiting	1.5	0.9	0.7	-7.1%	0.3
F&B (21)	Miscellaneous edible preparations.	1.4	0.9	0.9	-4.3%	0.3
F&B (48)	Paper & paperboard; art of paper pulp, paper/p	1.0	0.8	1.0	0.2%	0.1
F&B (19)	Prep.of cereal, flour, starch/milk; pastrycook	1.2	0.9	0.8	-3.8%	0.2
F&B (22)	Beverages, spirits and vinegar.	0.3	0.4	2.1	21.3%	0.7
F&B (44)	Wood and articles of wood; wood charcoal.	0.7	0.3	0.4	-5.5%	0.1
F&B (16)	Prep of meat, fish or crustaceans, molluscs et	0.2	0.2	1.2	22.0%	0.5
F&B (18)	Cocoa and cocoa preparations.	0.5	0.5	0.4	-1.7%	0.2
F&B (23)	Residues & waste from the food indust; prepr a	0.0	0.0	0.1	14.8%	0.0
F&B (45)	Cork and articles of cork.	0.0	0.0	0.1	73.4%	0.0
F&B (47)	Pulp of wood/of other fibrous cellulosic mat;	0.0	0.0	0.1	36.4%	0.0
MAC						
MAC (88)	Aircraft, spacecraft, and parts thereof.	0.0	0.0	0.0	44.3%	0.3
MAC (87)	Vehicles o/t railw/tramw roll-stock, pts & acc	0.0	0.1	0.3	37.1%	0.1

Code (2-digit HS)	Product	2000	2005	2009	CAGR (2000-09)	Std Dev (2000-09)
MAC (85)	Electrical mchy equip parts thereof; sound rec	0.0	0.1	0.1	26.7%	0.0
MAC (84)	Nuclear reactors, boilers, mchy & mech applian	0.0	0.1	0.1	21.5%	0.0
MAC (86)	Railw/tramw locom, rolling-stock & parts there	0.0	0.1	0.0	6.6%	0.0
MAC (89)	Ships, boats and floating structures.	0.0	0.0	0.0	12.4%	0.0
MET						
MET (72)	Iron and steel.	1.0	1.2	1.1	0.8%	0.2
MET (76)	Aluminum and articles thereof.	0.7	0.9	1.3	5.7%	0.3
MET (83)	Miscellaneous articles of base metal.	0.5	0.5	1.1	9.7%	0.2
MET (73)	Articles of iron or steel.	0.5	0.5	0.6	2.1%	0.1
MET (78)	Lead and articles thereof.	0.0	0.1	0.5	28.6%	0.6
MET (79)	Zinc and articles thereof.	0.8	0.4	0.4	-7.4%	0.2
MET (74)	Copper and articles thereof.	0.2	0.3	0.6	14.3%	0.2
MET (82)	Tool, implement, cutlery, spoon & fork, of bas	0.1	0.4	0.3	11.5%	0.1
MET (80)	Tin and articles thereof.	0.1	0.2	0.0	-14.1%	0.0
MET (81)	Other base metals; cermets; articles thereof.	0.1	0.0	0.0	-26.2%	0.1
MET (75)	Nickel and articles thereof.	0.0	0.0	0.0	0.0%	0.0
OTH						
OTH (49)	Printed books, newspapers, pictures & other pr	1.2	1.9	3.6	11.1%	2.6
OTH (96)	Miscellaneous manufactured articles.	1.2	1.7	1.8	3.9%	0.5
OTH (67)	Prepr feathers & down; arti flower; articles h	0.8	1.7	1.6	7.5%	0.3
OTH (66)	Umbrellas, walking-sticks, seat-sticks, whips,	0.0	0.7	1.0	44.1%	0.7
OTH (94)	Furniture; bedding, mattress, matt support, cu	0.3	0.4	0.5	5.2%	0.1
OTH (37)	Photographic or cinematographic goods.	0.0	0.5	0.1	15.9%	0.4
OTH (97)	Works of art, collectors' pieces and antiques.	0.2	0.4	0.2	0.6%	0.1
OTH (95)	Toys, games & sports requisites; parts & accesso	0.1	0.3	0.3	18.6%	0.1
OTH (93)	Arms and ammunition; parts and accessories the	0.0	0.2	0.1	81.5%	0.3
OTH (90)	Optical, photo, cine, meas, checking, precision	0.0	0.1	0.1	16.7%	0.0
OTH (92)	Musical instruments; parts and access of such	0.0	0.4	0.0	-2.3%	0.1
OTH (91)	Clocks and watches and parts thereof.	0.0	0.0	0.0	26.8%	0.0
OTH (43)	Furskins and artificial fur; manufactures ther	0.0	0.0	0.1	19.6%	0.0
TEX						
TEX (53)	Other vegetable textile fibers; paper yarn & w	11.4	12.4	19.3	5.4%	4.2
TEX (41)	Raw hides and skins (other than furskins) and	2.4	3.7	3.8	4.8%	1.0
TEX (63)	Other made up textile articles; sets; worn clo	2.3	3.3	2.2	-0.9%	0.7
TEX (62)	Art of apparel & clothing access, not knitted/	0.1	2.9	1.7	29.9%	1.5
TEX (64)	Footwear, gaiters and the like; parts of such	1.3	1.2	1.2	-0.7%	0.4
TEX (61)	Art of apparel & clothing access, knitted or c	0.3	1.3	1.8	19.5%	0.7
TEX (55)	Man-made staple fibres.	0.8	0.5	0.9	1.2%	0.3
TEX (56)	Wadding, felt & nonwoven; yarns; twine, cordag	1.1	1.2	0.3	-13.1%	0.4
TEX (51)	Wool, fine/coarse animal hair, horsehair yarn	0.3	0.4	0.7	8.0%	0.1
TEX (65)	Headgear and parts thereof.	0.1	0.4	0.4	13.1%	0.2
TEX (52)	Cotton.	0.7	0.4	0.2	-11.8%	0.2
TEX (59)	Impregnated, coated, cover/laminated textile f	0.5	0.1	0.0	-23.7%	0.1
TEX (42)	Articles of leather; saddlery/harness; travel	0.0	0.1	0.1	17.2%	0.1
TEX (58)	Special woven fab; tufted tex fab; lace; tapes	0.1	0.1	0.1	3.7%	0.0
TEX (54)	Man-made filaments.	0.1	0.0	0.0	-7.6%	0.1
TEX (60)	Knitted or crocheted fabrics.	0.0	0.1	0.0	-5.8%	0.0
TEX (57)	Carpets and other textile floor coverings.	0.0	0.1	0.1	22.8%	0.0
TEX (50)	Silk.		0.0	0.0		

