

# **African Export Successes: Surprises, Stylized Facts and Explanations<sup>1</sup>**

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VERY PRELIMINARY DRAFT

Abstract:

We establish the following stylized facts on African exports (subject to concerns about data quality discussed in the paper): (1) Exports are characterized by Big Hits (which turns out to be the similar pattern to non-African countries), but (2) the Hits do not stay the same from one period to the next and (3) this change is not explained by anything obvious like global commodity prices. These conclusions are robust to excluding extractable products (oil and minerals) and other commodities. In order to better understand the determinants of export success in Africa we interviewed several exporting entrepreneurs, government officials and NGOs. These interviews taught us that the determinants of exporting success in Africa are not dissimilar from those in the West. Cost shocks can reverse a big hit. Given a reversal in one country, government policy and foreign aid can turn this cost shock into a big hit for others. Bar some interventions of foreign aid, entrepreneurs overcome hurdles to foreign markets much the same way as their counterparts do elsewhere.

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<sup>1</sup> We wish to thank Shuahnik Hakobyan for excellent research assistance and work with the data.

Over the last 15 years or so we have witnessed a sharp increase in worldwide export activity. Africa has not lagged in this respect. From 1994 to 2008 exports of goods per capita from sub-Saharan Africa have increased more than fourfold, or 13% per year on average. This is compared with 4% for the U.S., 8% for Germany, 13% for India and 19% for China.<sup>2</sup> Given the well known difficulties in exporting from Africa (let alone running business there), 13% annual growth rates of exports per capita are no small feat.<sup>3</sup>

Another interesting fact is that much of the export growth is regional. The share of exports from the average sub-Saharan Africa country with destinations outside of sub-Saharan Africa has steadily declined from 71% in 1994 to 53% in 2008. Broadly speaking, the composition of exports from sub-Saharan Africa has remained relatively constant over time, with a relatively low share of manufacturing exports and high shares of practically all other export categories (agriculture, food, fuel and ores and metals). However, on a closer, detailed examination of export activity, it becomes evident that not all agricultural exports are the same, and they are, in fact, highly differentiated by price and quality. This arises from our examination of export activities on the ground, in a group of focus East African countries which we visited. For example, it seems that not all agricultural products are the same. We witness increases in quality, as well as highly differentiated products that are exported, sometimes exclusively to Europe and the U.S., other times regionally.

In this paper we demonstrate that several common views about exporting activity from Africa are not accurate at best, and in some cases simply wrong. Broadly speaking, these perceptions are that within exported products success (Big Hits) is rarer in Africa than elsewhere, that Africa simply exports a fixed set of commodity endowments, and as such, revenues are determined by world prices. In fact, we demonstrate that in many dimensions export data, the rest of the world is in line with Africa. For instance, it appears that, on average, Big Hits are just as rare in Africa as anywhere else. Moreover, it is not correct that worldwide commodity price movements determine export revenues in Africa. Nor is there much of a difference in this statistical regularity between commodities and manufactured products.

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<sup>2</sup> Data from World Bank *World Development Indicators* database.

<sup>3</sup> The World Bank *Doing Business* database exhibits glaring differences in the ease of export activity between African countries and the U.S. and Germany, but also versus India and China in almost every measured dimension.

We were able to do very detailed analysis by product (at the HS4 level) using the COMTRADE database to establish stylized facts. However, COMTRADE caused us concerns as well as great access to detail. We noticed signs of serious measurement error problems, to which we devote a whole section below. In the worst case scenario, some of our results could be driven by measurement error. Other results are somewhat less subject to measurement error because they compare results across groups of countries or products, and there is usually no a priori reason to expect measurement error to be systematically different between these different groups (although of course this possibility still remains).

With this new and better understanding of the statistical data, we traveled to a set of East African countries and interviewed several exporting entrepreneurs in booming export industries, as well as government officials and NOG personnel with one broad question in mind: what are the determinants of export success in Africa? We have come up with a set of answers that, in many respects would not be different from what we might expect to find elsewhere. African exporting entrepreneurs are doing pretty much the same kinds of activities that exporters are expected to do anywhere else. These include quality upgrading, relying on market studies and, of course, pure luck. We find that there is a role for international aid organizations in bridging the gaps between Africa and markets in the West, but that only careful implementation of aid in partnership with local producers (or farmers) works well. Another important factor seems to be regional free trade zone agreements and low duties for imports into Europe.

Our paper also corroborates the conclusions of Artopolus, Friel and Hallak (2007), which find that successful exporters in Argentina who either pioneer a new industry or participate in a new booming one have a particular mindset, exposure to the world, and the correct “export business model” (as opposed to a domestic mode of operation). We find this to be true in almost all of our export success stories.

Although not the focus of the paper, we contribute to the international trade literature more broadly, by exposing several case studies on export decisions. One of the most important questions in the trade literature is whether exporting improves productivity or are exporters simply selecting into exporting (see, Clerides, Lach and Tybout 1999, Melitz 2003). It appears that sometimes one is a good description of the export decision and sometimes it is the other. Moreover, improvements in efficiency can be confused with investments that are necessary to

deal with complex export logistics and paperwork. In our interviews we also observe deliberate export decisions, but also unintentional exporting entry that happens by chance.

Another regularity that we have observed is that quality matters. Practically every exporter that we interviewed told us this, invariantly in the beginning of our interview.<sup>4</sup> However, when exporting regionally, and given the relatively low incomes of consumers in Africa, cost seems to matter more. This does not mean that quality is neglected: there is a tradeoff between the two, and when incomes are low, costs trump quality. In some sense, this is a positive result: our theories and models are not completely off mark. However, it also goes to show that no one model is right. For example, it is not a matter of whether exporters compete on quality or price; rather, we find exporters stressing on either dimension in their export activities, and sometimes both. These findings may inform theoretical efforts to model export activities.

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<sup>4</sup> The quality question was not the first to be asked, though. After explaining who we are, we started each interview by stating our research question and then allowing the entrepreneur to start talking freely about her business. Almost invariably it was at that stage that quality came up.

## 1. Success is Rare and dominated by a few Big Hits

Success in exporting is rare. This is manifested in the data by concentration of export revenue on a small number of Big Hits. An easy way to summarize this rareness of export success and the relative size of Big Hits is the following statement: African exports approximately follow a power law – the top ranked exports are vastly larger than lower ranked exports. We calculate the average export share of the #1 ranked export product for all 37 African countries for which we have data, then #2 down to #20. The results are reported in Table 1. Figures 1 and 2 display the power law graphically.

Table 1 also shows how the rankings are affected by excluding extractables (oil and minerals) and commodities. Then the table compares the Africa “Big Hits” pattern to that for non-African countries (all other countries in the world). In addition, the table shows in the last line the coefficient to the approximate power law, which is calculated by regressing log rank on log export share for the top 20 products in each column.

The common perception of African countries as undiversified, mono-exporters is partially confirmed by this data. However, what is new here is that both African and Non-African exports have the same tendency of very fat-tailed distributions and Big Hits (which in the tail is approximately a power law). Africa can then be seen as simply having a more extreme power law, rather than being completely unique in having high concentration of the top exports.

It is somewhat troubling that the power coefficients are estimated to be less than unity in absolute value. As is well known, when the power coefficient is less than unity, the implied theoretical Pareto distribution does not have finite moments. This issue has plagued the structural empirical trade literature. Several explanations have been advocated, including Arkolakis (2009) and XXXX. Although this may raise some theoretical concerns, we take it as given. The surprising and interesting point is that the top 20 export products are ranked on an almost perfect straight line (in logs), which shows both the rareness of Big Hits, as well as their relative size.

The fact that there is a linear relationship between rank and export share in logs shows two things. First, that the distribution of exports exhibits fat tails: although Big Hits are uncommon in our dataset, they would not exist at all in a normal distribution of export success. Second, the probability of observing a Big Hits of size  $x$  declines exponentially with the expected size of the

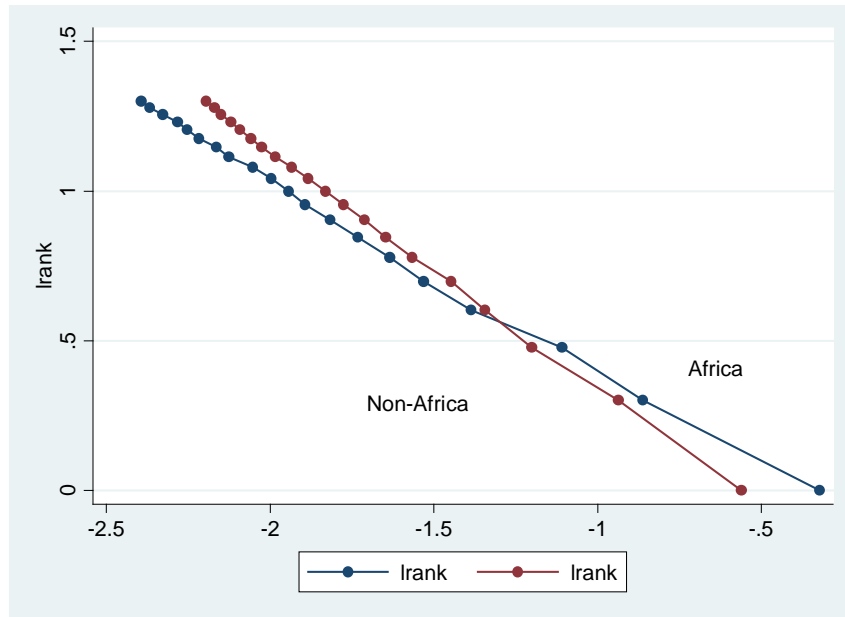
hit. In other words, the probability of observing a hit of size  $x$  is proportional to  $x^{-p}$ , where  $p$  is the power law.

However, as we demonstrate below, even the Big Hits in Africa change a lot over time.

