# African Export Successes: Surprises, Stylized Facts, and Explanations[1]

William Easterly

New York University and NBER

Ariell Reshef

University of Virginia

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Abstract:

We establish the following stylized facts: (1) Exports are characterized by Big Hits, (2) the Big Hits change from one period to the next, and (3) these changes are not explained by global factors like global commodity prices. These conclusions are robust to excluding extractable products (oil and minerals) and other commodities. Moreover, African Big Hits exhibit similar patterns as Big Hits in non-African countries. We also discuss some concerns about data quality. These stylized facts are inconsistent with the traditional view that sees African exports as a passive commodity endowment, where changes are driven mostly by global commodity prices. In order to better understand the determinants of export success in Africa we interviewed several exporting entrepreneurs, government officials and NGOs. Some of the determinants that we document are conventional: moving up the quality ladder, utilizing strong comparative advantage, trade liberalization, investment in technological upgrades, foreign ownership, ethnic networks, and personal foreign experience of the entrepreneur. Other successes are triggered by idiosyncratic factors like entrepreneurial persistence, luck, and cost shocks, and some of the successes occur in areas that usually fail.

JEL Codes: O1, O3, O4, F1, D8

Over the last 15 years or so the world has experienced a sharp increase in export activity (until the recent financial crisis). 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.[2] This is compared with 4% for the U.S., 8% for Germany, 13% for India and 19% for China.[3] 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.[4] This motivates a closer examination of the patterns and determinants of African export success.

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 all other export categories (agriculture, food, fuel and ores and metals). However, on a closer, detailed examination of export activity, it becomes evident that these broad categories mask much heterogeneity. For example, not all agricultural exports are the same. From our examination of export activities in three East African countries which we visited, we witness price variation based on quality differentiation of products that are exported, sometimes exclusively to Europe and the U.S., other times regionally. We also witness quality upgrading and attempts to capture larger proportions of the value chain.

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. Perhaps exaggerating a bit the traditional view held for many years, Africa is seen primarily as a commodity exporter, and commodity exports are perceived not as "prestigious" as other exports (such as manufacturing) because commodity revenues are thought to reflect mainly endowments and world prices rather than domestic success.  These views in turn predict that (a) the distribution of export revenue ("success") across goods will be different in Africa relative to the rest of the world, (b) that African nations simply export a fixed set of low value added goods that correspond to their individual commodity endowments, and as such, (c) that revenues by good are determined by world prices. While many researchers probably now already have a more subtle view of African exports, we think that the polar extreme of this traditional view still has some influence in

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[2] We do not address destinations in this paper. However, it is worth noting that much of the African export growth is regional. The share of exports from the average sub-Saharan Africa country to destinations outside sub-Saharan Africa has steadily declined from 71% in 1994 to 53% in 2008.

[3] Data from World Bank *World Development Indicators* database.

[4] 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.

academic and policy circles, and hence is worth testing as a set of hypotheses. One sign of the influence of this traditional view is the large amount of policy discussion and research literature about commodity "booms" and "busts," which are defined by large increases or decreases in world commodity prices.

In fact, we largely reject these hypotheses. We demonstrate that in many dimensions African exporting is in line with the rest of the world. As in the rest of the world, export success is dominated by a small number of Big Hits. On average, Big Hits are no more and no less as rare in Africa as anywhere else: they follow a power law that is broadly similar in Africa to outside Africa. Moreover, it is not correct that worldwide commodity price movements determine export revenues in Africa. Nor is there much of a difference in the role of world prices between commodities and manufactured products. The Big Hits change by a surprising amount from one period to the next, but the changes are not driven by global prices.

In order to establish these stylized facts we use detailed HS4 product level data from the Comtrade database. However, Comtrade gave us concerns as well as great access to detail. We noticed signs of significant 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 less sensitive 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 NGO 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 very different from what we might expect to find elsewhere. African exporting entrepreneurs perform very similar activities to those that exporters are expected to do anywhere else. This is in line with Tybout (2000), who concludes that manufacturing firms (not only exporters) in developing countries are not inefficient relative to their counterparts elsewhere. If there are differences, they are driven by low incomes in target markets, detrimental macro policies, high transportation costs, bureaucracy, and poor rule of law. It is comforting that our stylized facts are consistent with findings from our interviews.

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Given our interviews, we classify determinants of success into two broad categories: conventional and idiosyncratic. We document the following conventional determinants: moving up the quality ladder, utilizing strong cases of comparative advantage, responding to trade liberalization, investing in technological upgrades, foreign ownership, exploiting ethnic networks, and relying on personal foreign experience of the entrepreneur. Some determinants are idiosyncratic in nature: Rwanda's coffee quality upgrade was a foreign aid success despite the usual poor record of aid, and a Rwanda handicraft export success defied the long odds that cause most handicraft projects to fail. Other idiosyncratic features include sheer passion of the entrepreneur (Uganda roasted coffee), luck (Nile perch from Lake Victoria), and cost shocks (rising aviation fuel costs killed off cut flower exports from Uganda).

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) and exporters works well. This is in line with Roberts and Tybout (1997), who argue that due to informational externalities, as well as externalities that arise from more efficient delivery of supporting services to exporters, there is a role for public sector intervention.[5] Although far from being the majority, some of the exporters we interviewed cite the importance of government support in accessing trade fairs, or complain about lack thereof.

Our paper also corroborates the conclusions of Artopolus, Friel and Hallak (2010), 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 apply the correct "export business model" (as opposed to a domestic mode of operation). We find this to be true in several of our export success stories, and in particular in the cases in which entrepreneurs are pioneers.

Less surprisingly, important factors contributing to export success are regional free trade zone agreements and low duties for imports into Europe. Tybout (2000) reports overall efficiency improvements due to removal of trade barriers, but not productivity gains at the plant level. Our interviews tend to corroborate this in a qualitative way.

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[5] See also Rauch and Watson (2003) for another example of how informational asymmetries shape the relationship between buyers in developing countries and suppliers in developing countries.

Although not the focus of the paper, we contribute to the international trade literature more broadly, by providing 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 based on existing productivity (see Clerides, Lach and Tybout (1998), Bernard and Jensen (1999) and Melitz (2003)). In our interviews we observe deliberate export decisions that are taken together with specific investments, but also unintentional exporting entry that happens by chance. Therefore, both views may coexist in reality.

Another regularity that we have observed is that quality matters.[6] Practically every exporter that we interviewed told us this, invariably in the beginning of our interview.[7] This is particularly true when exporting to rich markets (E.U. and U.S.). However, when exporting regionally, and given the relatively low incomes of consumers in Africa, cost seems to matter, in some cases more than quality. There seems to be a tradeoff between cost and quality, and when incomes are low, costs trump quality. Hence, which model is right depends on context.

The rest of the paper is organized as follows. We first document that export success is dominated by a few "Big Hits", both in Africa and elsewhere. The value of the Hits approximately follows a power law. Next, we document that the Big Hits do not remain the same: the successful goods change a lot from one period to the next (again both in Africa and elsewhere). We then explore whether this export success instability is explained by world prices, and find that they play only a small role. We note that measurement error may be contributing to the measured instability of export values by good, although we find that aggregation alleviates the problem. The stylized facts that we establish do not match that traditional view that sees African commodity exports as a passive endowment, with changes driven mostly by global commodity prices. In the final section, we explore pathways to big hits with a series of case studies.[8]

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[6] See Baldwin and Harrigan (2010).

[7] The quality question was not the first we 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.

[8] Summaries of all interviews are available in an online appendix on the authors webpages.

1. **Success is rare and dominated by a few Big Hits**

Success in exporting is rare, but it can be very big. 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 top ranked export product for all 37 African countries for which we have data, then the second, down to the twentieth product – all at the 4 digit HS code level. The results are reported in Table 1. Figures 1a and 1b display the power law graphically.

Hausmann and Rodrik (2006) had previously pointed out the phenomenon of hyper-specialization, although only for a few countries and products. In contrast, the scope of our work is comprehensive. We also make a very significant addition to the Hausmann and Rodrik findings, in that we characterize the probability of "big hits" as a function of the size of the hit by a power law. In Easterly and Reshef (2009) we document and analyze this phenomenon more deeply for a broad international sample.

Besedes and Prusa (2008) make a complementary point to ours. They find that most new trade relationships fail within 2 years and that the hazard rate of such failure is higher for developing countries. Nevertheless, developing countries have the highest increase in trade relationships: there seems to be a lot of attempts in discovery as it is.[9]

Table 1 also shows how the rankings are affected by excluding extractables (oil and minerals) and commodities. Then the table compares the pattern of African "Big Hits" 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. Concentration levels at the top of the distribution are somewhat higher

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[9] Bernard, Jensen, Redding, and Schott (2007) document concentration across U.S. exporting firms, while Eaton, Eslava, Kugler, and Tybout (2007) find that Colombian exports are dominated by a small number of very large exporters. Arkolakis and Muendler (2009) make a similar point for Brazilian and Chilean exporting firms and also use a power law to approximate the distribution of exports.

than those in other countries. However, the comparison shows 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 somewhat more extreme power law, rather than being completely unique in having high concentration of the top exports.

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, the distribution of exports exhibits fat tails: although Big Hits are uncommon, they would be drastically smaller in a normal distribution of export values across goods. The power law also implies a fatter tail than another common fat-tailed distribution, a log-normal distribution. 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 coefficient.[10]

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[10] The power coefficients are estimated at 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 is mostly a concern for the structural empirical trade literature, which relies on productivity distributions that are Pareto. Arkolakis (2008) deals with this by adding marketing costs, while Eaton, Kortum and Kramartz (2008) add to their model demand and entry shocks.