Appendix 2. Technical Indicators of Trade Performance (COMTRADE/WITS)

Country's Share of World Exports

It is the share of a country's total exports in the world's total exports. This ratio can be used to assess changing world market share of a country over time.

Share of Product in Total Exports

It is the share of each export product (at a chosen level of disaggregation) in the country's total exports.

Share of Market in Total Exports

It is the share of exports sold in each foreign country in the home country's total exports.

Hirschman Herfindahl Index

It is the sum of squared shares of each product in total export. A country with a perfectly diversified export portfolio will have an index close to zero, whereas a country which exports only one export will have a value of 1 (least diversified).

Revealed Comparative Advantage Index

Measures of revealed comparative advantage (RCA) have been used to help assess a country's export potential. The RCA indicates whether a country is in the process of extending the products in which it has a trade potential, as opposed to situations in which the number of products that can be competitively exported is static. It can also provide useful information about potential trade prospects with new partners. Countries with similar RCA profiles are unlikely to have high bilateral trade intensities unless intra-industry trade is involved. RCA measures, if estimated at high levels of product disaggregation, can focus attention on other nontraditional products that might be successfully exported. The RCA index of country i for product j is often measured by the product's share in the country's exports in relation to its share in world trade:

$$RCA_{ij} = (x_{ij}/X_{it}) / (x_{wj}/X_{wt})$$

Where x_{ij} and x_{wj} are the values of country i 's exports of product j and world exports of product j and where X_{it} and X_{wt} refer to the country's total exports and world total exports. A value of less than unity implies that the country has a revealed comparative disadvantage in the product. Similarly, if the index exceeds unity, the country is said to have a revealed comparative advantage in the product.