Table 1: Average of top 20 goods for all countries in group shown

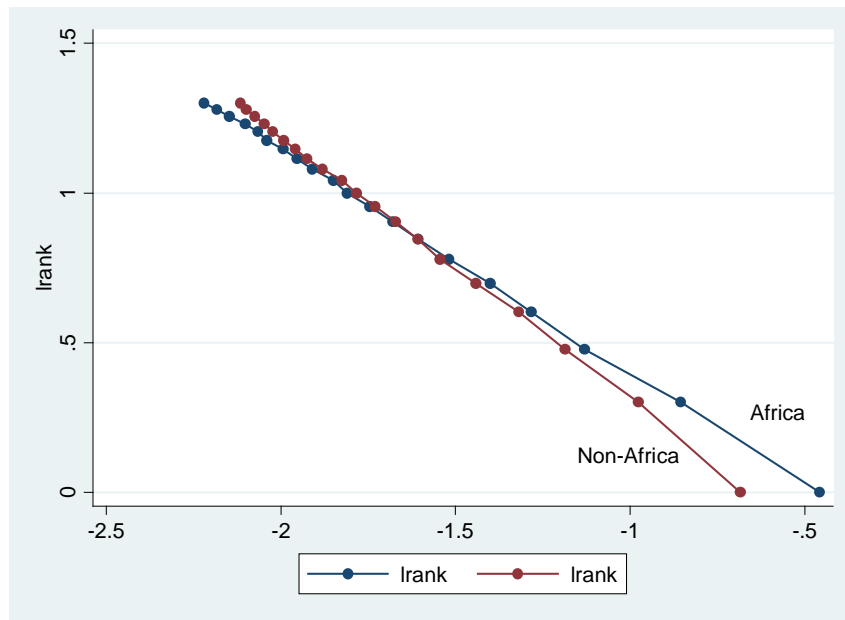
Export rank of Good	Export Shares, Average of 37 African Countries			Export Shares, Average of 130 Non- African Countries		
	all goods	excluding extractables	excluding extractables and commodities	all goods	excluding extractables	excluding extractables and commodities
1	47.6%	42.6%	34.9%	27.5%	21.4%	20.7%
2	13.7%	15.5%	14.0%	11.6%	10.5%	10.6%
3	7.8%	7.5%	7.4%	6.3%	6.7%	6.5%
4	4.1%	4.6%	5.2%	4.5%	4.8%	4.8%
5	2.9%	3.2%	4.0%	3.6%	3.8%	3.6%
6	2.3%	2.7%	3.0%	2.7%	2.9%	2.9%
7	1.9%	2.1%	2.5%	2.2%	2.4%	2.5%
8	1.5%	1.7%	2.1%	1.9%	2.1%	2.1%
9	1.3%	1.5%	1.8%	1.7%	1.8%	1.9%
10	1.1%	1.3%	1.5%	1.5%	1.6%	1.6%
11	1.0%	1.1%	1.4%	1.3%	1.5%	1.5%
12	0.9%	1.0%	1.2%	1.2%	1.3%	1.3%
13	0.7%	0.9%	1.1%	1.0%	1.2%	1.2%
14	0.7%	0.8%	1.0%	0.9%	1.1%	1.1%
15	0.6%	0.7%	0.9%	0.9%	1.0%	1.0%
16	0.6%	0.6%	0.9%	0.8%	0.9%	0.9%
17	0.5%	0.6%	0.8%	0.8%	0.9%	0.9%
18	0.5%	0.5%	0.7%	0.7%	0.8%	0.8%
19	0.4%	0.5%	0.7%	0.7%	0.8%	0.8%
20	0.4%	0.5%	0.6%	0.6%	0.8%	0.8%
"power law" coef.	-0.64	-0.67	-0.75	-0.79	-0.87	-0.88

Figure 1: Power Law, All Goods



Horizontal axis is log base 10 of average export share corresponding to each rank  
Vertical axis is log base 10 of rank from 1 to 20

Figure 2: Power Laws, Excluding Extractables and Commodities



Horizontal axis is log base 10 of average export share corresponding to each rank  
Vertical axis is log base 10 of rank from 1 to 20



## 2. The Big Hits change from one period to the next

If Big Hits were there to stay forever, then this would simplify the discussion. It would follow that some countries are simply better at producing some products and they export those in which they have a comparative advantage. In other words, the simple Ricardian model is a good description of the world. However, as we demonstrate here, Big Hits do not remain so big relative to other Big Hits for long.

The composition of export Big Hits changes quite a bit over time. Figures 3a-3d report this phenomenon for selected countries. In those figures we report the rank and value of the top 10 exports in at the (HS) 4-digit level in the start date and examine what their rank is in the end date.

Tables 2a-2b make this argument more formal and general. In Table 2a we report the low correlation of export basket in a start year with that in the end year for each country for a sample of focus countries. In Table 2b we demonstrate this shows that these results are not far from the average African Country. Restricting to non-extractables and non-commodities does not change things materially. In addition, the results are not dissimilar for non-African countries. Although the rank correlation over all goods seems higher for non-African countries, restricting to the top 50 or 100 goods brings non-African countries in line with Africa. The top 50 products account for over 80% of export value on average, so the similarities at the top of the distribution are also those that matter most.

Figure 3a

Ghana Top Ten Exports in Real Value in 1996 and 2008 (thousand US\$)						
description	rvalue1996	rank1996		description	rvalue2008	rank2008
Cocoa beans, whole or broken, in bulk	\$ 976,646	1	→	Gold, unwrought, semi-manufactured	\$ 1,814,192	1
Gold, unwrought, semi-manufactured	\$ 965,567	2	→	Cocoa beans, whole or broken, in bulk	\$ 1,031,154	2
Wood sawn, chipped lengthwise	\$ 277,491	3	→	Wood sawn, chipped lengthwise	\$ 131,018	3
Veneers and sheets for plywood	\$ 220,638	4	→	Coconuts, Brazil nuts and cashew nuts	\$ 119,222	4
Cocoa butter, fat, oil	\$ 141,285	5	→	Plywood, veneered panels and sheets	\$ 75,002	5
Unwrought aluminium	\$ 111,920	6	→	Veneers and sheets for plywood	\$ 58,597	6
Oils petroleum, bituminous, distillates	\$ 84,100	7	→	Oil seeds and oleaginous fruits nes	\$ 55,475	7
Prepared or preserved fish, fish or shellfish	\$ 62,896	8	→	Oils petroleum, bituminous, distillates	\$ 53,047	8
Natural rubber and gums, in primary forms	\$ 31,759	9	→	Manganese ores, concentrates	\$ 49,852	9
Aluminium ores and concentrates	\$ 29,809	10	→	Cocoa butter, fat, oil	\$ 47,549	10
Manganese ores, concentrates	\$ 19,676	12	→	Natural rubber and gums, in primary forms	\$ 23,735	14
Oil seeds and oleaginous fruits nes	\$ 15,568	14	→	Prepared or preserved fish, fish or shellfish	\$ 20,904	16
			→	Aluminium ores and concentrates	\$ 17,937	18
Plywood, veneered panels and sheets	\$ 13,848	20	→			
Coconuts, Brazil nuts and cashew nuts	\$ 709	67	→	Unwrought aluminium	\$ 447	132

Figure 3b

Ethiopia Top Ten Exports in Real Value in 2001 and 2008 (thousand US\$)						
description	2001			description	2008	
Coffee, coffee husks and skins and coffee seeds	\$ 173,663		→	Coffee, coffee husks and skins and coffee seeds	\$ 562,263	
Vegetable products, nes	\$ 64,935		→	Oil seeds and oleaginous fruits nes	\$ 250,275	
Oil seeds and oleaginous fruits nes	\$ 44,925		→	Vegetables, leguminous dried, shelled	\$ 116,997	
Sheep or lamb skin leather, without wool on	\$ 31,675		→	Cut flowers, dried flowers for bouquets, etc.	\$ 104,740	
Vegetables, leguminous dried, shelled	\$ 24,839		→	Vegetables nes, fresh or chilled	\$ 83,462	
Buckwheat, millet and canary seed, other cereals	\$ 21,492		→	Gold, unwrought, semi-manufactured	\$ 79,898	
Goat or kid skin leather, without hair	\$ 19,830		→	Vegetable products, nes	\$ 30,526	
Raw hides and skins of bovine, equine animals	\$ 16,311		→	Raw skins of sheep or lambs	\$ 30,053	
Raw skins of sheep or lambs	\$ 13,226		→	Sheep or lamb skin leather, with wool on	\$ 28,816	
Niobium tantalum vanadium zirconium ores	\$ 12,148		→	Meat of sheep or goats, fresh, chilled or frozen	\$ 28,054	
			→	Goat or kid skin leather, without hair	\$ 22,721	
Gold, unwrought, semi-manufactured, powder form	\$ 5,413		→			
Meat of sheep or goats, fresh, chilled or frozen	\$ 1,794		→	Niobium tantalum vanadium zirconium ores	\$ 857	
			→	Raw hides and skins of bovine, equine animals	\$ 338	
Cut flowers, dried flowers for bouquets, etc.	\$ 174		→	Buckwheat, millet and canary seed, other cereals	\$ 39	
Vegetables nes, fresh or chilled	\$ 2		→			

Figure 3c

Uganda top 10 real exports in 1995 and 2008 (thousand US\$)						
description	1995	rank1995		description	2008	rank2008
Coffee, coffee husks and skins and coffee	\$ 487,662	1	→	Coffee, coffee husks and skins and coffee	\$ 403,138	1
Fish fillets, fish meat, mince except liver,	\$ 39,211	2	→	Fish fillets, fish meat, mince except liver, r	\$ 107,942	2
Gold, unwrought, semi-manufactured, pow	\$ 36,160	3	→	Cement (portland, aluminous, slag or hydr	\$ 77,644	3
Maize (corn)	\$ 26,199	4	→	Tobacco unmanufactured, tobacco refuse	\$ 66,216	4
Vegetables, leguminous dried, shelled	\$ 19,426	5	→	Documents of title (bonds etc), unused stan	\$ 55,739	5
Raw hides and skins of bovine, equine an	\$ 13,384	6	→	Tea	\$ 47,209	6
Tobacco unmanufactured, tobacco refuse	\$ 12,378	7	→	Live plants nes, roots, cuttings, mushroom	\$ 42,470	7
Cotton, not carded or combed	\$ 11,432	8	→	Tube, pipe of iron or steel, except seamles	\$ 37,080	8
Oil seeds and oleaginous fruits nes	\$ 8,506	9	→	Flat-rolled iron/steel, >600mm, clad, plated	\$ 32,125	9
Soaps	\$ 3,970	10	→	Animal and vegetable fats or oils, hydroge	\$ 25,888	10
Flat-rolled iron/steel, >600mm, clad, plated or	\$ 3,171	12	→	Soaps	\$ 20,584	13
Tea	\$ 720	35	→	Oil seeds and oleaginous fruits nes	\$ 15,796	15
Live plants nes, roots, cuttings, mushroom sp	\$ 413	50	→	Vegetables, leguminous dried, shelled	\$ 13,569	18
Cement (portland, aluminous, slag or hydraulic	\$ 81	126	→	Gold, unwrought, semi-manufactured, powder f	\$ 8,439	24
Animal and vegetable fats or oils, hydrogenate	\$ 59	149	→	Maize (corn)	\$ 6,256	29
Documents of title (bonds etc), unused stamp	\$ 16	250	→	Raw hides and skins of bovine, equine animals	\$ 1,161	81
Tube, pipe of iron or steel, except seamless >	\$ 2	397	→	Cotton, not carded or combed	\$ 268	154

Figure 3d

Tanzania Top Ten, 1998 and 2007, real thousand US\$						
description	1998	rank98		description	2007	rank07
Coconuts, Brazil nuts and ca	\$ 135,279	1	→	Gold, unwrought, semi-manufacturec	\$ 565,616	1
Coffee, coffee husks and skin	\$ 97,329	2	→	Precious metal ores and concentrat	\$ 205,280	2
Fish fillets, fish meat, mince €	\$ 59,398	3	→	Fish fillets, fish meat, mince except	\$ 152,969	3
Tobacco unmanufactured, tob	\$ 54,617	4	→	Coffee, coffee husks and skins and c	\$ 118,679	4
Gold, unwrought, semi-manuf	\$ 49,832	5	→	Tobacco unmanufactured, tobacco r	\$ 96,839	5
Tea	\$ 31,190	6	→	Vegetables, leguminous dried, shelle	\$ 52,559	6
Cotton, not carded or combec	\$ 30,160	7	→	Mounted precious or semi-precious	\$ 45,503	7
Cloves (whole fruit, cloves and	\$ 26,980	8	→	Wheat or meslin flour	\$ 41,940	8
Diamonds, not mounted or se	\$ 25,874	9	→	Cotton, not carded or combed	\$ 41,263	9
Mounted precious or semi-pre	\$ 18,354	10	→	Tea	\$ 39,979	10
				Coconuts, Brazil nuts and cashew n	\$ 28,371	12
Vegetables, leguminous dried	\$ 12,113	13	→	Diamonds, not mounted or set	\$ 17,574	19
Wheat or meslin flour	\$ 4,103	27	→	Cloves (whole fruit, cloves and stems	\$ 8,804	30
Precious metal ores and conc	\$ -	676	→			