**Table 1: Average shares 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 coefficient | -0.64 | -0.67 | -0.75 | -0.79 | -0.87 | -0.88 |

**Figure 1a: Power Laws, All Goods**



Power Law
All Goods

Non Africa

Africa

Log [rank] (vertical axis)
Log [Export Share] (horizontal axis)
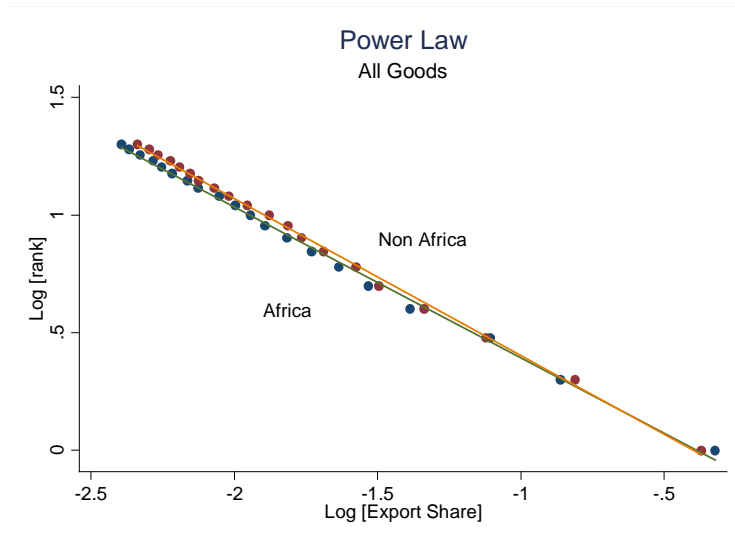
**Figure 1b: Power Laws, Excluding Extractables and Commodities**



Power Law
Excluding Extractables and Commodities

Non Africa

Africa

Log [rank] (vertical axis)
Log [Export Share] (horizontal axis)
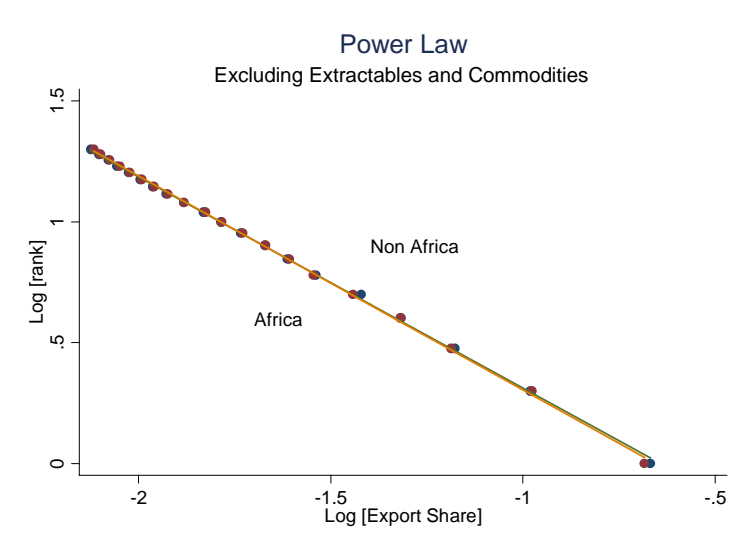
Notes: Horizontal axis is log base 10 of average export share corresponding to each rank

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 for which they have a comparative advantage. In other words, the simple static 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 2a-2d demonstrate this phenomenon for selected countries. In those figures we report the value of the top ten exports (at the HS 4-digit level) in the start year and in the end year and compare their ranks in one year versus the other. It is evident that there is a much churning of Big Hits.

Tables 2a and 2b make this argument more formal and general. In Table 2a we report the low correlation of the ranks of the export basket in a start year with that in the end year a sample of focus countries. In Panel A of Table 2b we show 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, Panel B suggests that the results are not dissimilar for non-African countries. Although the rank correlation over all goods is higher for non-African countries, restricting to the top 50 or 100 goods brings Africa in line with non-African countries. 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. Thus, the phenomenon of churning Big Hits is not unique to Africa, and is in fact similar quantitatively to non-African countries.

Table 3 shows the changing nature of success in another way. We decompose export growth ($\Delta X$) into intensive export growth in products that are exported both in the start and end year ($\Delta B$), new products that are not exported in the first year ($N$), and lost products that exported in the first year but not in the end year ($L$):

$$\Delta X = X(t) - X(t\text{-}1) = B(t) - B(t\text{-}1) + N(t) - L(t\text{-}1) = \Delta B + N(t) - L(t\text{-}1) \,.$$

By dividing by $\Delta X$ we have

$$1 = \Delta B/\Delta X + N(t)/\Delta X - L(t\text{-}1)/\Delta X \,.$$

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Table 3 reports this decomposition, as well as $X(t)$, $X(t-1)$, and the average annual growth rate of exports (not all start and end years are the same). All values are in 2008 prices. The analysis is performed at the 6 digit level, which is more appropriate for describing product. While the median growth due to the intensive margin is 70%, new products account for 43%, while lost products account for -4% of export growth (these numbers need not sum to 100%, because the median is applied to each category separately). The table shows that much of the changes in success are attributable to new goods and that there is a lot of churning.

Yet another way to demonstrate that large changes in composition of success are typical is the following. Using data on top 40 products for each of the 33 sub-Saharan countries in the Comtrade data, we identify products with negative change in share and take sum of all of those, separately for each of 33 countries. We then identify products with positive change in share and take sum for all of those, separately for each of 33 countries. Then we take averages across 33 countries (same start date and end date within each country). On average the sum of the negative changes is -26 percent and the sum of the positive changes is 31 percent. This implies much "turnover" in the shares of the top 40 products.

**Figure 2a**

## Ghana Top Ten Exports in Real Value in 1996 and 2008 (thousand US$)

| | 1996 | | | | 2008 | |
|---|---|---|---|---|---|---|
| description | Export Value | Rank | | description | Export Value | Rank |
| Cocoa beans, whole or broken, raw or roasted | $ 976,646 | 1 | | Gold, unwrought, semi-manufactured, powder form | $1,814,192 | 1 |
| Gold, unwrought, semi-manufactured, powder form | $ 965,567 | 2 | | Cocoa beans, whole or broken, raw or roasted | $1,031,154 | 2 |
| Wood sawn, chipped lengthwise, sliced or peeled | $ 277,491 | 3 | | Wood sawn, chipped lengthwise, sliced or peeled | $ 131,018 | 3 |
| Veneers and sheets for plywood etc <6mm thick | $ 220,638 | 4 | | Coconuts, Brazil nuts and cashew nuts, fresh or dried | $ 119,222 | 4 |
| Cocoa butter, fat, oil | $ 141,285 | 5 | | Plywood, veneered panels and similar laminated wood | $ 75,002 | 5 |
| Unwrought aluminium | $ 111,920 | 6 | | Veneers and sheets for plywood etc <6mm thick | $ 58,597 | 6 |
| Oils petroleum, bituminous, distillates, except crude | $ 84,100 | 7 | | Oil seeds and oleaginous fruits nes | $ 55,475 | 7 |
| Prepared or preserved fish, fish eggs, caviar | $ 62,896 | 8 | | Oils petroleum, bituminous, distillates, except crude | $ 53,047 | 8 |
| Natural rubber and gums, in primary form, plates, etc | $ 31,759 | 9 | | Manganese ores, concentrates, iron ores >20% Manganes | $ 49,852 | 9 |
| Aluminium ores and concentrates | $ 29,809 | 10 | | Cocoa butter, fat, oil | $ 47,549 | 10 |
| Manganese ores, concentrates, iron ores >20% Manganes | $ 19,676 | 12 | | | | |
| Oil seeds and oleaginous fruits nes | $ 15,568 | 14 | | Natural rubber and gums, in primary form, plates, etc | $ 23,735 | 14 |
| | | | | Prepared or preserved fish, fish eggs, caviar | $ 20,904 | 16 |
| | | | | Aluminium ores and concentrates | $ 17,937 | 18 |
| Plywood, veneered panels and similar laminated wood | $ 13,848 | 20 | | | | |
| Coconuts, Brazil nuts and cashew nuts, fresh or dried | $ 709 | 67 | | | | |
| | | | | Unwrought aluminium | $ 447 | 132 |

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**Figure 2b**

| Ethiopia Top Ten Exports in Real Value in 2001 and 2008 (thousand US$) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **2001** | | | | | **2008** | | |
| description | Rank | Value | | | description | Rank | Value | |
| Coffee, coffee husks and skins and coffee substitutes | 1 | $ 173,663 | | | Coffee, coffee husks and skins and coffee substitutes | 1 | $ | 562,263 |
| Vegetable products, nes | 2 | $ 64,935 | | | Oil seeds and oleaginous fruits nes | 2 | $ | 250,275 |
| Oil seeds and oleaginous fruits nes | 3 | $ 44,925 | | | Vegetables, leguminous dried, shelled | 3 | $ | 116,997 |
| Sheep or lamb skin leather, without wool on | 4 | $ 31,675 | | | Cut flowers, dried flowers for bouquets, etc, | 4 | $ | 104,740 |
| Vegetables, leguminous dried, shelled | 5 | $ 24,839 | | | Vegetables nes, fresh or chilled | 5 | $ | 83,462 |
| Buckwheat, millet and canary seed, other cereals | 6 | $ 21,492 | | | Gold, unwrought, semi-manufactured, powder form | 6 | $ | 79,898 |
| Goat or kid skin leather, without hair | 7 | $ 19,830 | | | Vegetable products, nes | 7 | $ | 30,526 |
| Raw hides and skins of bovine, equine animals | 8 | $ 16,311 | | | Raw skins of sheep or lambs | 8 | $ | 30,053 |
| Raw skins of sheep or lambs | 9 | $ 13,226 | | | Sheep or lamb skin leather, without wool on | 9 | $ | 28,816 |
| Niobium tantalum vanadium zirconium ores, concentrate | 10 | $ 12,148 | | | Meat of sheep or goats, fresh, chilled or frozen | 10 | $ | 28,054 |
| | | | | | Goat or kid skin leather, without hair | 12 | $ | 22,721 |
| Gold, unwrought, semi-manufactured, powder form | 12 | $ 5,413 | | | | | | |
| Meat of sheep or goats, fresh, chilled or frozen | 20 | $ 1,794 | | | | | | |
| | | | | | Niobium tantalum vanadium zirconium ores, concentrate | 58 | $ | 857 |
| | | | | | Raw hides and skins of bovine, equine animals | 101 | $ | 338 |
| Cut flowers, dried flowers for bouquets, etc, | 54 | $ 174 | | | | | | |
| | | | | | Buckwheat, millet and canary seed, other cereals | 229 | $ | 39 |
| Vegetables nes, fresh or chilled | 182 | $ 2 | | | | | | |