Trade Intensity Index

The trade intensity index (T) is used to determine whether the value of trade between two countries is greater or smaller than would be expected on the basis of their importance in world trade. It is defined as the share of one country's exports going to a partner divided by the share of world exports going to the partner. It is calculated as:

$$T_{ij} = (x_{ij}/X_{it}) / (x_{wj}/X_{wt})$$

Where x_{ij} and x_{wj} are the values of country i 's exports and of world exports to country j and where X_{it} and X_{wt} are country i 's total exports and total world exports respectively. An index of more (less) than one indicates a bilateral trade flow that is larger (smaller) than expected, given the partner country's importance in world trade.

Trade Complementarity Index

The trade complementarity (TC) index can provide useful information on prospects for intraregional trade in that it shows how well the structures of a country's imports and exports match. It also has the attraction that its values for countries considering the formation of a regional trade agreement can be compared with others that have formed or tried to form similar arrangements. The TC between countries k and j is defined as:

$$TC_{ij} = 100(1 - \text{sum}(|m_{ik} - x_{ij}| / 2))$$

Where x_{ij} is the share of good i in global exports of country j and m_{ik} is the share of good i in all imports of country k. The index is zero when no goods are exported by one country or imported by the other and 100 when the export and import shares exactly match.

Export Diversification (or Concentration) Index

Export diversification is held to be important for developing countries because many developing countries are often highly dependent on relatively few primary commodities for their export earnings. Unstable prices for these commodities may subject a developing country exporter to serious terms of trade shocks. Since the covariation in individual commodity prices is less than perfect, diversification into new primary export products is generally viewed as a positive development. The strongest positive effects are normally associated with diversification into manufactured goods, and its benefits include higher and more stable export earnings, job creation and learning effects, and the development of new skills and infrastructure that would facilitate the development of even newer export products. The export diversification (DX) index for a country is defined as:

$$DX_j = (\text{sum } |h_{ij} - x_i|) / 2$$

Where h_{ij} is the share of commodity i in the total exports of country j and h_i is the share of the commodity in world exports. The related measure used by UNCTAD is the concentration index or Hirschman (H) index, which is calculated using the shares of all three-digit products in a country's exports:

$$H_j = \text{sqrt} [\text{sum } (x_i/X_j)^2]$$

Where x_i is country j's exports of product i (at the three-digit classification) and X_j is country j's total exports. The index has been normalized to account for the number of actual three-digit products that could be exported. Thus, the maximum value of the index is 239 (the number of individual three-digit products in SITC revision 2), and its minimum (theoretical) value is zero, for a country with no exports. The lower the index, the less concentrated are a country's exports.

Export Specialization Index

The export specialization (ES) index is a slightly modified RCA index, in which the denominator is usually measured by specific markets or partners. It provides product information on revealed specialization in the export sector of a country and is calculated as the ratio of the share of a product in a country's total exports to the share of this product in imports to specific markets or partners rather than its share in world exports:

$$ES = (x_{ij}/X_{it}) / (m_{kj}/M_{kt})$$

Where x_{ij} and X_{it} are export values of country i in product j, respectively, and where m_{kj} and M_{kt} are the import values of product j in market k and total imports in market k. The ES is similar to the RCA in that the value of the index less than unity indicates a comparative disadvantage and a value above unity represents specialization in this market.

Index of Export Market Penetration

It is the share of the actual number of export relationships (at the country product level) forged by Country A in the maximum possible number of export relationships it can form given the number of its exports. The denominator is calculated by summing the number of countries that import each product that Country A also exports.

Hummels-Klenow (Products) Intensive Margin

It is the share of Country A's exports in world export of only those goods that Country A exports.

Hummels-Klenow (Products) Extensive Margin

It is the share of world export only in goods that Country A exports in total world exports of all goods.

Hummels-Klenow (Markets) Intensive Margin

It is the share of Country A's exports in total world export to only those countries that Country A exports to.

Hummels-Klenow (Markets) Extensive Margin

It is the share of world export to only those countries that Country A exports to in total world exports of all goods.