**Table 2a: Rank correlations of top exports today with past, focus countries**

Rank correlations between start and end year

Country	start	end	Top 50	Top 100	all goods	N
Ethiopia	2001	2008	0.261	0.407	0.405	775
Ghana	1996	2008	0.362	0.318	0.557	1031
Rwanda	2003	2008	0.443	0.503	0.292	572
Tanzania	1998	2007	0.000	0.333	0.529	1138
Uganda	1995	2008	0.247	0.307	0.458	1087

**Table 2b: Rank correlations among export goods between start year and end year within countries**

	All	top 50 in start year	top 100 in start year
<b>A. Average for 33 African Countries</b>			
All Export Goods	0.540	0.248	0.293
Excl Extractables	0.544	0.249	0.290
Excl Extractables & Commodities	0.543	0.227	0.273
<b>B. Average for 101 Non-African Countries</b>			
All Export Goods	0.786	0.200	0.292
Excl Extractables	0.786	0.195	0.291
Excl Extractables & Commodities	0.788	0.194	0.289

Notes: Start year varies for African countries, median is 1998; end year is usually 2008, occasionally 2007. Start year is 1998 for non-African countries and 2008 for end year.

Table 3 shows the changing nature of success in another way. It shows that a lot of the changes in success are attributable to new goods rather than existing goods.

Table 3

**Decomposition of real export changes (in 2008 \$)\***

Exporter			Change in each category divided by change in total exports					
	First year	Last year	Exports in first year (thsd \$)	Exports in last year (thsd \$)	Exported in both years	New products	Lost products	Export growth per year
Botswana	2000	2008	3,368,768	4,825,800	70%	222%	-192%	4.5%
Burkina Faso	1995	2005	197,667	329,378	83%	27%	-10%	5.1%
Cameroon	1995	2006	1,944,587	3,399,945	89%	26%	-15%	5.1%
Cote d'Ivoire	1995	2008	3,640,389	9,674,154	52%	50%	-2%	7.5%
Ethiopia	1997	2008	710,709	1,595,059	67%	40%	-7%	7.3%
Gabon	1993	2006	3,186,509	6,015,203	86%	18%	-3%	4.9%
Ghana	1996	2008	3,215,205	4,029,949	71%	43%	-14%	1.9%
Guinea	1995	2008	900,479	1,486,836	65%	43%	-8%	3.9%
Kenya	1997	2008	2,398,136	4,629,977	81%	23%	-4%	6.0%
Lesotho	2000	2004	366,938	967,758	74%	56%	-30%	24.2%
Madagascar	1990	2008	432,044	1,483,924	81%	22%	-3%	6.9%
Malawi	1990	2008	600,499	878,699	73%	42%	-15%	2.1%
Mali	1996	2008	507,907	1,913,799	-7%	109%	-2%	11.1%
Mauritania	2000	2008	272,311	1,081,147	85%	15%	0%	17.2%
Mauritius	1993	2008	2,034,127	2,086,809	-47%	296%	-149%	0.2%
Mozambique	2000	2008	350,126	2,332,100	11%	90%	-1%	23.7%
Namibia	2000	2008	1,612,501	4,682,885	85%	20%	-5%	13.3%
Niger	1995	2008	251,825	439,178	31%	179%	-110%	4.3%
Nigeria	1996	2008	14,869,750	79,574,670	95%	6%	0%	14.0%
Rwanda	1996	2008	12,712	346,110	75%	25%	0%	27.5%
S. Tome & Principe	1999	2008	2,740	5,618	83%	19%	-3%	8.0%
Senegal	1996	2008	392,542	1,776,324	53%	51%	-3%	12.6%
Seychelles	1994	2008	32,230	149,709	55%	48%	-4%	11.0%
South Africa	1992	2008	17,121,042	73,102,248	58%	43%	-2%	9.1%
Sudan	1995	2008	911,502	9,466,236	-4%	105%	-2%	18.0%

Tanzania	1997	2007	745,552	1,962,557	53%	49%	-1%	9.7%
Uganda	1994	2008	143,064	1,338,063	33%	68%	-1%	16.0%
Zambia	1995	2008	1,392,485	5,070,833	40%	65%	-4%	9.9%
Zimbabwe	2000	2007	2,304,749	3,169,664	87%	57%	-44%	4.6%
Median					70%	43%	-4%	8.0%

### 3. Large changes in composition of success are typical

Using data on top 40 products for each of 33 countries, we identify products with negative change in share and take sum of all of those for each of 33 countries. Then identify products with positive change in share and take sum for all of those for each of 33 countries. Then we take averages across 33 countries (same start date and end date within each country).

For each country on average: the sum of the negative changes is -26 percent and the sum of the positive changes is 31 percent.

### 4. Changes in export shares are not driven by prices

In this section we demonstrate that the surprisingly large changes in export shares are driven primarily by quantity changes rather than price change (proxy by unit value). To do this, we use the following decomposition of changes in export shares. The export share of product  $i$  in time  $t$ ,  $s(i,t)$ , is given by

$$s(i,t) = r(i,t)/R(t) ,$$

where  $r(i,t)$  is the revenue of product  $i$  in time  $t$  and  $R(t)$  is total revenue in time  $t$ . In logs this can be written as

$$\ln s(i,t) = \ln r(i,t) - \ln R(t) = \ln p(i,t) + \ln q(i,t) - \ln R(t) ,$$

where  $p$  and  $q$  represent price and quantities, respectively. In log differences, this decomposes

$$\Delta \ln s(i) = \Delta \ln p(i) + \Delta \ln q(i) - \Delta \ln R ,$$

and thus

$$I = \Delta \ln p(i) / (\Delta \ln s(i) + \Delta \ln R) + \Delta \ln q(i) / (\Delta \ln s(i) + \Delta \ln R) .$$

We use this decomposition to gauge the relative importance of changes in prices and quantities to export shares, controlling for the growth in overall export revenue. For each country we computed the median percent of changes due to prices and quantities. Then we computed medians across countries. Table 4 reports the results of this exercise, while the country specific medians are reported in the appendix.

Price changes account for much less than quantity changes – only 10% of changes in shares for the median country, when all products are taken into account. This result is robust to restricting to the top 40 products, only commodities, or only non-commodities. Although price changes have the largest role among the top 40 products, it still explains only about 20 percent of the percent change in export shares on average.

This is evidence (confirming other exercises) against the idea that changing export performance is explained mainly by prices for passive exporters who just export their commodity endowments.

However, this does not mean that countries are not responding to prices at all. In fact, the opposite is likely: higher prices give incentives to expand supply. For example, we computed revenue, price and quantity indices for coffee exports from Uganda, based on export and volume data from the Bank of Uganda.<sup>5</sup> Notice how following the drop in coffee prices after 1995 quantities start falling. And following the increase in price after 2002 quantities start to rise. These changes are not driven by compositional changes within coffee varieties or qualities, since there are no major changes in quality composition for Uganda over this period.

This pattern actually helps demonstrating that the endowment is not, in fact, fixed. It seems that the view that Africa simply exports a fixed, static endowment is at odds with our decomposition exercise and with the anecdotal evidence from coffee exports from Uganda. It is worthwhile noting that Coffee is the largest non-extractable export category for Uganda, accounting for 26% of total exports in 2009; although an anecdote, this is a large one (data from same source).

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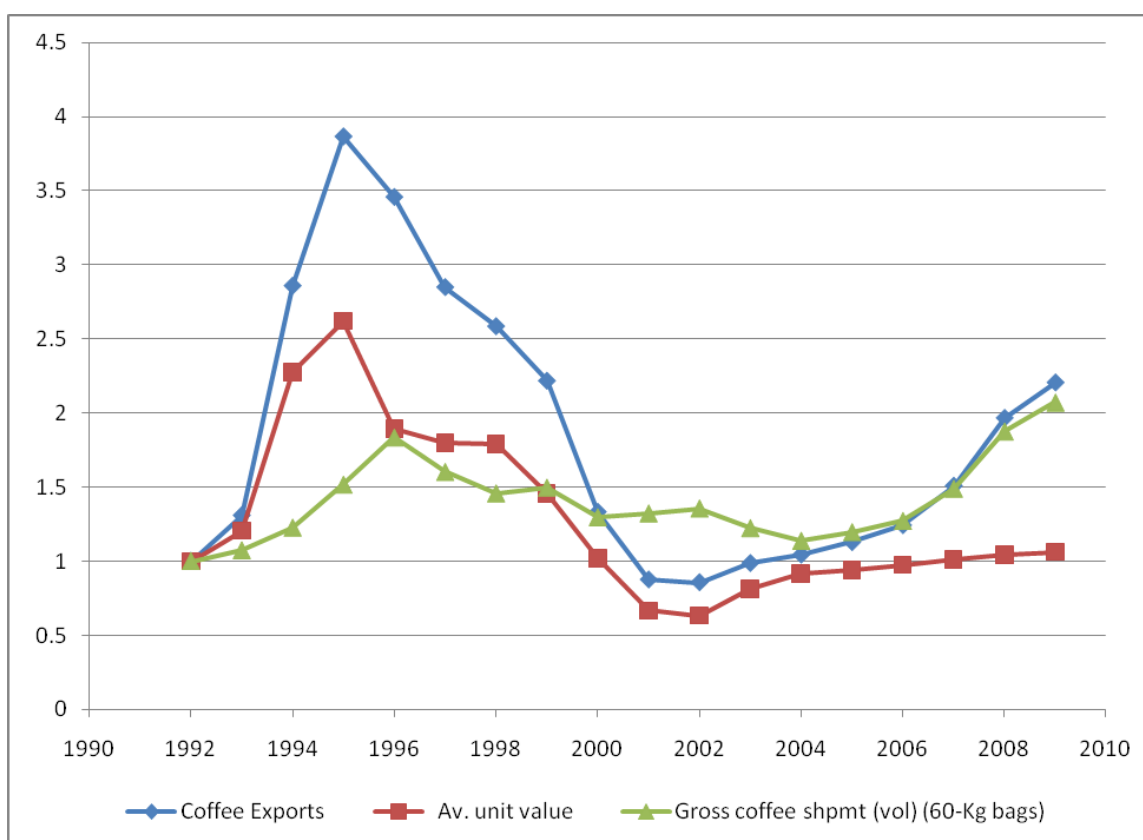
<sup>5</sup> We thank Dr. Adam Mugume from the Bank of Tanzania for making this data available to us.