**Figure 2c**

### Uganda top 10 exports in 1995 and 2008 (thousand 2008 US$)

| Description (1995) | value | rank | Description (2008) | value | rank |
|---|---|---|---|---|---|
| Coffee, coffee husks and skins and coffee substitutes | $ 487,662 | 1 | Coffee, coffee husks and skins and coffee substitutes | $ 403,138 | 1 |
| Fish fillets, fish meat, mince except liver, roe | $ 39,211 | 2 | Fish fillets, fish meat, mince except liver, roe | $ 107,942 | 2 |
| Gold, unwrought, semi-manufactured, powder form | $ 36,160 | 3 | Cement (portland, aluminous, slag or hydraulic) | $ 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 stamps etc | $ 55,739 | 5 |
| Raw hides and skins of bovine, equine animals | $ 13,384 | 6 | Tea | $ 47,209 | 6 |
| Tobacco unmanufactured, tobacco refuse | $ 12,378 | 7 | Live plants nes, roots, cuttings, mushroom spawn | $ 42,470 | 7 |
| Cotton, not carded or combed | $ 11,432 | 8 | Tube, pipe of iron or steel, except seamless > 406.4m | $ 37,080 | 8 |
| Oil seeds and oleaginous fruits nes | $ 8,506 | 9 | Flat-rolled iron/steel, >600mm, clad, plated or coate | $ 32,125 | 9 |
| Soaps | $ 3,970 | 10 | Animal and vegetable fats or oils, hydrogenated only | $ 25,888 | 10 |
| Flat-rolled iron/steel, >600mm, clad, plated or coate | $ 3,171 | 12 | Soaps | $ 20,584 | 13 |
| Tea | $ 720 | 35 | Oil seeds and oleaginous fruits nes | $ 15,796 | 15 |
| | | | Vegetables, leguminous dried, shelled | $ 13,569 | 18 |
| Live plants nes, roots, cuttings, mushroom spawn | $ 413 | 50 | | | |
| | | | Gold, unwrought, semi-manufactured, powder form | $ 8,439 | 24 |
| Cement (portland, aluminous, slag or hydraulic) | $ 81 | 126 | Maize (corn) | $ 6,256 | 29 |
| Animal and vegetable fats or oils, hydrogenated only | $ 59 | 149 | | | |
| | | | Raw hides and skins of bovine, equine animals | $ 1,161 | 81 |
| Documents of title (bonds etc), unused stamps etc | $ 16 | 250 | | | |
| Tube, pipe of iron or steel, except seamless > 406.4m | $ 2 | 397 | Cotton, not carded or combed | $ 268 | 154 |

**Figure 2d**

### Tanzania Top Ten, 1998 and 2007, real thousand US$

| description (1998) | 1998 | rank98 | description (2007) | 2007 | rank07 |
|---|---|---|---|---|---|
| Coconuts, Brazil nuts and ca: | $ 135,279 | 1 | Gold, unwrought, semi-manufactured | $ 565,616 | 1 |
| Coffee, coffee husks and skin | $ 97,329 | 2 | Precious metal ores and concentrate | $ 205,280 | 2 |
| Fish fillets, fish meat, mince e | $ 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 re | $ 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 s | $ 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 | | | |

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**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 between start year and end year within countries**

| A. Average for 33 African Countries | All | Top 50 in Start Year | Top 100 in Start Year |
|---|---|---|---|
| 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. Average for 101 Non-African Countries | | | |
| 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. Data: HS 4 digit, Comtrade.

**Table 3: Decomposition of export growth, HS 6-digit level**

| | | | Exports (thousands of US$ in 2008 prices) | | Growth decomposition | | | |
| | | | | | Products exported in both | New | Lost | Export growth |
| Exporter | First year | Last year | First year | Last year | years | products | products | 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. **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 changes. Since Comtrade does not include data on prices, we use unit values as proxy for prices. Unit values are just the weighted average of prices within a particular product category. 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. Taking differences, this becomes

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

and thus

$$1 = \Delta \ln p(i)/(\Delta \ln s(i) + \Delta \ln R) + \Delta \ln q(i)/(\Delta \ln s(i) + \Delta \ln R) \, .$$

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.

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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 19 percent of the percent change in export shares on average.

This is evidence against that traditional view that sees African export performance as explained mainly by world prices. African countries are not just passively exporting their commodity endowments.

**Table 4: Decomposition of export share growth between price and quantity**

| Category | Median First year | Median Last year | median # of HS4 products | \|Δlns\| (median) | Δlnp/ (Δlns+ΔlnR) (median) | Δlnq/ (Δlns+ΔlnR) (median) |
|---|---|---|---|---|---|---|
| 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% |

Notes: numbers are medians across 30 African countries for HS4 products.

To drive our point further, we demonstrate that global forces (prices or other) are not important forces in determining commodity export revenues and in changes in Big Hits. We find that global year fixed effects do not explain much of the 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 that is exported by many countries $c$ in many time periods $t$. $a(c)$ capture country effects, $d(t)$ capture time effects and $e(c,t)$ is an idiosyncratic error. Given the estimates of such regressions for several products, we decompose the variance

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

where $C$ denotes country fixed effects, $T$ denotes global year dummies, and $e$ is the residual. The purely intertemporal variation in each export good is $V(r) - V(C)$. Table 5 reports the results of this variance decomposition for a set of products that are prevalent in African exports. For each product the sample is all countries that export it.

If commodities' variation over time were driven by global prices, $V(r)-V(C)$ 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, i.e. $V(T)/(V(r)-V(C))$, is small. Moreover, there are no statistically significant differences between commodities and non commodities in this regard.

The role of country endowments, $V(C)/V(r)$, is statistically larger for commodities, but the difference is not economically large (we reject the hypothesis that $V(C)/V(r)$ has the same in both groups of products, at standard levels of significance). This means that there is substantial specialization across countries in differentiated products, not much less than in commodities. The role of global price movements in commodity export success is much smaller than what one traditional view of commodity exports would predict. Within-product decompositions for each country show that 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 of export revenues by country and global factors**

| Commodities | 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% |

| Non-commodities | | | |
|---|---|---|---|
| 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% |

Notes: the table reports the variance decomposition of export revenue into country factors (C), global time factors (T) and residuals (e), i.e. $V(r) = V(C) + V(T) + V(e)$. The purely intertemporal variation in each export good is $V(r) – V(C)$.

4. **Measurement error concerns**

Some of our results are sensitive to the existence of measurement error. We do notice potential measurement problems, first by observing spottiness of coverage of export product data by country, both at the 6 digit and 4 digit level. In particular, there are many blanks for products in years that earlier and/or later had significant positive values. Therefore, in all of the analysis above we choose the start year for each country at a point when the coverage becomes extensive; usually there is a clear dividing line between very spotty coverage and consistent coverage. However, this procedure does not guarantee that coverage is complete in the later years.

In this section we report a few examples that indicate that there are indeed serious data problems in the Comtrade data. We did not exhaustively check all data. We found these errors in the course of closer examination of Comtrade data that pertains to (potential and actual) African export case studies that we report in the final section of this paper. For these goods, we first investigate measurement error at the 6-digit HS code level and then examine the data at the 4-digit level to see whether aggregation alleviates measurement error. In some cases the importer and exporter data roughly agree. Aggregation may alleviate discrepancies: it seems preferable to use 4-digit over 6-digit data.

Measurement error is evident in discrepancies between importer reports and exporter reports on the same trade flows by year and by good. And there are discrepancies in blank entries between importer reported data and exporter reported data. The modest improvements when aggregating 6-digit to 4-digit level indicates that there are classification disagreements at the 6-digit level, but we were disappointed it did not improve more than it did. Is it possible that one of the sides systematically misses some of the trade flows, some of the time? Except for the case of Rwanda leather products reported below, it did not seem obvious which side was underreporting on average. This is the case whether we use C.I.F. or F.O.B export data.

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. Rwanda often exports via the Mombasa port in 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 some products by air directly, but even this is not always the case. For example, Tanzania (not a landlocked country) sometimes exports fresh (chilled) fish by air from Entebbe or even Nairobi (a bit less than 24 hours driving).[11] Much of the exports of fresh fish from Tanzania are documented in the data as being exported to Kenya and Uganda, but little is consumed there and almost all finds its way to Europe.[12]

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

We do not see any obvious solution to the measurement error problem. Limiting the analysis to products in which importer and exporter reports match closely may induce a selection bias to certain types of products in which such agreement is more likely. So far we see aggregation to the 4-digit level as the only way to alleviate the problem. Our hope is that examining the data from many different angles may alleviate measurement error problems, but we have no way of knowing whether such hopes are justified. In the end, we are left with the usual irreducible helplessness in working with the data that are available.

*Leather and hides in Ethiopia and Rwanda*

**6-digit analysis**

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[11] This is because the airstrip at Mwanza, on the shore of Lake Victoria, where most fish processing occurs, is too short for some large cargo planes.
[12] Another source of discrepancies is the fact that since relative peace has been achieved in Southern Sudan, regional exports to that destination have boomed, but most of this is informal and does not show up in statistic. This has been indicated by Dr. Adam Mugume from the Bank of Uganda.

Our first exercise is to compare blanks and non-blanks in exporter and importer data in the leather and hide industry in Ethiopia and Rwanda. In Ethiopia there are 32 6-digit goods under this category in the years available, 2001-2008. Table 6 summarizes the data.

**Table 6: Ethiopia, 6-digit leather sector, 2001-2008**

|  | Importer blank | Importer not blank | Sum |
|---|---|---|---|
| Exporter blank | 68 | 32 | 100 |
| Exporter not blank | 44 | 112 | 156 |
| Sum | 112 | 144 | 256 |

The two sources match 70 percent of the time. When the importer reports a non-blank, the exporter does so 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. The off-diagonal elements show a slight tendency for importers to be more likely to report blanks when exporter does not, compared to the other way around. This calculation does not suggest that any one source can be identified as underreporting.

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

**Table 7: Rwanda 6-digit leather sector, 2003-2008**

|  | Importer blank | Importer not blank | Sum |
|---|---|---|---|
| Exporter blank | 72 | 16 | 88 |
| Exporter not blank | 30 | 20 | 50 |
| Sum | 102 | 36 | 138 |

The Rwanda Comtrade data before 2003 is very patchy and unreliable, especially in the exporter reported data, with obvious signs of severe under reporting. Therefore all the tables in this paper for Rwanda begin in 2003. In Rwanda there are 23 6-digit goods under the leather and hide group

in the years available, 2003-2008. Table 7 summarizes the data. Rwanda has a more serious problem of inconsistency. Although the two sources match 67 percent of the time, this mainly reflects the high number of blanks in both sources. When the exporter reports a non-blank, the importer does so only 40 percent of the time. When the importer reports a non-blank, the exporter does so 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 conclusion for importers from Rwanda under-reporting 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. Exporters and importers may classify correctly broad product categories at the 4-digit level, but might not pay as much attention to the 5th and 6th digits. A casual examination of some product descriptions confirms that the 6-digit classification can be quite subtle when it comes to manufactured goods.

In Ethiopia the matching of blanks and non-blanks in exporter and importer data at the 4-digit level increases to 82 percent, as can be seen in Table 8. It is somewhat 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 it is not clear on which side there is underreporting. The correlation between the two sources rises slightly to 0.54 relative to the 0.48 correlation at the 6-digit level.

**Table 8: Ethiopia 4-digit leather sector, 2001-2008**

|  | Importer Blank | Importer Not Blank | Sum |
|---|---|---|---|
| Exporter Blank | 16 | 14 | 30 |
| Exporter Not Blank | 2 | 56 | 58 |
| Sum | 18 | 70 | 88 |

Figure 3 reports the result of adding all non-blank entries in the leather and hides group for each year to form the highest level of aggregation for this group. Both exporter and importer data are

of the same order of magnitude and exhibit similar trends, although in the exporter data the decline in 2001-2004 and the increase in 2004-2008 are much more pronounced.