Table 4: Percent change in Export share decomposition between price and quantity (median across 30 African countries for HS4 products in categories shown)

Country	Median		median # of HS4 products	$\Delta \ln s$   (median)	$\Delta \ln p /$ ( $\Delta \ln s + \Delta \ln R$ ) (median)	$\Delta \ln q /$ ( $\Delta \ln s + \Delta \ln R$ ) (median)
	First year	Median Last year				
All products	1998	2008	247	39%	10%	90%
Top 40	1998	2008	40	73%	19%	81%
Commodities	1998	2008	5.5	54%	9%	91%
Non-commodities	1998	2008	242	43%	10%	90%

Figure 4: Uganda Coffee Export Indices (1992=1)



Source: Authors' calculations based on data from the Bank of Uganda

## 5. Changes in Big Hits are not primarily driven by world commodity prices

We find weak explanatory power of global year effects in explaining time variation in individual commodities exported by multiple African countries. There is a high share of idiosyncratic time variation in total time variation. Moreover, we find a very small difference between commodities and non-commodities.

We fit the following fixed effects regressions:

$$r(c,t) = a(c) + d(t) + e(c,t)$$

where  $r(c,t)$  is export revenue from some product exported by many countries  $c$  in many time periods  $t$ ,  $a(c)$  are country dummies,  $d(t)$  are time dummies and  $e(c,t)$  is the residual. Given the results from such regressions for several products, we decompose the variance

$$V(r) = V(C) + V(T) + V(e),$$

where  $C$  are country fixed effects,  $T$  are global year dummies, and  $e$  is the residual. The purely inter-temporal variation in each export good is  $V(r) - V(C)$ . Table 5 reports the results of the variance decomposition.

Conventional wisdom says that for commodities,  $V(r)$  would be largely accounted for by global price movements, which would be captured by  $V(T)$ . However, the share of  $V(T)$  in explaining intertemporal variation is small. Moreover, there are no statistically significant differences between commodities and non commodities in this regard.

As expected, the role of country endowments,  $V(C)/V(r)$ , is statistically larger for commodities, but the difference is not large. This means that there is substantial specialization across countries in differentiated products, not much less than commodities. The role of global price movements in commodity export success is much smaller than what conventional wisdom predicts. Within-product decompositions for each country show changes in export shares are driven more by quantity changes than by price changes. Finally, the role of country endowments and global prices is not different between commodities and non-commodities.

**Table 5: Variance Decomposition**

	V(C)/V(r)	V(T)/V(r)	V(T)/(V(r)-V(C))
Tea (HS 902)	85%	0%	3%
Gold (HS 7108)	72%	4%	14%
Coffee (HS 901)	93%	1%	11%
Sugar (HS 1704)	75%	3%	12%
Diamonds (HS 7102)	88%	1%	12%
Cotton (HS 5201)	76%	2%	10%
Cocoa (HS 1801)	90%	1%	8%
Tobacco (HS 2401)	86%	2%	14%
Oil (HS 2709 and 2710)	78%	1%	7%
Median	85%	1%	11%
Mixed odoriferous substances for industrial use (HS 3302)	76%	2%	7%
Cut flowers, dried flowers for bouquets, etc (HS 603)	84%	0%	3%
Goat or kid skin leather, without hair (HS4106)	61%	3%	8%
Wood in the rough or roughly squared (HS 4403)	84%	2%	13%
Polymers of ethylene, in primary forms (HS 3901)	57%	10%	24%
T-shirts, singlets and other vests, knit or crochet (HS 6109)	87%	1%	5%
Oral and dental hygiene preparations (HS 3306)	70%	2%	6%
Mens or boys suits, jackets, trousers etc not knit (HS 6203)	78%	1%	6%
Fish, frozen, whole (HS 303)	70%	4%	13%
Prepared or preserved fish, fish eggs, caviar (HS 1604)	78%	2%	11%
Printed reading books, brochures, leaflets etc (HS 4901)	74%	3%	10%
Vegetables nes, fresh or chilled (HS 709)	74%	5%	19%
Woven cotton fabric, >85% cotton, < 200g/m2 (HS 5208)	71%	1%	5%
Median	74%	2%	8%

## **6. African countries are not all doing the same thing for export success**

Do many African countries succeed at the same thing? The answer to this question is: Mostly no. To concentrate on largest successes and limit the number of potential goods, we concentrate on top 10 goods for each country. Out of 330 possible top 10 goods (10 x 33), there are 160 different goods in the top tens of the 33 countries (where a good is defined by 4-digit HS code).

Table 6 reports the most common goods are shown in the list below with the number of countries in which they are in the top 10. The table shows that while some sub-Saharan African countries have in common exports of oil coffee and gold, most top 10 products are country specific.

Table 6: Most Common Goods in Sub-Saharan African Countries

Description	# of countries in which this good is in top 10 (out of 33)
Oils petroleum, bituminous, distillates, except crude	13
Coffee, coffee husks and skins and coffee substitutes	11
Gold, unwrought, semi-manufactured, powder form	11
Cotton, not carded or combed	8
Solid cane or beet sugar and chemically pure sucrose	8
Cocoa beans, whole or broken, raw or roasted	7
Coconuts, Brazil nuts and cashew nuts, fresh or dried	7
Motor vehicles for transport of persons (except buses	7
Oil seeds and oleaginous fruits nes	6
Tea	6
Wood sawn, chipped lengthwise, sliced or peeled	6

## 7. Measurement error is a serious problem

Measurement error in the COMTRADE data is a possible shadow over our results. We noticed seeming problems with measurement first by seeing spottiness of coverage of export product data by country at either 6 digit or 4 digit level (i.e. many blanks for products that earlier or later had significant positive values). We chose the start year for each African country at the point when the coverage of commodities began to be much more extensive; usually there was a clear dividing line between very spotty coverage and much wider coverage. However, obviously this procedure does not guarantee that coverage is complete in the later years.

We confirmed measurement error problems by finding discrepancies between importer reports and exporter reports on the same trade flows – for a couple of goods that we checked we found FREQUENT discrepancies in blank entries between importer reported data and exporter reported data. Initially we performed our analysis at the 6-digit HS code level. We then examined the 4-digit level to see if aggregation alleviates measurement error. We plan to continue to investigate measurement error more extensively in future drafts.

### 6-digit analysis

#### *Leather and Hides Exports for Rwanda and Ethiopia:*

Our first exercise was to analyze the matrix of all goods at six digit level in leather sector (32 goods in Ethiopia, 23 goods in Rwanda) for the years covered (2001-2008 in Ethiopia, and 2003-2008 in Rwanda), and compare blanks in exporter data and importer data.

Ethiopia 6-				
digit				
leather				
sector	Importer	Importer		
2001-2008	blank	not blank	Sum	
Exporter				
blank	68	32	100	

Exporter			
not blank	44	112	156
Sum	112	144	256

The two sources match on blanks 70 percent of the time. To put it another way, when the importer reports a non-blank, the exporter does also 78 percent of the time; the reverse calculation shows when the exporter reports a non-blank, the importer does also 72 percent of the time. Another way to put these same numbers, the off-diagonal element show a slight tendency for importers being more likely to report blanks when exporter is not blank, compared to the other way around. This calculation does NOT suggest that any one source can be identified as underreporting.

This is also confirmed by comparing the quantities for the 112 observations that both have non-blanks. Exporter quantity is greater than importer quantity in 55 observations, i.e. almost exactly half.

Of course, the situation is still problematic even if we can't identify which side is under-reporting. On top of the non-trivial number of blank/nonblank mismatches, the correlation of the magnitudes for these 112 observations is only .47, which suggests there is some signal there but also a lot of noise.

		Importer		
<b>Rwanda 6 digit leather sector, 2003-2008</b>	Importer	not		
	blank	blank	Sum	
Exporter blank	72	16	88	
Exporter not blank	30	20	50	
Sum	102	36	138	

Rwanda has a more serious problem of inconsistency. Although the two sources match on blanks/non-blanks 67% of the time, this mainly reflects the high number of blanks in both sources. When the exporter reports a non-blank, the importer does only 40 percent of the time. When the importer reports a non-blank, the exporter does 56 percent of the time. In sum, there are more non-blanks reported by exporters than by importers. This suggests the importer data is the one that tends most to under-report.

This Rwanda conclusion of under-reporting on importing is confirmed by the 20 observations for which both sources report non-blanks. The exporter quantity exceeds the importer quantity in 15 of these cases. The correlation of magnitudes for the 20 observations is basically zero.

#### **4-digit analysis**

Aggregation may help the error problem. In Ethiopia, at the 4-digit level, the matching of blanks and non-blanks in exporter and importer data increases to 82 percent.

It's a little puzzling that now the exporter seems to be under-reporting relative to the importer as far as the blanks matrix. However, the exporter quantity is greater than the import quantity in 57 percent of the cases where both are non-blank, so there doesn't seem to be a clear conclusion here on which side is underreporting. The correlation between the two sources rises slightly from .48 to .54 going from 6-digit to 4-digit.

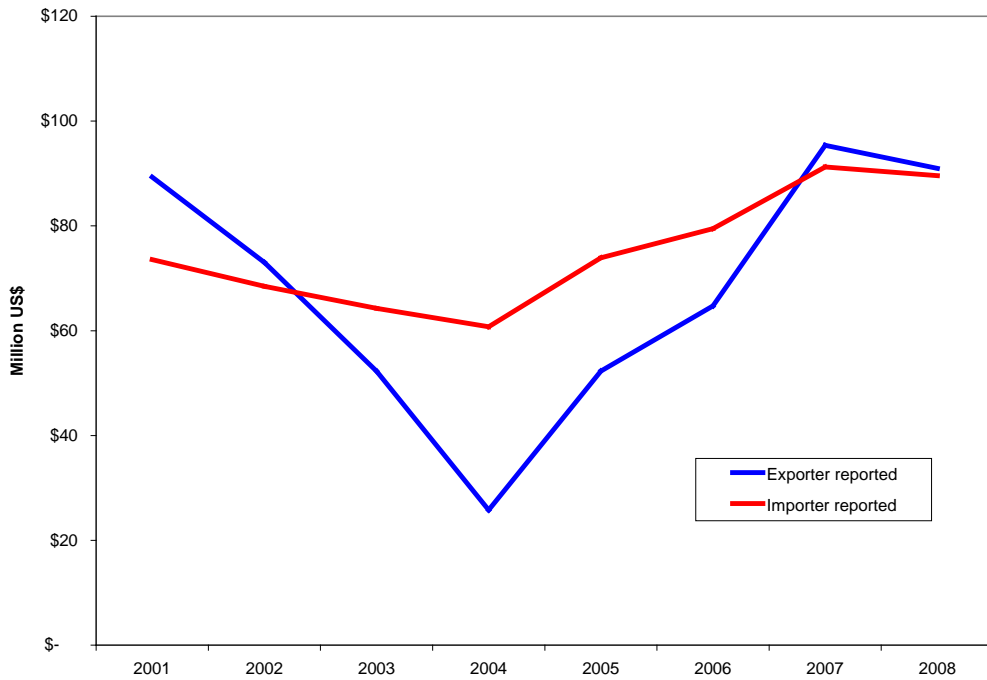
#### **Ethiopia 4-digit**

<b>leather sector,</b>	Importer Not		
<b>2001-2008</b>	Importer Blank	Blank	Sum
Exporter Blank	16	14	30
Exporter Not			
Blank	2	56	58
Sum	18	70	88

At the highest level of aggregation, simply adding all non-blank entries in the leather and hides group for each year leads to the following picture:



Ethiopian Leather and Hide Exports



At least the two sources are of the same order of magnitude on leather and hide exports, and show somewhat similar trends (namely increase from 2004 to 2008, although much larger in exporter reported data).