**Figure 3: Ethiopian leather and hide exports**



Ethiopian Leather and Hide Exports
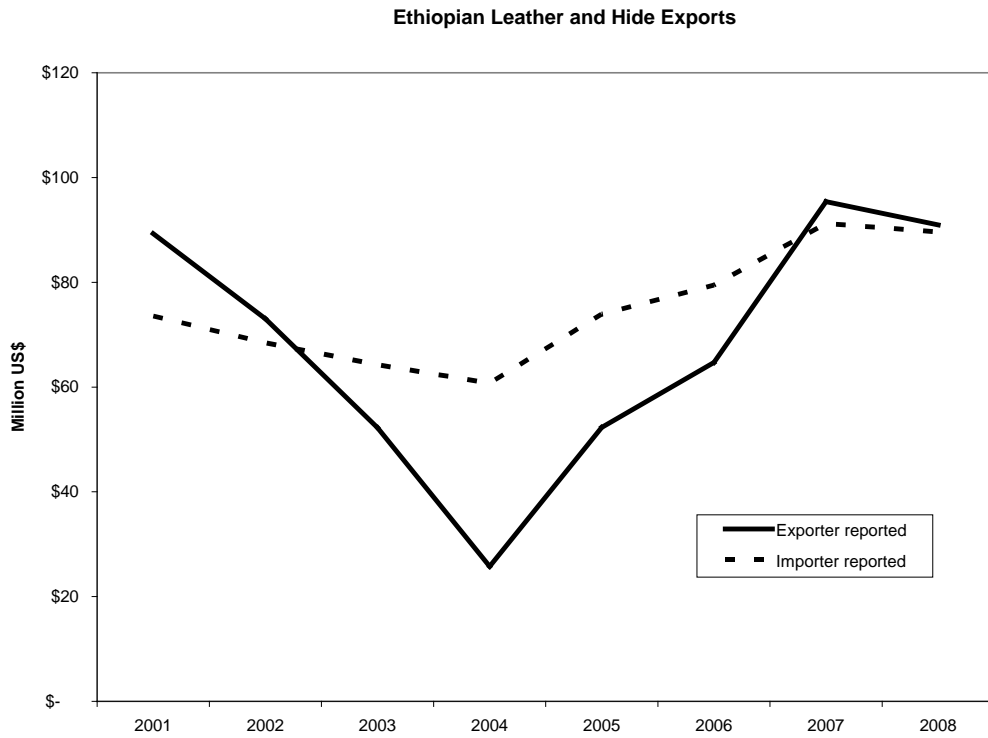
In Rwanda, on the other hand, the data inconsistencies do not improve at the 4-digit level relative to the 6-digit level, as can be seen in Table 9. The under-reporting still seems to be on the importer side, because 13 of the 17 observations with non-blank entries in both exporter and importer data are greater in the exporter reported data.

**Table 9: 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 |

This is even clearer when we aggregate all leather and hide exports by year for Rwanda. As can be seen in Figure 4, importer reported data are consistently below exports. This is likely due to the fact that Rwanda is landlocked.

**Figure 4: Rwandan leather and hide exports**



**Rwanda Leather and Hides Exports**
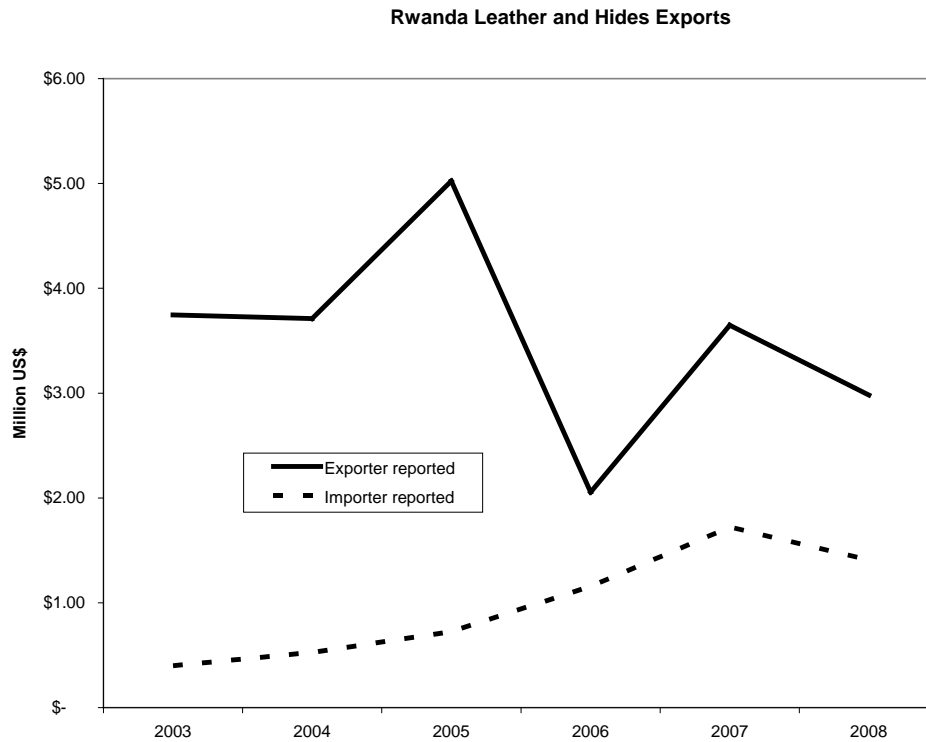
*Ethiopian Shoes*

The data for Ethiopian shoes is also problematic. The exporter and importer data match blanks and non-blanks only 66% of the time. Table 10 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.

**Table 10: Ethiopia shoes 6-digit categories, 2001-2008**

|                    | Importer blank | Importer not blank |     |
| ------------------ | -------------- | ------------------ | --- |
| Exporter blank     | 90             | 48                 | 138 |
| Exporter not blank | 25             | 53                 | 78  |
| Sum                | 115            | 101                | 216 |

At the 4-digit level of aggregation the impression that exporters are the ones who are under reporting is strengthened, since importers have fewer blanks than do exporters, as seen in Table 11.

**Table 11: Ethiopia shoes 4-digit categories, 2001-2008**

|                    | Importer blank | Importer not blank |    |
|--------------------|----------------|--------------------|----|
| Exporter blank     | 1              | 11                 | 12 |
| Exporter not blank | 3              | 33                 | 36 |
| Sum                | 4              | 44                 | 48 |

At the most aggregate level, aggregating over all shoe products the importer and exporter data on shoe exports match closely year by year, as illustrated in Figure 5. In this case, aggregation substantially solves measurement problems.

**Figure 5: Ethiopian shoe exports**



Ethiopia shoe export data

*Rwanda coffee*

28
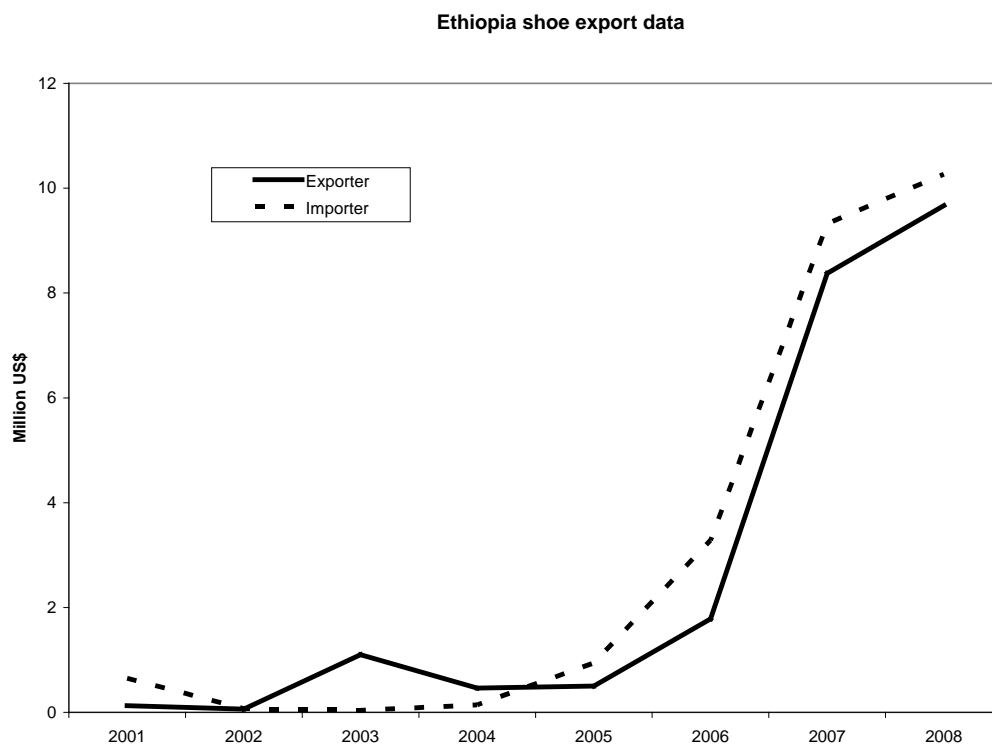
Like most other Rwanda Comtrade data, the coffee exporting data before 2003 is very patchy and unreliable. However, as Figure 6 illustrates, beginning in 2003 the exporter and importer reporting on unroasted coffee from Rwanda coincides remarkably well.

**Figure 6: Rwanda exports of unroasted coffee, HS 090111**



Rwanda Export of Unroasted Coffee HS 090111
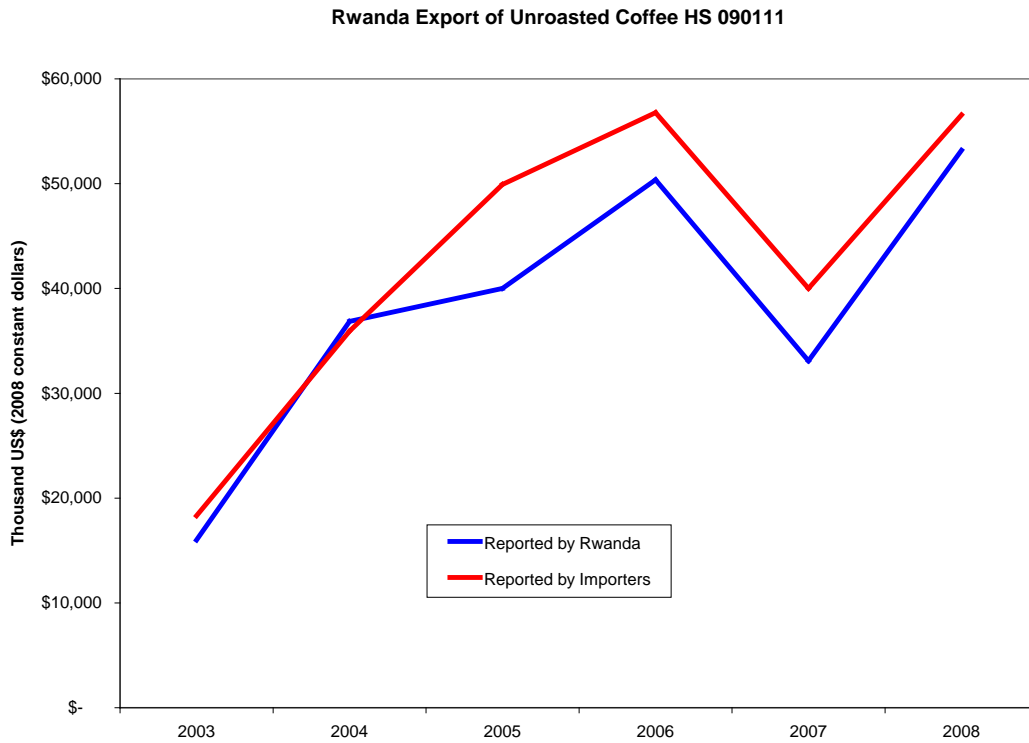
### 5. **Pathways to Big Hits**

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

To answer these questions we traveled to Africa to interview exporting entrepreneurs from successful industries. Our methodology is as follows. First we examined 4-digit HS code exports from all countries to try to detect success stories. The data are from the same Comtrade database that we used to establish the stylized facts above. We identify success stories as exports of

products that are increasing export revenues dramatically and increasing their share in total exports, and/or 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.).

Given a set of candidate products, we traveled to three East African countries – Rwanda, Uganda and Tanzania – to meet entrepreneurs that export them. The choice of countries was dictated by pre-existing contacts. The sample of entrepreneurs that were interviewed was dictated by those contacts. We restricted attention to those industries identified above as export success stories. In Rwanda, our initial contact was with one coffee exporter, who introduced us to other entities in this industry, including one American importer. An economist at the Rwanda Development Board helped us get in touch with entrepreneurs in other (successful) export industries from our set of candidates. In Uganda our initial contact was a journalist; we drew on his personal contacts to reach entrepreneurs there. This explains the smaller number of entrepreneurs we met there. Finally, our contacts at the Bank of Tanzania gave us a list of entrepreneurs drawn from the set of successful export industries there. We provide excerpts of interviews in an appendix.

Clearly, the sample is not representative of economic or even exporting activity; it includes only successful exporters. As such, it is impossible to test the importance of the broad factors, as well as transportation costs, financial constraints, etc. – although we still document entrepreneurs' account of the importance of such factors. But the goal of the interviews was to identify why export of a particular product took off. In that sense, the sample suits our purposes. In the process we obtained firsthand accounts of the business model of the firms we visited, as well as difficulties facing exporters in Africa. We did not manage to interview entrepreneurs in all candidate exported products, but the picture that emerges illustrates many reasons for success and for Big Hits.

The interviews always started with an introduction on our mission, followed by an open discussion about the firm: how and when it was founded, product range, when it started to export, etc. In this first part we let the entrepreneur speak freely, while we ask for clarifications along the way. Later in the interview, in order to focus better on the topic at hand, we asked questions from a list that we prepared in advance. Not all of these questions had to be answered directly, but they served as guidance to facilitate a deeper understanding of the characteristics of the exporting activities of the firm.

We organize the discussion around broad determinants of export success versus idiosyncratic determinants. The former include removal of trade barriers, well known Heckscher-Ohlin labor cost advantages for labor intensive exports, specific resource endowments, moving up the quality ladder for "traditional" low quality export products, superior technology foreign ownership, and ethnic networks. One particularly interesting aspect of successful exporting entrepreneurs in many cases is personal foreign experience outside of Africa, which is not necessarily related to business. In addition, other general issues like the importance of quality and transportation costs and finance for exporting were evident in the interviews.[13] In almost all cases we find that entrepreneurs are actively conducting market research and feasibility studies to determine where to invest and where to export to. But personal contacts are important in staring exporting and in exporting to new destinations. We report separately a few cases in which idiosyncratic determinants played a particularly strong role.

A major theme is that exporting requires a particular mindset, an export-oriented business model (Artopolus, Friel and Hallak, 2007). Relative to serving the domestic market, exporting requires better planning, meeting deadlines, dealing with a lot more paperwork, better quality control, maintaining product consistency etc. All these, in turn, require modern organization and management methods, investment in ICT, and appropriate marketing strategies – which imply a modern way of doing business. This was evident in most of the firms we studied.

In addition to the broad determinants, we documented interesting cases in which the reasons for export success are very idiosyncratic. In two cases – quality coffee and handicrafts exports from Rwanda – financial assistance and help in penetrating foreign markets in the West from aid organizations, and to some degree government assistance, was instrumental. Note that these are the exception in our sample and concentrated in Rwanda. Although aid can help some people some of the time, overall, the evidence for a causal link from aid to growth does not pass empirical scrutiny; see Easterly (2003), Rajan and Subramanian (2005) and references therein.[14] If all aid assistance was as successful as what we found in Rwanda coffee and handicrafts, then we would have expected a causal link would be established in the aggregate. This is why we consider the success of aid-assisted exports as idiosyncratic, rather than include aid as a broad category for export success. In the handicrafts case, this success in Rwanda may be even more

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[13] Indeed, Freund and Rocha (2010) find that land transport delays are the most detrimental factor that constrains African trade, much more than tariff reductions.

[14] Easterly (2003) also criticizes this causal link on theoretical grounds.

idiosyncratic as some experienced aid practitioners find that handicraft projects face severe challenges and often fail.[15]

Luck – i.e. being in the right place at the right time with the right knowledge and connections – played a particularly important role in the case of chilled fish exports from Lake Victoria. We also find that cost shocks can reverse a success in one location (fresh cut flowers from Uganda), while another location may gain at its expense (Ethiopia). In addition, we document the persistence and passion of one pioneering entrepreneur as the main determinant for successfully exporting roasted coffee from Uganda. Finally, since each firm is different, we list a few factors that were instrumental in the success some of the remaining firms.[16] We expand on each of these idiosyncratic cases below.

### i.      Moving up the quality ladder for "traditional" low quality export products

#### *Introduction of fully-washed coffee in Rwanda*

Coffee is a traditional cash crop in all of East Africa. As such, it was usually of poor quality. However, we have witnessed a recent trend in producing high quality (fully washed) coffee, for which labor intensive processing is needed. Figures 7 and 8 show the upward trend in worldwide coffee prices and, in particular, in Rwanda, Ethiopia and Uganda. However, we also see substantial differences between unit values across countries and across qualities of coffee. From Figure 8 it is evident that higher quality fetches higher prices. The average price for fully washed Rwandan coffee is higher than the average price for ordinary coffee, while coffee sold by the exporting firm RWASHOSCCO and by the Maraba coop fetches even higher prices per kilogram.[17] The increase in coffee export revenues for Rwanda, evident in Figure 9, is not driven by an increase in volumes. Export quantities have fluctuated with no trend since 2002. The increase in revenue is driven by a shift towards fully washed coffee, which by 2009 accounts for 23% of exports and 32% of revenue, see Figure 10. This, together with the global increase in

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[15] See Saundra Schimmelpfennig, "Problems with Selling Handicraft Projects Internationally", September 2009, at http://goodintents.org/common-aid-problems/selling-handicraft-internationally.

[16] Freund and Pierola (2010) report three cases from Peru with similarities to ours. Fresh Asparagus exports started with the help of USAID in the 1980s. Paprika exports started due to one entrepreneur hearing about it from a friend in Chile. Fresh artichoke exports started as a private initiative to coordinate efforts to discover a profitable growing technique after several uncoordinated attempts failed (eventually, only canned artichokes were exported).

[17] We thank Jean-Claude Kayisinga of the SPREAD project in Kigali for providing the detailed data for Rwanda coffee exporting.

prices, explains the increase in revenue. 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. How was this achieved?

The USAID-funded PEARL project and its descendant, the SPREAD project, in collaboration with Texas A&M University (Norman Borlaug Institute for International Agriculture) introduced fully washed coffee techniques to Rwanda in 2000. The first coop to export fully washed coffee (Maraba) was founded by PEARL in 2001 and the first shipment was exported in 2002. Following this, many coops adopted the technology. Again, we note that this successful aid intervention is the exception, rather than the rule. And as the next quality upgrading case demonstrates, the private sector can also develop quality coffee exports and even develop this further into final products (roasted and airtight packed, rather than green coffee beans), so external intervention is not a necessary condition.

RWASHOSCCO, founded in 2005, is an exporting firm that is owned by coops that exports only fully washed coffee. RWASHOSCCO received funding from USADF. Another exporting firm that does the same is Misozi, founded in 2007 with help from the International Fund for Agricultural Development (IFAD). Both are owned by coffee growing coops. The Maraba coop produces only fully washed coffee, which is exported as single-source/traceable coffee from Rwanda. The neighboring, privately owned Bufcafe washing station does the same. These are fully washed coffees that are bought for a premium, mostly by gourmet cafés and roasters in the U.S., for example Gimmee!Coffee in New York; see Figure 11. Other examples are: Intelligentsia, which has cafés in Chicago and Los Angeles; and Third Rail Coffee located in New York; the Whole Foods supermarket chain – all of which sell the coffee under the name of the coop, hence the term single-source/traceable. The owner of Intelligentsia travels to visit the coops from which he buys coffee to maintain personal relationships with growers, to maintain quality and to advise.