In Rwanda, on the other hand, the data inconsistencies do not improve from the 6-digit to the 4-digit level of aggregation:

**Rwanda 4-digit leather sector, 2003-2008**

	Importer blank	Importer not blank	Sum
Exporter blank	12	11	23
Exporter not blank	14	17	31
Sum	26	28	54

The under-reporting still seems to be on the importer side, because 13 of the 17 observations with non-blank entries are greater in the exporter-reported data than in the importer reported.

This is even more clear if we aggregate all leather and hide exports by year for Rwanda, where importer-reported data are definitely below exports:



### *Ethiopia Shoes*

The data situation in Ethiopia shoes is also problematic. The exporter and importer data match blanks and non-blanks only 66% of the time. The matrix suggests some under-reporting by exporter data. However, when both have data, the exporter quantity is greater than the importer quantity 57% of the time.

Ethiopia shoes

6-digit

categories,	Importer	Importer not
2001-2008	blank	blank

Exporter blank	90	48	138
Exporter not blank	25	53	78
	115	101	216

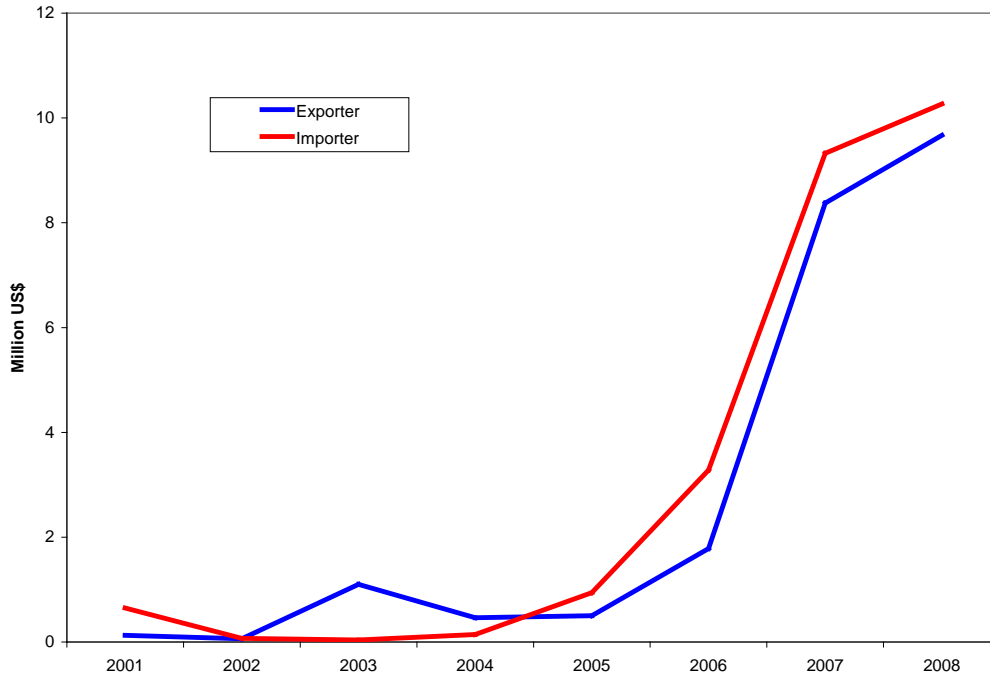
Moving up to 4-digit data aggregation, the impression that exporters are the ones under-reporting is certainly strengthened, since importers have fewer blanks than do exporters.

**Ethiopia  
shoes 4-  
digit**

<b>categories,</b> <b>2001-2008</b>	Importer blank	Importer not blank	Sum
Exporter blank	1	11	12
Exporter not blank	3	33	36
Sum	4	44	48

At the most aggregate level, the situation doesn't look bad, as the importer and exporter data on shoe exports match closely year by year.

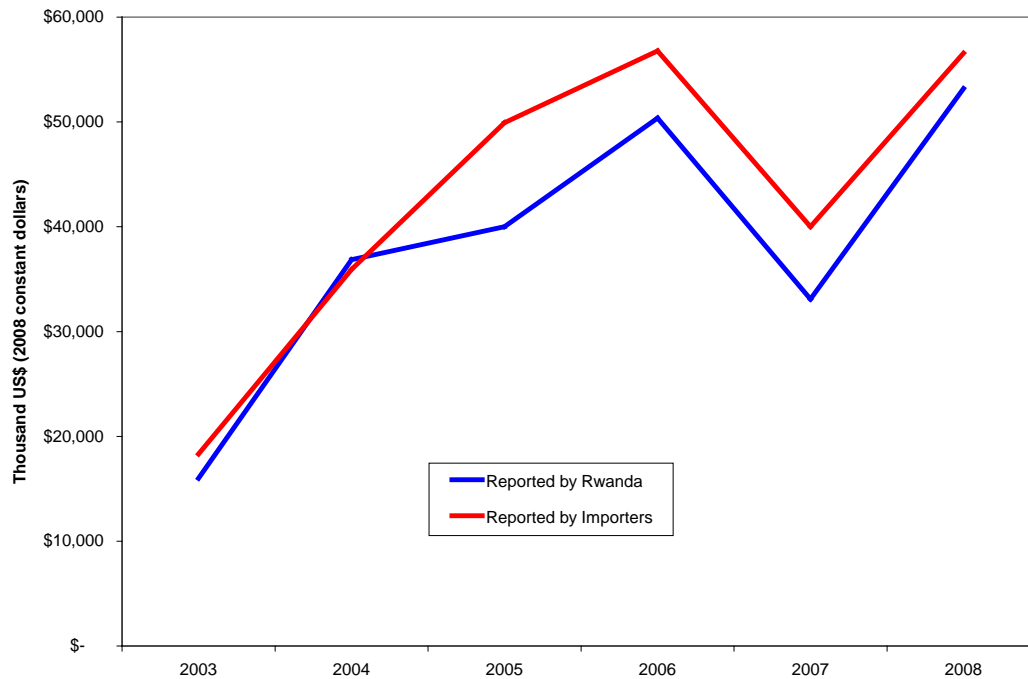
Ethiopia shoe export data



### Rwanda Coffee

Like most of the Rwanda Comtrade data, the situation before 2003 is terrible in the exporter-reported coffee data, with obvious signs of severe under-reporting, which is why all the tables in this paper for Rwanda begin in 2003. Beginning in 2003, the exporter and importer reporting on unroasted coffee from Rwanda is better:

Rwanda Export of Unroasted Coffee HS 090111



These exercises confirm that there are serious data problems floating around the COMTRADE data, although this is a very small sample. Obviously the best case is where importer and exporter data roughly agree. Aggregation may help to get there, as it did finally with lumping together all “shoes” in Ethiopia. It seems mildly preferable to use 4-digit over 6-digit data.

Is the discrepancy caused by misclassification at the more detailed levels by one source or the other? The modest improvements going from 6-digit to 4-digit tends to confirm the idea of some classification disagreements at the 6-digit level, but we were disappointed it did not improve more.

Is it just that both sides miss some of the trade flows? Except for the case of Rwanda leather, it did not seem obvious which side was underreporting on average. (There is also no obvious sign of issues like cif vs. fob).

One reason that there are many discrepancies for both countries examined above is that they are landlocked, they do not have their own port, and hence do not ship anything by sea directly. Often

Rwandan exports via Mombasa, Kenya. Exports are documented as being shipped to Kenya (or Uganda, which is on the way), but the final destination is not Kenya. This is the case for coffee exports from Rwanda.

Of course, landlocked countries could export by air directly, but even this is not always the case. For example, Tanzania (not a landlocked country) exports fresh (chilled) fish by air from Entebbe or even Nairobi (less than 24 hours driving). This is because the airstrip near Marza, on the shore of Lake Victoria, where most fish processing occurs, is too short and cargo planes of adequate size cannot land there. Much of the exports of fresh fish from Tanzania are documented in the data as being exported to Kenya and Uganda, whereas almost all finds its way to Europe.

We are also worried that instability of exports could just be reflecting measurement error: a possible caveat on our results about changing in composition of Big Hits. However, we would expect measurement error to be the same for commodities and non-commodities, so the results about commodity exports (1) not being systematically more volatile over time (2) nor more driven by prices would hold. The results comparing African and Non-African countries are a little more problematic, since measurement error may be more serious in poorer regions (although an offsetting effect might be the greater number and complexity of products traded in rich countries).

We do not see any obvious fix to the measurement error problem. If we limited ourselves to products in which importer and exporter reports matched closely, that may induce a selection bias to certain types of products in which such agreement is more likely. So far we see aggregation as the main thing that seems to help in some cases. We can also check whether something like “changing composition of HS4 products” reflects subtle shifts in type of products which might simply be misclassified; our examination of the data so far do not suggest such subtle shifts are causing the changes in composition. We could also hope that our results are strong enough from many different angles as to swamp measurement error, but we have no way of calibrating exactly whether such hopes are justified. In the end, we are left with the usual irreducible helplessness in working with the data that are available.

## 8. Pathways to Big Hits

Subject to caveats about measurement error, we have rejected the traditional view, that African exports reflect a passive endowment by nature and driven only by global commodity prices. In that case, what are the other paths to success?

Does changing export composition reflect shocks – apparently to volumes rather than unit values (like weather shocks for agricultural products) – or government policies that encourage or penalize some exports relative, or entrepreneurial successes and failures, or external factors like gaining and losing international markets? Are these patterns signs of a great degree of uncertainty what will succeed in any given period, which requires a lot of decentralized and local knowledge to respond appropriately to opportunity (i.e. private entrepreneurs)? Is the “creative destruction” pattern a reflection of the resourcefulness of African entrepreneurs as they move quickly from failing products to products that are succeeding?

To answer these questions we set out to interview several exporting entrepreneurs from successful industries. We examine 4-digit HS code exports from all countries to try to detect success stories. The data are from the same UN Comtrade database that we used to establish the stylized facts above. Success stories are exports of products that are either increasing export revenues dramatically, increasing their share in total exports, increasing unit values; all must have attained a significant size. We do not examine extractable commodities and their derivatives (oil, gold, ores, iron bars, etc.), because these are less prone to entrepreneurial activity.

Given a set of candidate products, we traveled to Africa to meet entrepreneurs that export them. The goal of the interviews was to identify why export of a particular product took off. In the process we learned about the business model of the firms we visited, as well as difficulties facing exporters in Africa. We did not manage to interview exporting entrepreneurs in all candidate products, but the picture that emerges helps illustrate some of the reasons for big hits, for successful exports.