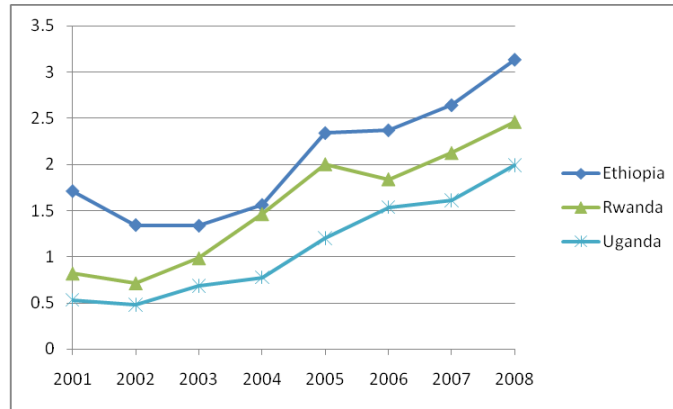**Figure 7: Coffee exports unit value per kilogram**
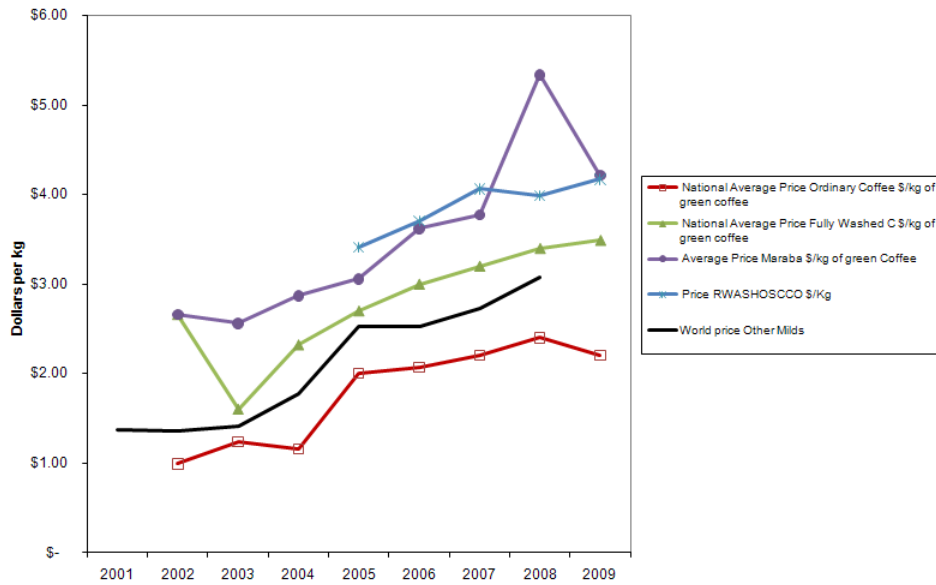
**Figure 8: Rwanda Coffee Price Comparison**



**Figure 9: Coffee Exports from Rwanda (millions of dollars)**
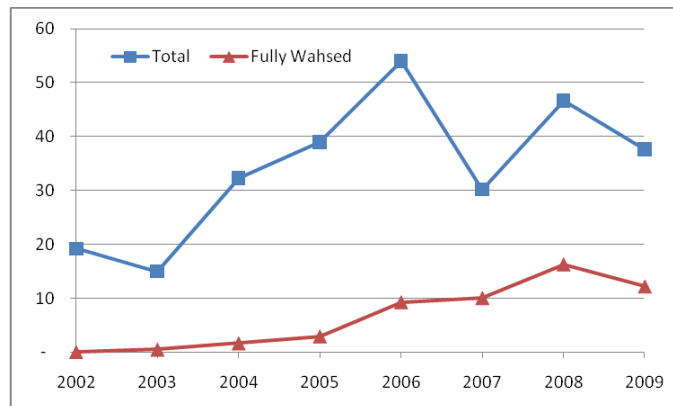
**Figure 10: Income and Production Shares of Fully Washed Coffee Exports from Rwanda, Percent of Total Coffee Exports**
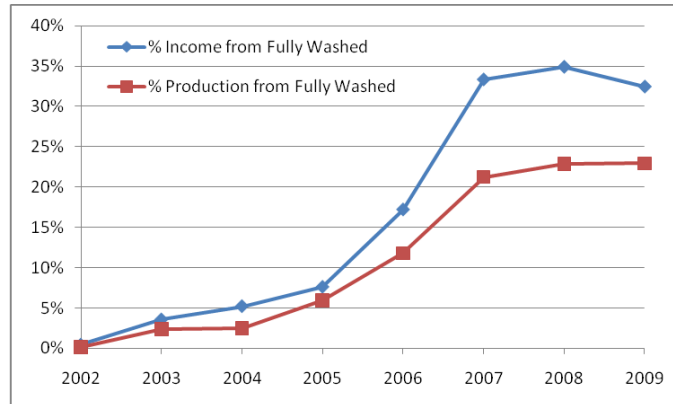


**Figure 11: Single sourced coffee from Bufcafe in New York café Gimmee!Coffee**



*Good African Coffee from Uganda*

Another case of quality upgrading is the privately owned company Good African Coffee, based in Kampala, Uganda. But in this case not only is the coffee fully washed; it is roasted and packed and exported as a final product directly to supermarkets in the U.K., thus capturing the entire value chain. As such, the marketing effort includes design and careful airtight packaging. Another distinction from the Rwandan case is that Good African Coffee is the brainchild of one African entrepreneur, Andrew Rugasira, who is also the sole owner.

Rugasira founded Good African Coffee (GAC) in 2003 to produce, roast and export quality coffee to western markets. The goal is to capture as much of the value chain as possible. To ensure supply of quality coffee beans GAC formed farmer coops for growing coffee in Western Uganda. They taught them how to process high quality fully washed coffee beans and funded capital equipment. Today more than 14,000 farmers supply coffee to GAC through these coops.[18] Coffee was roasted for local consumption since the 1970s by the Ugandan coffee board. GAC is not the first to roast locally, but is the first in Africa to export high quality coffee. It is the only African owned brand to export to the U.K.

GAC first sold roasted and ground coffee in South Africa in 2004, using a plant there. In 2005 GAC started to sell to the supermarket chain Waitrose. The roasting and grinding facility moved to Dublin and GAC pulled out of South Africa. In order to satisfy local tastes, in 2006 GAC launched their freeze dried instant coffee, which together with their roast and ground coffees was listed in the British supermarket chain Sainsbury's. Freeze dried instant coffee is also sold to Tesco. In July 2009 GAC set up a roasting and packaging facility in Kampala to do all the processing in Africa. In July 2010 GAC started selling roasted and ground coffee to the British supermarket Tesco. From November 2010 GAC products will be available for purchase in the U.S. via the internet.

Note that one factor that may have played a role in inducing quality upgrading in Rwanda and Uganda are high transport costs. Both are landlocked countries with poor quality ground transport both at home and in the countries with neighboring ports, while air freight is of course more expensive. Increasing the export value per unit weight by upgrading quality may have been a response to this transport cost problem.

ii.     **Comparative advantage**

Comparative advantage manifested itself in the interviews as well, particularly in the following products: coffee from Rwanda and Uganda, flowers and cuttings from Uganda, and fish from Uganda and Tanzania. These are all exports that rely on natural endowments, but also on

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[18] Since many of the coops are located near national parks, USAID helped in educating the farmers on conservation. Rugasira stresses that the involvement of USAID was limited to this activity. He is a vociferous opponent of aid and has expressed his views ("trade, not aid") in writing and speech.

idiosyncratic features, which we detail below, case by case. The soil in Rwanda and Western Uganda, as well as their relatively high altitudes, is particularly good for growing Bourbon Arabica coffees. Likewise, flower exports from Uganda also rely on suitable soil and high altitudes. Nile Perch was abundant in Lake Victoria long before it was being exported chilled.

But there are other endowments on which entrepreneurs in Africa draw on. For instance the firm Gahaya Links from Rwanda exports woven baskets (and more recently jewelry) that are based on traditional Rwandan designs and techniques. In this case, it is a cultural endowment that is unique to Rwanda that helps explain the increase in handicraft exports from there. The case of Gahaya Links also exhibits interesting idiosyncratic patterns, on which we elaborate below.

Labor cost advantages also play an important role in export success in some of the industries we studied. Fully washed coffee, handicrafts (Gahaya Links) and flowers are all labor intensive activities. According to the well known Heckscher-Ohlin forces, low labor costs create a comparative advantage in these industries. According to the coffee importer and roaster, Intelligentsia, the quality of coffee achieved in East Africa cannot be achieved any more in Central America because labor costs there have increased. Fully washed coffee is still exported from Central America, but the quality of East African coffee is higher due to the fact that they can employ more labor due to low wages there.

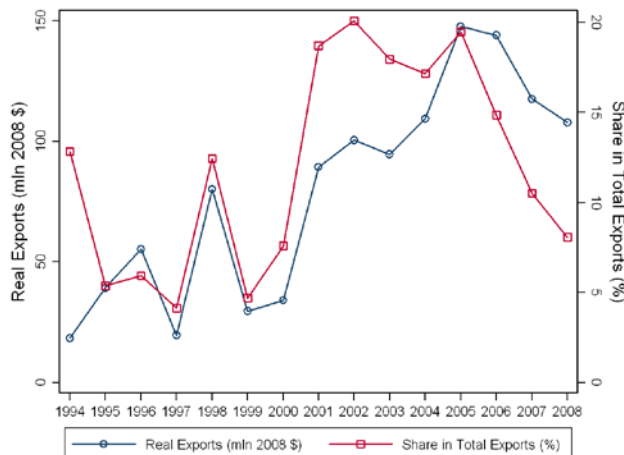**Figure 12: Fish fillet exports from Uganda**



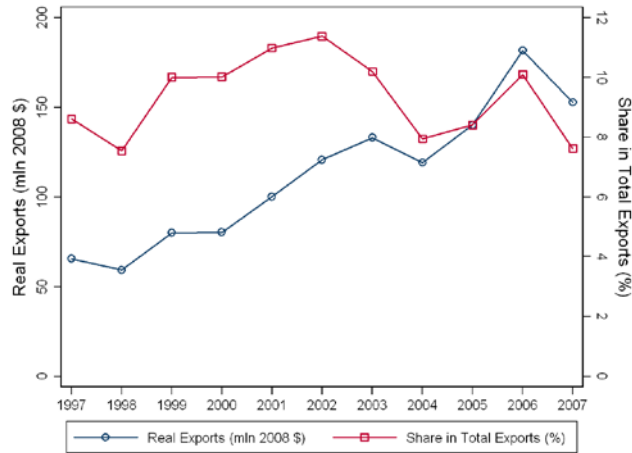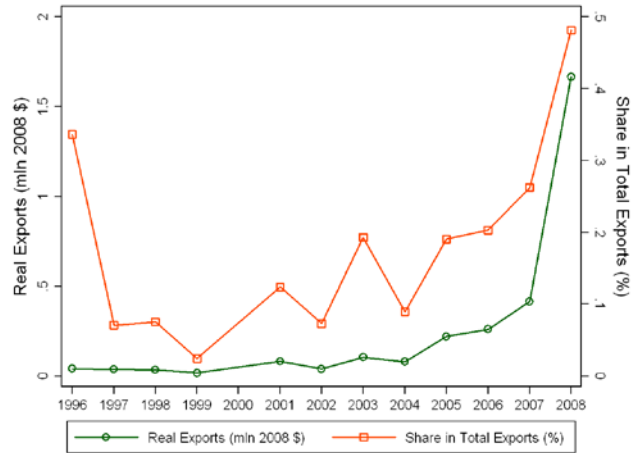**Figure 13: Fish fillet exports from Tanzania**

**Figure 14: Handicraft exports from Rwanda (excluding antiques)**



### iii.      Trade liberalization and trade preferences

In a number of cases trade liberalization was the key factor behind the growth in exports. These are exports of beer and soft drinks from Rwanda, plastics from Tanzania, and oil and soap from Tanzania. Tariff reductions and free trade zones (East African Community, South African Development Community) are critical for the competitiveness of these export activities; without duty free access to destination markets, they would not be economically viable.[19]

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[19] We do not comment on whether these constitute trade diversion, versus trade creation.

In the case of both plastics firms we interviewed in Tanzania, trade liberalization also changed importers into exporters. These firms were importers (not only plastics) before serving the local market, and then become exporters. By serving the domestic market with many imported final goods, importers learn about local demand: which products are popular, the price structure, and what are the costs of shipping these products from abroad. This way they discover products that can be produced more cheaply locally for the local market. After starting plastics production for the domestic market and gaining some scale, these firms started exporting, following trade liberalization. Both plastics exporters report that once they have a presence in one market with one product, they expand into other products. Contacts and distributers in destinations markets inform these decisions.

Trade preferences are also quite important for a number of exports: coffee, tea and fish are all imported duty free to the E.U. and the U.S.

**Figure 15: Beer and soft drink exports from Rwanda**
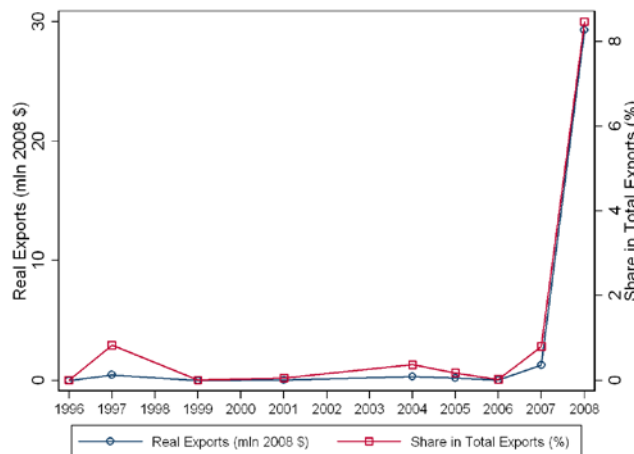


iv.      **State of the art technology**

Investment in state of the art technology is an important factor in the success of entrepreneurs exporting tea from Rwanda, roasted coffee from Uganda (Good African Coffee), plastics from Tanzania, and oil and soap from Tanzania. In all cases, entrepreneurs invested in highly productive and reliable machinery for two main reasons. The first reason is that this technology is

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more productive and in some cases more flexible. The second reason is that due to lack of local technicians, they must invest in the most reliable machinery. In the case of the beer producer Bralirwa, state of the art technology and management best practices are dictated by its majority shareholder, Heineken. One of the oil and soap manufacturers (Bidco Oil and Soap) is a subsidiary of a Kenyan firm. Its technology was transferred from the mother firm. Entrepreneurs imported state of the art machinery from South Korea, Germany, Belgium and China.

### v.      Foreign ownership

The case of the Bralirwa brewery is a clear case of foreign direct investment by Heineken. They succeed in exporting due to implementation of management practices and technology from the mother company, without using its brand. Likewise, Sorwathe, the tea exporter is owned (80%) by Tea Importers Inc., a private tea trading firm incorporated in Westport, CT, which also buys the lion's share of Sorwathe's output. Tea Importers makes sure that the technology used is state of the art, as well as changing the product mix towards higher quality products (orthodox and green tea, organic certification, etc.)

### vi.      Ethnic networks

The impact of informal Indian ethnic networks is particularly evident in the plastics exporters that we studied. For both plastic exporters and one oil and soap exporter the decision to manufacture that particular good was influenced by information obtained from these networks. In particular, technology transfers assisted the entrepreneurs to start their businesses. Successfully serving the local market lead to exporting later on. The entrepreneur who was the first to export fish from Lake Victoria started exporting prawns from Tanzania due to a connection of a fellow Indian in London. This first connection for exporting prawns opened the door to the seafood exporting business and eventually lead to the multi million fish export industry.[20]

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[20] Cadot, Iacovone, Rauch and Pierola (2010), report that personal contacts, such as relatives, friends, intermediaries and suppliers not only provided most of the first time contacts for new exporters; they also were the most prevalent means for contacting other buyers, buyers contacting the exporter and for introduction of new product. These were followed by research online and trade fairs.

**Figure 16: Exports of plastic table, kitchen, household, toilet articles from Tanzania**
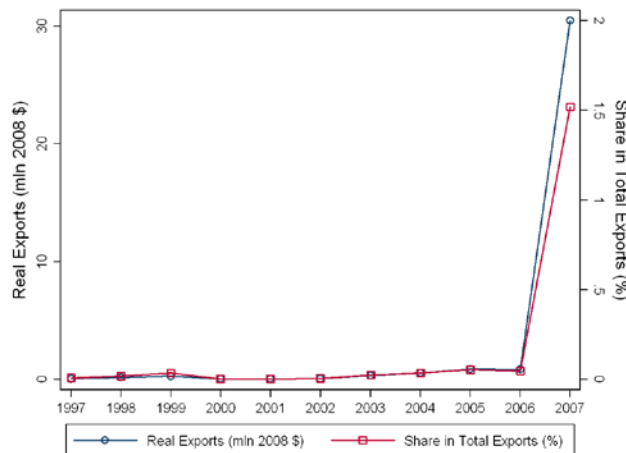


### vii.     Personal foreign experience

An interesting pattern that emerges from interviewing successful exporting entrepreneurs in Africa is that many of them had life experiences outside of their home country, or outside of Africa. In many instances, these experiences are not related to business. These experiences provide exposure to the world and a particular mindset and lead to applying the correct "export business model" (as opposed to a domestic mode of operation). This means understanding the importance of meeting deadlines and being organized, meeting customers' demands and accommodating their tastes, keeping contact with suppliers, developing a reputation for reliability and keeping it. We do not claim that this is a causal link; after all, the more able entrepreneurs are more likely to spend time abroad in the first place. But this exposure may be more significant for exporting than for serving the domestic market.

For example, before emigrating from Canada to Rwanda, Gilbert Gatali, the managing director of RWASHOSCCO, was working as a councilor for Rwandese youth in Canada. Joy Ndunguste, one of the founders of handicraft exporter Gahaya Links lived in Washington D.C. before returning to Rwanda to start her company with her sister. These experiences have contributed to their ability to communicate with importers in Western countries, and to their understanding of how business is done in the West. The founders of Lake Bounty grew up and studied in India fisheries (agribusiness) before moving to Uganda and exporting fish from Lake Victoria. The

founders of Bidco Oil and Soap came from Kenya and founded their subsidiary company in Tanzania. The founders of Jambo Plastics were educated in the U.K.

A case in point is the difference between Jambo Plastics and Cello Plastics, both exporters from Dar es Salaam. While Jambo actively seeks out new markets and conducts studies, Cello wait for importers (and other domestic buyers) to contact them. Cello does not have any marketing staff and relies on buyers to come to their plant in Dar es Salaam and place orders there. They are amenable to accepting orders by phone or email, but do not maintain a website. Related to this, their life experiences did not include much exposure outside of Tanzania. Jambo Plastics is more export intensive and exports twice as much value.[21]

Artopolus, Friel and Hallak (2010) argue that life experience in the West is particularly important for pioneers who export there. We find evidence that is consistent with this view. The founder of Good African Coffee, Andrew Rugasira, studied law and economics in London before returning to Uganda. Rugasira is pioneering roasted coffee exporting from East Africa (other countries, for example Ethiopia, have excellent locally roasted coffees but not much is exported). Harko Bhagat, the founder of the first fish exporter from Lake Victoria (Vicfish in Tanzania), studied chemical engineering in Canada. Both entrepreneurs became aware of culture and tastes of customers in the West, as well as a different way of doing business there by spending significant and critical periods of their lives studying in the West. Rugasira exports to the market where he studied, and where there are post colonial ties (Uganda was a British colony). But Bhagat exports mostly to the European market, whereas his tertiary education was in Canada. This may signal something general about experience abroad, more than what personal contacts and networks might suggest.

### viii.    Idiosyncratic determinants of success

In this section we outline some of the determinants of success that were documented in particular cases and that do not pertain to others.

*Singular success of aid: exporting quality coffee from Rwanda*

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[21] Data from the Bank of Tanzania.

The case of exporting fully washed coffee from Rwanda is a particularly successful example of international aid intervention.[22] We explain why it is exceptional and why it is singular. After the 1994 genocide the coffee industry was devastated. A slow recovery started from that point. The PEARL (starting in 2000) and SPREAD projects were funded by USAID. Initially, these projects were aimed at general capacity building, by financing 20 students' education in agribusiness in the U.S. Following this, district mayors requested from PEARL an evaluation of which economic activities could be enhanced in order to improve incomes of rural villagers. The decision to focus on specialty coffee followed an evaluation of what will work best, given local knowledge and conditions. PEARL/SPREAD helped form cooperatives, introduced the techniques for fully washed coffee, and got in touch with potential buyers, some of which were also employed as advisors. The aid money was used for initial capital to buy and build coffee washing stations, as well as training coop members in washing technique and teaching coffee sorting principles.

Perhaps the most important reason for the success of the PEARL and SPREAD projects is that they stress partnership and trust building with and between local stakeholders, exporters, buyers and the government (the PPP, i.e. private public partnership, model). They do not impose their will, but try to empower farmer cooperatives and exporters. Today, SPREAD is gradually transferring its activities to the Rwanda Coffee Board, which was not promoting specialty coffee in the past – but now it is. They also promote leadership within the industry and hope to eventually not be involved. Another critical determinant was the flexibility of USAID, which allowed the evolution of PEARL from general capacity building into focusing on specialty coffee exporting. This continues today with the (smaller) involvement of USAID in funding SPREAD. There are, even in this partnership model, problems with up scaling, making efficiency improvements, quick response to market conditions and opportunities and flexibility.[23]

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[22] 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. In a previous trip to Ethiopia 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.

[23] In a previous research trip to Ghana we studied the case of a World Bank project to promote exports of pineapples. In stark contrast to the PEARL/SPREAD projects, presidents of cooperatives were discontent with the way the World Bank imposed an exporting firm on them. This exporting firm turned out to be inefficient and did not completely fulfill its obligations.

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 (USADF, USAID and IFAD), either directly or indirectly, as soft loans.

RWASHOSCCO received funding from USADF to facilitate its expansion and control of the supply chain to include a dry processing plant and roasting facility. IFAD supports coffee growing cooperatives in Rwanda, whose produce is exported by Misozi Coffee. IFAD stepped in to resuscitate cash crops: rehabilitating existing farms; distributing seedlings; helping to form coops and farmer associations, helping coops build coffee washing stations (CWS); and providing soft loans. Before the establishment coop-owned exporters there used to be 9 middlemen (!) between farmer and buyer. The coop structure, ownership of CWSs and of exporting firms is to shorten the value chain. IFAD eventually also brought in representatives from Twin Trading Co. (a large coffee trading company) to help teach how to wash coffee and control quality. When the Twin Trading project was being phased out Misozi was established.