The interviews started as an open discussion on the firm, how and when it was founded, when it started to export, etc. In this first part we let the entrepreneur speak freely, while we ask for clarifications along the way. At some stage in the interview, in order to focus better on the topic at hand, we asked questions from a list that prepared in advance. Not all of these questions need

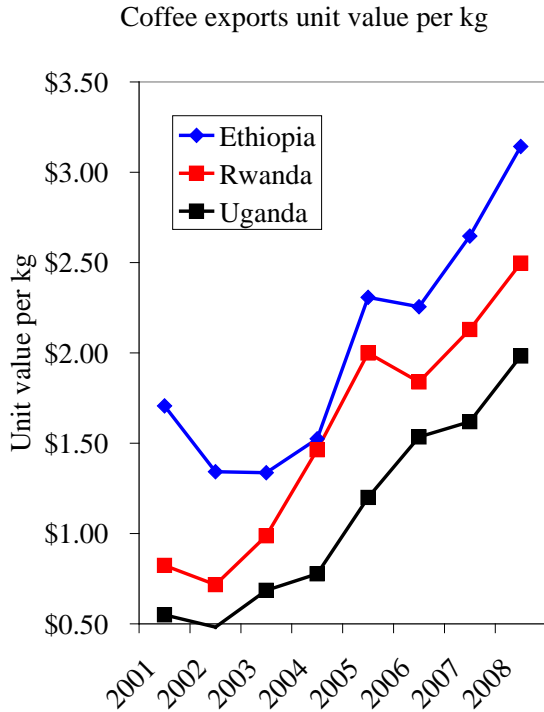
to be answered directly, but they served as guidance to facilitate a deeper understanding of the characteristics of the exporting activities of the firm.

Below we report the paths to success we documented. We find that all these success stories are not linked to traditional views of African export success. We do find the following. Quality upgrading of traditional products, assistance in financing by aid organizations and help in penetrating foreign markets in the West by NGOs, but also entrepreneurs doing market research and feasibility studies to determine where to invest and where to export to, as well as several cases of self financing, without interference from banks, the government or international financial institutions.

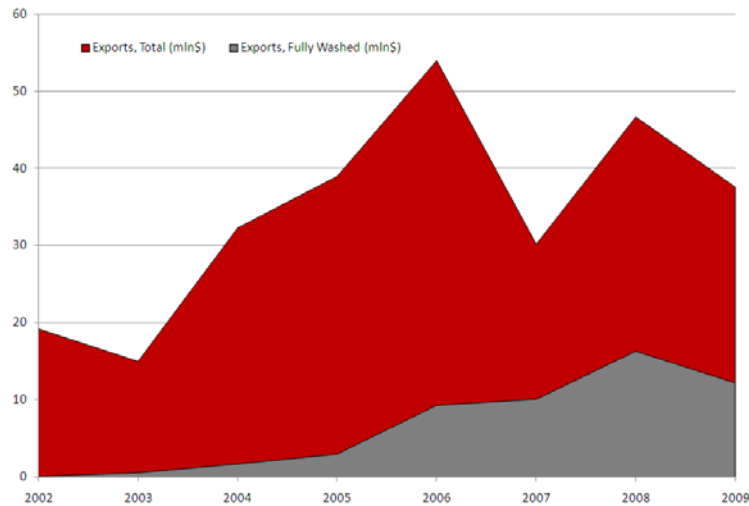


**i. Moving Up the Quality Ladder for “traditional” low quality export products**

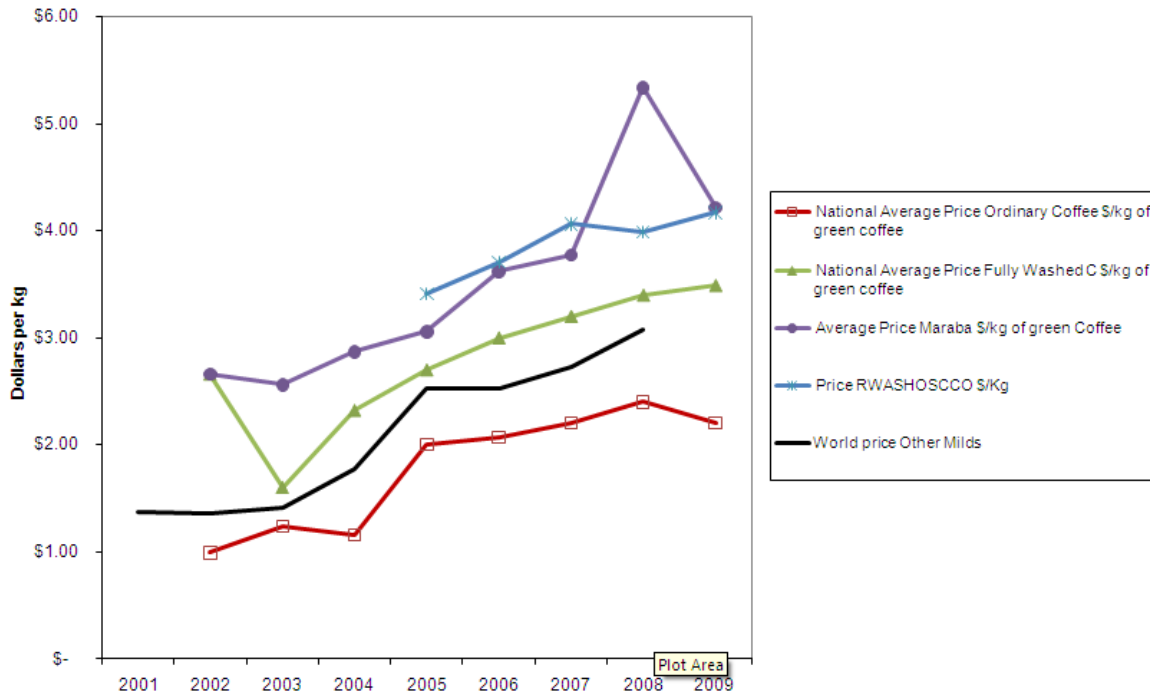
*Introduction of Gourmet/specialty/fully-washed/single-source/traceable coffee in Rwanda..*



Coffee Exports from Rwanda



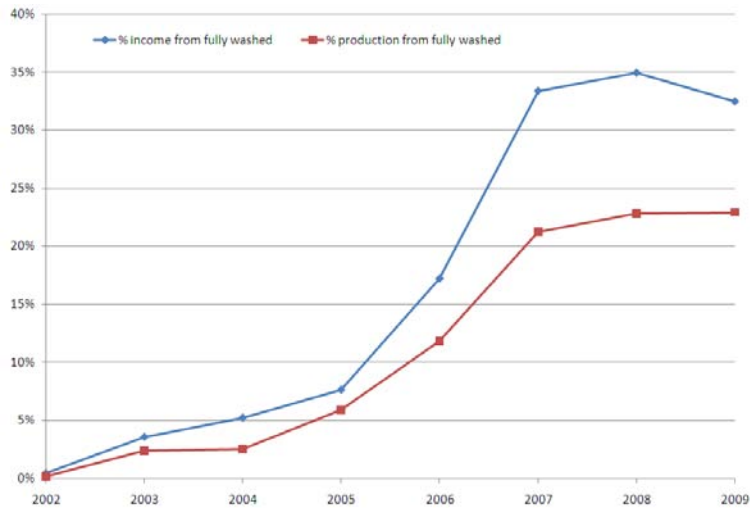
Rwanda coffee price comparison



We can see that the upward trend in coffee prices is evident worldwide and, in particular, in Rwanda, Ethiopia and Uganda. However, we also see substantial differences in the level between prices of specialty coffee (fully washed, RWASHOSCCO exporting and Maraba coop). RWASHOSCCO is an exporting firm (owned by coops) that exports only fully washed coffee. The Maraba coop produces only fully washed coffee.

These seemingly small differences in prices are compounded by large and growing quantities of specialty coffee, and they also make a huge difference for the farmers. In our visit to the Maraba village, we saw new construction, and even a brand new bank branch.

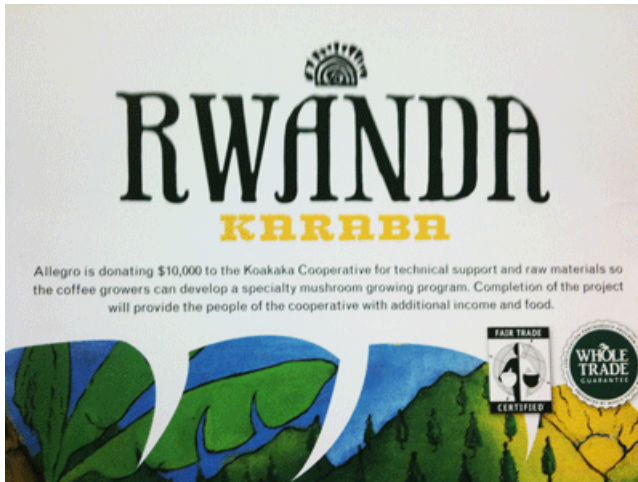
## Specialty Coffee Exports from Rwanda: Income and Production as Shares of Total Coffee Exports



We have informally looked for Rwanda coffee in New York.



RAMERA: Coffee variety being used in Gimme!Coffee, one of New York Times' top gourmet coffee shops in New York. MUYONGWE: Coffee beans on sale at Third Rail Coffee, another one of New York Times' top gourmet coffee shops in New York



KARABA: Coffee on sale in Whole Foods, Soho, New York City

Among the Moving Up the Quality Ladder stories we found Sorwathe Co., which moved into Fair Trade tea exporting, and is now starting to produce and export specialty teas (green tea and “orthodox” tea), as well as experimenting with organic tea production for export. All these are new operations in Rwanda as a whole, so no hard data available yet. However, the general manager of Sorwathe cites many firms to which they have sent samples and are interested. Time will tell.

## **ii. Deciding to export high value added final product, capturing all of the value chain**

Several of the firms in which we interviewed produce final goods.

### **Good African Coffee, the story of Andrew Rugasira in Uganda**

Andrew did it all: came back from UK right after school there (econ and law at U of London), took over family business, then moved into coffee, building farmers coops. To make this pay off both for him and the farmers, he realized that one must export, the export must be high quality, and even more than that, must be a high value added product. The highest value added is in the final product, so he went for that: high quality (fully washed) roasted coffee. After experimentation and failure in South Africa, he managed to get a contract in UK for his roasted coffee. At first the roasting was done in Dublin, Ireland. Now GAC roasts in Kampala, using state of the art technology and local employees. For now Andrew is selling only to the UK, but this

summer (in August) he will launch his brand in the US. GAC will be available in the US only on the internet.



Rukoki Gold



Freeze Dried Instant

### **Bahari Bounty Group, Vicfish Ltd.**

The story of Harko Bhagat. Harko got his BSc in chemical engineering in Canada, and then returned to Tanzania. At first he worked in publishing. At some point a friend (family? For business?) asked him to supply prawns. Harko saw that there are large margins to be made in selling prawns. Then did some basic research and also through word of mouth discovered that there is a world shortage of white fish. He decided to take advantage of it and was successful.

### **Jambo Plastic Co.**

The firm in Dar Es Salaam is a privately owned company, a family business. Before Jambo, the family operated an imports/trading company. They realized that there is growing demand for plastic products, but that the products available for imports were of low quality. Subsequently, they started a plastic manufacturing firm. They decided to invest heavily in state of the art technology for injection molding and for printing. Hence, their products are very durable. On one in the region produces at their level of quality (or so they say). For instance, they supply tables and chairs to PepsiCo all over the region. They manufacture a wide variety of tableware, chairs, kitchen and household plastics. First they produced for local market but soon realized that they are competitive in the region (somewhat due to the EAC free trade zone). Since their production and management technology is state of the art (the place looks like it came from Germany) they



The big hit came in 2007 with a \$300,000 contract from Macy's. This was not only lucrative: it created visibility and as such was instrumental in opening new markets. Now they are expanding into jewelry and fabrics, all of which are based on traditional RWA designs, this in addition to trying to satisfy growing demand for their flagship products, woven baskets. Currently they are even purchasing a warehouse in US to help satisfy demand. Today: 5,000 weavers in 52 coops.

### **Bralirwa Co.**

The national (and until recently) the only brewery in Rwanda. Following the EAC free trade zone they started to build connections with other countries in EAC, to see whether they can export beer. In 2007 they started to export. Their top selling export (70%) is the premium beer Mutzig. It is marketed and packed as premium, see the neck foil. And indeed, a good beer it is, much better than other locally brewed beers which are sweet in comparison, less clear, less crisp, etc.



Old branding



New branding, 2007 (different logo)

### **iii. Concerted efforts by government or aid agencies to promote exports**

(AID/concessionary loans/grants/government assistance)

The PEARL/SPREAD project in Rwanda (gourmet coffee) was supported by USAID. After the 1994 genocide the coffee industry was devastated. A slow recovery started from that point. In 2000 the USAID funded PEARL project, joint with agribusiness experts from University of Texas A&M started investing in producing specialty coffee for exports. This constituted forming coops and technological transfer. The aid money was used for initial capital to buy and build coffee washing stations (CWS), as well as training coop members in washing technique and teaching coffee sorting principles.

We interviewed executives from two specialty coffee exporting firms: RWASHOSCCO and Misozi Coffee Ltd. Both firms are owned by the coops that supply them with coffee, but their setup costs and some of the working capital came from aid organizations (USAID and IFAD), either directly or indirectly, as soft loans.

Another theme is that when financial aid is provided in a PPP (private public partnership) model a la PEARL/SPREAD for coffee, with empowered farmer coops and exporters, then things seem to work relatively well. There are, even in this partnership model, problems with upscaling, making efficiency improvements, quick response and flexibility.

Gahaya Links was supported by USAID to promote Handicrafts exports from Rwanda. Gahaya Links was founded in 2004 with funding from USAID. The company's own big hit came in 2007 with the signing of the \$300,000 contract with Macy's mentioned earlier. This contract was obtained after the government funded participation in trade fairs to expose the firm's woven basket products in the U.S., as well as help from a for profit company, Fair Winds Trading Co. A further grant from USADF was granted in 2007, and another soft loan (50% grant) authorized in 2010 (not disbursed at the time of interview, July 2010).

Tea exporting from Rwanda: Sowrathe Co. was founded in 1975 as a joint project with the Rwanda government. Since then it has become 100% privately owned.



A counter example has been the so far limited success in exports of Ethiopian shoes, despite extensive aid and government efforts to promote such exports. One obstacle seems to be the poor quality of local hides (one shoe exporter we met in the countryside pointed to a cowherd beating a cow, leaving scars on the hide, saying “that’s our problem!”) The market for hides in Ethiopia is underdeveloped, with shoe exporters buying hides complaining that the market is not discriminating enough about quality to establish separate prices for low and high quality hides.

Murzah Oil received initial loan from Tanzanian government, which was indirectly funded by a grant to Tanzania from Japan. This proved crucial as other firms followed in production and exporting of oil.

#### **iv. Entrepreneurs discover new big hits, initial hit as well as spinoffs**

One major theme is that exporting requires a particular mindset, an export-oriented business model (Artopolus, Friel and Hallak 2007), as well as quality control, modern management practices, use of ICT. Exporting requires a very different way of doing business: planning, meeting deadlines, dealing with a lot of paperwork, quality control, product consistency etc. – all these require better organization and management methods, and force investing in ICT. This, in turn, allows firms to overcome these hurdles, but also makes them more efficient in production, regardless of whether product is sold domestically or exported. This is almost ubiquitous in the experience of all exporters.

**VicFish Ltd.** (Bahari Bounty Group). Realizing that there is strong, unsatisfied demand for white fish, VicFish was founded by Harko Bhagat to export Nile Perch from Lake Victoria. This was the first exporter of frozen and (later) chilled fish to Europe. All the other fish processors followed and created a \$160 million export-only industry in Tanzania, and another 110 million in neighbouring Uganda, on the other side of the lake.

**Lake Bounty.** The Ugandan fish processing firm that made its way by seizing the opportunity that other exporters did not in terms of accommodating changing tastes and needs of the buyers. While other firms were slow to respond to the changing demands in terms of portions, packaging and presentation, Lake Bounty saw the opportunity and soon took over all clients of a few firms, who seized to exist.

**Jambo Plastics Co.** started exporting tableware and chairs, but then realized that there is demand for kitchenware as well as other domestic plastic products in destination markets. So they decided to expand their production to those products as well.

Similarly, **Cello Industries Ltd.** were initially importing pens, rulers, and miscellaneous plastic. After a feasibility study, they founded Cello in 2004 to produce tableware, chairs, kitchenware and other domestic plastic products. Soon one of their clients was an importer. This is completely by chance. After this initial exporter started buying, more came. They do not export much themselves: mostly importers come to their factory shop in Dar es Salaam and purchase directly from the factory store. Therefore, their export revenue share is artificially low, officially at 11% in 2009. They provide the export logistics service for some importers that do not have the capacity/knowledge to deal with documents, the port of Dar es Salaam, etc. This is the only part that is documented as exported, but they estimate that up to 30% of their products are, in fact, sold to final customers outside Tanzania.

Almost all exporters report that once they have a presence in one market with one product, then they expand in to other products. Contacts and distributors in destinations markets inform these decisions.

#### **v. Domestic or international policies**

Some of the regional exporters cite the East African Community customs union (March 2004) to be a key factor in allowing them to be competitive in regional markets. Tanzanians also cite the South African Development Community agreeing to join the free trade zone with EAC and COMESA in 2008. Exporters cited a better business environment in Rwanda, Tanzania, and Uganda relative to 15 years ago.

#### **vi. Cost shocks can reverse a hit**

The case of Cut Flower exports from Uganda shows the sensitivity to cost shocks. Roses were grown (at high altitudes) and then cut and bundled and flown to Amsterdam. This was a booming business until oil prices increased and made most operations in Uganda non viable after 2003.

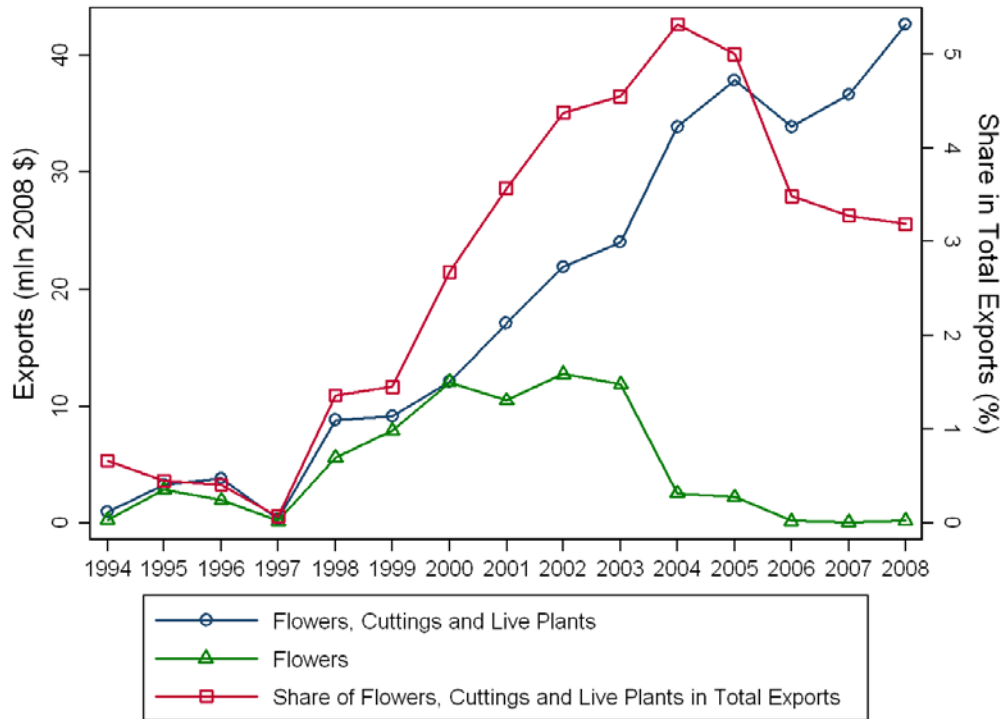
Incidentally, the same industry in Ethiopia is doing just fine and their boom started in 2003. The reason is twofold: first, the flower bulbs from Ethiopia are larger (because Ethiopia grows them at a higher altitude than Uganda), so their value is higher. Second, and perhaps more importantly, the government provides subsidies and foreign aid supports the industry in Ethiopia. In Uganda there are no such subsidies or aid for the flower industry.<sup>6</sup> Demand for flowers in Europe did not decline due to the cost shock, only the suppliers changed. Thus, cost shocks can reverse a hit; but if you have government subsidies and foreign aid, then one can turn others' reversal into one's own hit.

**Ruparelia Group** has one company in the cut flowers exporting business. Their cut flowers business completely collapsed, as well as others in the industry in Uganda; this is evident in the figure below. Interestingly, exports of cuttings (potted plants) and live plants continue to boom (not an activity of the Ruparelia Group), despite the increase in transportation costs. This is because this is a regional export. Ethiopia does not export much cuttings and live plants.