The partnership model is the main reason for success of the intervention. But introducing fully washed coffee is relatively easy where coffee cultivation is widespread. Moreover, exporting fully washed coffee is a viable business because labor costs are low. Although many benefits currently accrue to the farmers and exporters involved, it does not seem to be a long or even medium term strategy for growth. For example, fully washed coffee from Central America is of lower quality because higher labor costs prevent using the extremely labor intensive technology that is employed in Africa. Thus, if wages increase (as one would hope they do), then the quality of the coffee exported from Rwanda may suffer.

*Overcoming a plethora of obstacles: exporting handicrafts from Rwanda*

The case of Gahaya Links combines many of the determinants of success, to an extent that stands out. The ability of the founders to overcome so many obstacles that plague most handicrafts enterprises in the developing world merits a closer examination.

Gahaya Links was founded in 2003 (and registered in 2004) by Janet Nkubana and Joy Ndunguste (who are sisters) with financial and logistical help from USADF. It is a privately

owned handicraft exporting firm. The sisters decided to be pioneers based on their perceived potential for the product and their desire to help women in Rwanda after the genocide. They do not manufacture anything directly: coops do. The firm is founded only for exporting. Support from USADF was instrumental from the foundation and on, until this day.

In 2005 USAID funded Gahaya's participation in trade fairs in the U.S. This led to establishing critical contacts with FairWindsTrading Inc., a marketing and trade company importing African crafts, and with Macy's. The Rwandan government has also helped achieving exposure by showcasing products in its embassy in the U.S. Since then, they have been successfully selling hand woven baskets with unique designs in the U.S. Baskets were never exported from Rwanda before. The baskets that are exported are of higher quality than those found in Rwanda. The product is based on traditional Rwandese designs, but is modified to satisfy tastes in the U.S.

The breakthrough 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. Gahaya is currently expanding into exporting handicraft jewelry and fabrics, all of which are based on traditional Rwanda designs. This is in addition to satisfying growing demand for their flagship products, woven baskets. They are currently in the process of purchasing a warehouse in U.S. to help satisfy demand. In addition, they have founded a subsidiary in the U.S. to help with marketing. Gahaya currently works with 5,000 weavers organized in 52 coops. The firm has a training center in Kigali, where coop members learn new designs and techniques, and how to maintain high consistent quality.

As mentioned above, Gahaya taps into a Rwandan resource: traditional basket weaving techniques and designs. However, they are not the only incidence of such reliance on "ethnic" resources. Several factors combined to make this firm a success story: quality improvements and design adjustments to satisfy tastes in the U.S.; low cost of labor; international aid involvement and government support; superior technology (training center); Joy's personal experience in working in the U.S.

All these combined to help Gahaya overcome the typical problems that other handicraft firms face when trying to sell internationally. USADF and USAID funding, together with the founders experience helped overcome technological problems: challenges of using the internet, setting up modern accounting and payments systems, etc. Joy and Janet speak English fluently, so language

barriers are not a problem. The designs are modified and quality upgraded to meet tastes in the U.S. The training center keeps quality control. Their products are particularly durable, and carefully packed in the center of Kigali, so shipping problems are minimized. Since weaving was already a basic technique used by many women in Rwanda, the human capital investment is minimized (although techniques and designs are modified), and combines traditional skills with modern business practices.

### *The passion of an African Entrepreneur: Good African Coffee from Uganda*

Although we have described the success of Good African Coffee as a case in which quality upgrading was the key determinant, there is another critical factor: the strong entrepreneurial spirit, commitment and passion of the founder of Good African Coffee (GAC), Andrew Rugasira. Only after 14 (!) trips to the U.K. and many more meetings with distributors over two and a half years a contract was signed in 2005 and GAC started to sell to the supermarket chain Waitrose. Contracts with British supermarket chains Sainsbury's and Tesco followed.

Rugasira explains that one of the major obstacles he faced is prejudice against the Black African Entrepreneur. Convincing buyers that roasting and packaging in Kampala is a safe mode of operation (versus the facility in Dublin) proved to be a challenge when opening the plant there. Coffee is eligible to for duty free access, but this is not the point. Rugasira claims that non tariff barriers matter more. The difficulty of obtaining a business visa as an African entrepreneur and negative prejudice towards the Black African Entrepreneur in the West are much more problematic. This perception is very detrimental in penetrating markets. Rugasira had to work very hard (and still does) to convince buyers in the West that he is personally reliable, and that he can supply products reliably. It is Rugasira's passion that keeps him involved in coffee exporting, rather than moving into other more lucrative domestic activities.

### *Luck: Nile perch exporting from Lake Victoria*

Sometimes an entrepreneur discovers a Big Hit by chance. This was the case of Nile perch exporting from Lake Victoria. This industry was started by Harko Bhagat in Tanzania. Bhagat received his B.Sc. degree in chemical engineering in Canada before returning to Tanzania. Before

starting to work in the seafood industry he worked for a publishing company in Dar es Salaam. At some point a businessman he knew (not family, an acquaintance) in London asked Bhagat whether he could supply prawns from Tanzania, where they are abundant and labor is cheap. This encouraged Bhagat to start his own business. This was a fairly safe bet, since he had a significant client and he soon realized that there are large margins in exporting prawns. And this is how he entered business: by chance.

After some time exporting seafood Bhagat learned (word of mouth) in 1992/3 that there is a shortage of white fish in Europe and U.S. markets. Following some research, he realized that this is potentially a huge market. Fishing was always done in Lake Victoria, so the potential to harvest fish in the lake was there. After securing a customer in Europe, he founded Vicfish Ltd. and built his own fish processing plant (5 ton/day), using his own capital (although that initial buyer eventually failed to buy). Once other importers of fish in Europe heard about the high quality and competitive price of the product, the business took off quickly and others started their own fish processing plants. Today Vicfish has a 100 ton/day capacity.

Initially the exports were frozen fish. The jump in business came following harmonization with European fish processing plants in 1996/7: this allowed them to export fresh chilled fish. It took some effort by Bhagat, as head of the fish processors association, to convince other producers of the importance of the harmonization and to make the necessary investments (he recalls complaints of lack of proper infrastructure).[24] Eventually, the harmonization took place and this gave the industry its big push. Cash flow went up because for frozen fish the turnover time is 90 days, whereas for chilled fish it is less than a week. The product is sold and packed so that it can go directly to the shelf in supermarkets, as well as to restaurants.

*Cost shocks can reverse a Big Hit: cut flower exports from Uganda*

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.

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[24] Bhagat founded the Lake Victoria Fish Processors Association in Tanzania and has recently returned to head it. Through a deal with the governments of Tanzania, Uganda and Kenya, violators are sanctioned. This is the only example of this kind of self-police, worldwide.

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 commensurately 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.[25] 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.

The Ruparelia Group, based in Kampala, has one cut flowers exporting company. But their cut flowers business completely collapsed, as well as others in the industry in Uganda; this is evident in the Figure 17 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.

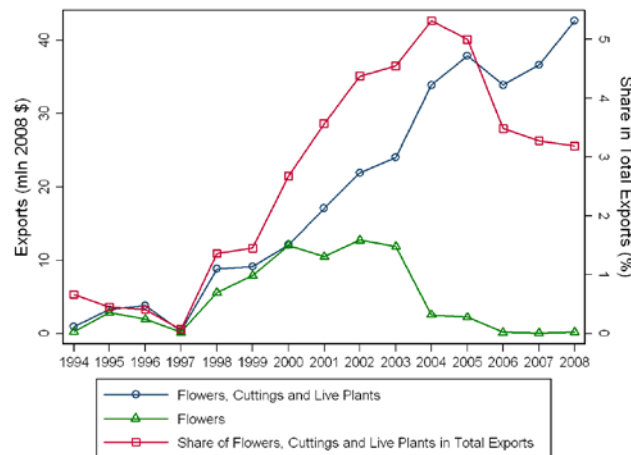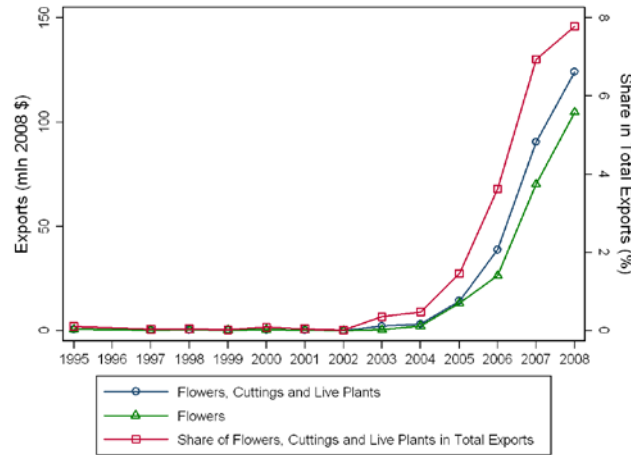**Figure 17a: Exports of flowers, cuttings and live plants, Uganda**



**Figure 17b: Exports of flowers, cuttings and live plants, Ethiopia**

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[25] 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.

*Additional determinants of success*

Here we briefly list a few factors that were instrumental in the success some of the remaining firms. Entrepreneurship of the founders of the chilled fish exporter Lake Bounty led to its creation: the founders seized the opportunity to capitalize on their previous employer's failure to respond to market conditions. Product innovation is critical for the success of the plastics exporters Jambo Plastics and Cello Industries in Tanzania. Both firms constantly introduce new products, based information from buyers and on market research. A government loan (financed by Japan) helped start Murzah Oil Mills Ltd. in Tanzania. On the other hand, Bidco Oil and Soap Ltd. Belongs to a group of companies that started in Kenya.

6. **Conclusions**

In this paper we demonstrate (subject to concerns about data quality) 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. The stylized facts that we establish do not reflect the traditional view that sees African commodity exports as a passive endowment, with changes driven mostly by global commodity prices.

In our case studies, we find that new exports emerge due to quality upgrading, finding new areas of comparative advantage, regional trade liberalization (which makes exporting some products viable), managing to understand what is demanded in U.S. and E.U. markets, personal

connections and personal experiences that expose entrepreneurs to new technologies, knowledge of markets.

However, there are many idiosyncratic factors at work in each success also. Some of our successes occur in areas that are usually unsuccessful. Luck, entrepreneurial drive, and unexpected cost shocks play a role as well. Moreover, even the more conventional paths to success described above probably play at most a loose general role in guiding the entrepreneur.

The stylized facts and the case studies match in providing a picture of export success as a very uncertain voyage of discovery. This picture of African exports could suggest the advantages of a flexible and decentralized system for continually making these discoveries, while sometimes succeeding also in perpetuating the success of old exports. A system that might fit the bill is private entrepreneurs operating in a relatively free market, just as much in Africa as in the rest of the world.

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