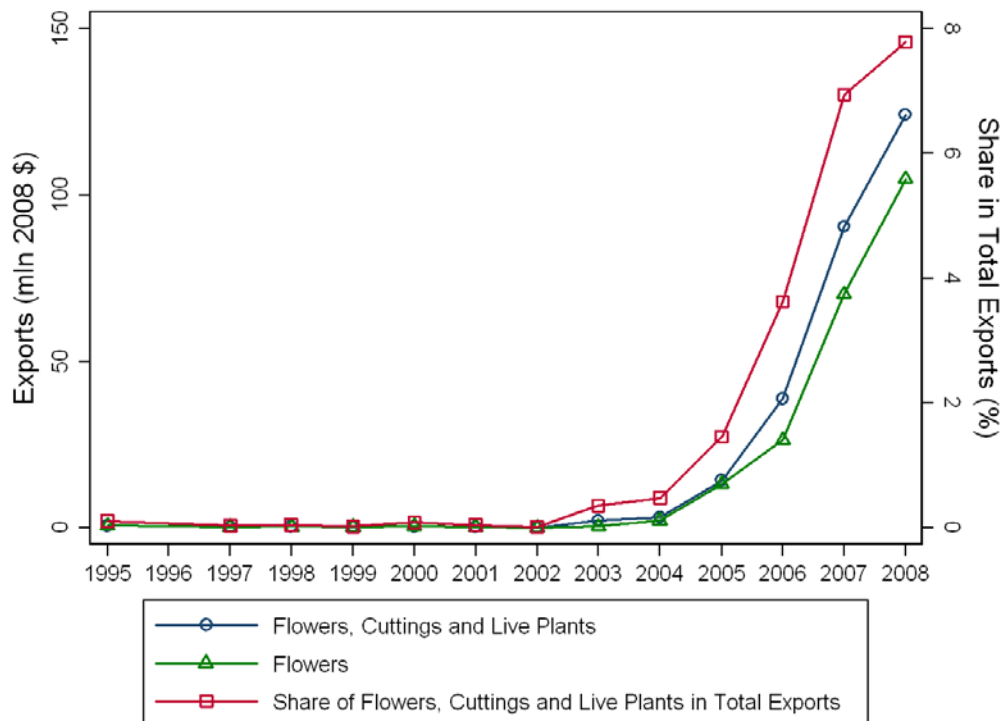
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<sup>6</sup> The Uganda government has deregulated industry over the last 15 years, so it is not involved in subsidizing any industry there, except for soft loans to farmers in the most wretched conditions.

### Uganda: Exports of Flowers, Cuttings and Live Plants



### Ethiopia: Exports of Flowers, Cuttings and Live Plants



## **Conclusions (to be written)**

Our general result (subject to concerns about data quality) is that (1) Exports are characterized by Big Hits, but (2) the Hits do not stay the same from one period to the next and (3) this change is NOT explained by anything obvious like global commodity prices.

New exports emerge due to:

1. regional trade liberalization, which makes exporting some products viable.
2. managing to understand what is demanded in US/EU markets
3. personal connections and personal experiences expose entrepreneurs to new technologies, knowledge of markets. Sometimes aid organizations assist in this.

## APPENDIX

Percent change in Export share decomposition between price and quantity (median across all HS4 products)

Country	First year	Last year	# of HS4 products	$ \Delta \ln s $ (median)	$\Delta \ln p / (\Delta \ln s + \Delta \ln R)$ (median)	$\Delta \ln q / (\Delta \ln s + \Delta \ln R)$ (median)
Benin	1998	2006	60	0.32	-0.03	1.03
Botswana	2002	2008	833	0.06	0.10	0.90
Burkina Faso	1997	2005	126	0.80	0.07	0.93
Burundi	1995	2008	38	0.54	0.44	0.56
Cameroon	1997	2006	257	0.49	0.04	0.96
Central African Rep.	1995	2005	23	1.33	0.27	0.73
Cote d'Ivoire	1997	2008	464	0.67	0.09	0.91
Ethiopia	2001	2008	142	0.43	0.10	0.90
Gabon	1998	2006	145	1.54	0.07	0.93
Gambia	1996	2008	45	0.05	0.16	0.84
Ghana	1996	2008	326	0.17	0.14	0.86
Guinea	1995	2008	55	0.48	0.26	0.74
Kenya	1997	2008	652	0.23	0.05	0.95
Madagascar	2000	2008	408	0.11	0.14	0.86
Malawi	2000	2008	277	0.07	0.11	0.89
Mali	2001	2008	194	0.06	0.33	0.67
Mauritius	1997	2008	443	0.90	-0.02	1.02
Mozambique	2000	2008	238	0.02	0.03	0.97
Namibia	2000	2008	648	0.26	0.16	0.84
Niger	2000	2008	222	0.53	0.00	1.00
Nigeria	1996	2008	137	0.05	0.08	0.92
Rwanda	2003	2008	62	1.27	0.11	0.89
S. Tome and Principe	2002	2008	22	0.05	-0.26	1.26
Senegal	1998	2008	350	0.15	0.09	0.91
South Africa	1999	2008	1121	0.45	0.27	0.73

Swaziland	2000	2007	515	2.08	-0.01	1.01
Tanzania	1998	2007	421	0.43	0.13	0.87
Togo	1994	2007	97	0.05	0.00	1.00
Uganda	1995	2008	334	0.35	0.04	0.96
Zambia	1998	2008	399	0.90	0.12	0.88
Median	1998	2008	247.5	0.39	0.10	0.90

Percent change in Export share decomposition between price and quantity (median across top 40 HS4 products)

Country	First year	Last year	# of HS4 products	$ \Delta \ln s $ (median)	$\Delta \ln p / (\Delta \ln s + \Delta \ln R)$ (median)	$\Delta \ln q / (\Delta \ln s + \Delta \ln R)$ (median)
Benin	1998	2006	40	1.39	-0.12	1.12
Botswana	2002	2008	40	0.87	0.20	0.80
Burkina Faso	1997	2005	40	0.88	0.19	0.81
Burundi	1995	2008	38	0.54	0.44	0.56
Cameroon	1997	2006	40	0.03	0.14	0.86
Central African Rep.	1995	2005	23	1.33	0.27	0.73
Cote d'Ivoire	1997	2008	40	0.41	0.30	0.70
Ethiopia	2001	2008	40	0.69	0.23	0.77
Gabon	1998	2006	40	0.05	0.11	0.89
Gambia	1996	2008	40	0.14	0.08	0.92
Ghana	1996	2008	40	1.30	0.29	0.71
Guinea	1995	2008	40	0.45	0.26	0.74
Kenya	1997	2008	40	0.51	0.15	0.85
Madagascar	2000	2008	40	0.14	0.28	0.72
Malawi	2000	2008	40	1.08	0.26	0.74
Mali	2001	2008	40	0.27	0.35	0.65
Mauritius	1997	2008	40	0.86	0.03	0.97
Mozambique	2000	2008	40	1.25	0.18	0.82
Namibia	2000	2008	40	0.48	0.27	0.73

Niger	2000	2008	40	0.02	-0.03	1.03
Nigeria	1996	2008	40	1.48	0.34	0.66
Rwanda	2003	2008	40	0.26	0.12	0.88
S. Tome and Principe	2002	2008	22	0.05	-0.26	1.26
Senegal	1998	2008	40	1.28	0.18	0.82
South Africa	1999	2008	40	0.16	0.65	0.35
Swaziland	2000	2007	40	0.78	0.12	0.88
Tanzania	1998	2007	40	0.80	0.03	0.97
Togo	1994	2007	40	1.17	-0.04	1.04
Uganda	1995	2008	40	2.83	0.03	0.97
Zambia	1998	2008	40	1.03	0.26	0.74
Median	1998	2008	40	0.73	0.19	0.81

Percent change in Export share decomposition between price and quantity (median across commodities)

Country	First year	Last year	# of HS4 products	$\Delta \ln S$   (median)	$\Delta \ln p /$	$\Delta \ln q /$
					$(\Delta \ln S + \Delta \ln R)$ (median)	$(\Delta \ln S + \Delta \ln R)$ (median)
Benin	1998	2006	1	0.42	0.46	0.54
Botswana	2002	2008	13	0.21	0.23	0.77
Burkina Faso	1997	2005	3	0.95	-0.81	1.81
Burundi	1995	2008	4	0.54	0.16	0.84
Cameroon	1997	2006	6	0.68	-0.05	1.05
Central African Rep.	1995	2005	3	0.03	0.22	0.78
Cote d'Ivoire	1997	2008	8	0.41	0.10	0.90
Ethiopia	2001	2008	8	1.18	0.10	0.90
Gabon	1998	2006	3	0.99	-1.20	2.20
Gambia	1996	2008	2	2.30	0.23	0.77
Ghana	1996	2008	8	1.01	-0.20	1.20
Guinea	1995	2008	4	1.67	-0.50	1.50
Kenya	1997	2008	9	0.23	0.12	0.88



Madagascar	2000	2008	6	0.48	0.24	0.76
Malawi	2000	2008	7	0.51	0.06	0.94
Mali	2001	2008	5	1.58	0.37	0.63
Mauritius	1997	2008	5	0.42	-0.06	1.06
Mozambique	2000	2008	5	2.01	-0.05	1.05
Namibia	2000	2008	14	0.67	-0.02	1.02
Niger	2000	2008	6	0.02	-0.09	1.09
Nigeria	1996	2008	5	2.20	-0.26	1.26
Rwanda	2003	2008	3	0.51	0.63	0.37
S. Tome and Principe	2002	2008	2	0.05	-7.26	8.26
Senegal	1998	2008	3	0.06	0.71	0.29
South Africa	1999	2008	17	0.58	0.48	0.52
Swaziland	2000	2007	6	0.46	0.41	0.59
Tanzania	1998	2007	11	0.79	-0.19	1.19
Togo	1994	2007	5	0.53	0.34	0.66
Uganda	1995	2008	11	0.76	0.08	0.92
Zambia	1998	2008	11	0.13	0.04	0.96
Median	1998	2008	5.5	0.54	0.09	0.91

Country	First year	Last year	# of HS4 products	\Delta lns  (median)	$\Delta \ln p / (\Delta \ln s + \Delta \ln R)$ (median)	$\Delta \ln q / (\Delta \ln s + \Delta \ln R)$ (median)
Benin	1998	2006	59	0.41	-0.04	1.04
Botswana	2002	2008	820	0.08	0.10	0.90
Burkina Faso	1997	2005	123	0.76	0.09	0.91
Burundi	1995	2008	34	0.85	0.44	0.56
Cameroon	1997	2006	251	0.49	0.04	0.96
Central African Rep.	1995	2005	20	1.65	0.27	0.73
Cote d'Ivoire	1997	2008	456	0.69	0.09	0.91
Ethiopia	2001	2008	134	0.62	0.10	0.90
Gabon	1998	2006	142	1.55	0.10	0.90

Gambia	1996	2008	43	0.06	0.16	0.84
Ghana	1996	2008	318	0.14	0.17	0.83
Guinea	1995	2008	51	0.48	0.26	0.74
Kenya	1997	2008	643	0.23	0.05	0.95
Madagascar	2000	2008	402	0.13	0.14	0.86
Malawi	2000	2008	270	0.10	0.11	0.89
Mali	2001	2008	189	0.09	0.33	0.67
Mauritius	1997	2008	438	0.91	-0.02	1.02
Mozambique	2000	2008	233	0.03	0.03	0.97
Namibia	2000	2008	634	0.23	0.17	0.83
Niger	2000	2008	216	0.53	0.01	0.99
Nigeria	1996	2008	132	0.13	0.10	0.90
Rwanda	2003	2008	59	1.39	0.04	0.96
S. Tome and Principe	2002	2008	20	0.02	-0.13	1.13
Senegal	1998	2008	347	0.15	0.08	0.92
South Africa	1999	2008	1104	0.45	0.26	0.74
Swaziland	2000	2007	509	2.13	-0.03	1.03
Tanzania	1998	2007	410	0.47	0.13	0.87
Togo	1994	2007	92	0.06	0.00	1.00
Uganda	1995	2008	323	0.39	0.04	0.96
Zambia	1998	2008	388	0.92	0.13	0.87
Median	1998	2008	242	0.43	0.10	0.90

## REFERENCES