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The Origins and Dynamics of Export Superstars^{*}

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October 2016

Abstract

This paper uses firm-level data on manufacturing trade from 40 developing countries to explore how the five largest exporters in a country contribute to export growth and diversification. The origins of these firms are also studied. The data show that the top five exporters account for on average one third of exports, over half of export growth, and almost all of export diversification over a five-year period. Controlling for country and industry fixed effects, the share of exports in the top five firms increases significantly as exports grow. Most top five exporters were already large five years ago or are new firms; it is extremely rare for these export superstars to emerge from the bottom half of the firm-size distribution. They are producers, not traders, and are primarily foreign owned.

JEL codes: D22, L11, L25, F14

Keywords: Firm size distribution, power law, comparative advantage, export growth

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1. Introduction

Policymakers around the world create programs to grow and diversify exports. For example, the “Make in India” plan encourages multinationals to make their products in India for global markets, and the recently launched “India Design Mark” designates high quality and export-worthy products. South Africa created the National Exporter Development Programme to increase exports and to promote higher value-added exports. The United States embarked on the National Export Initiative after the financial crisis with the goal of doubling exports in five years. While “Make in India” promotes foreign direct investment (FDI) to stimulate export growth, the programs in South Africa and the United States target small businesses to grow exports. Understanding which firms generate export growth and diversification will help policymakers design these programs to be most effective.

The existing trade literature highlights the dominance of large firms in aggregate exports, suggesting that they should be at the heart of trade promotion programs. Bernard, Jensen, and Schott (2009) show that the top 1 percent of exporters in the United States are responsible for 80 percent of the total export value. Similarly, Eaton, Kortum, and Kramerz (2011) display a highly skewed exporter-size distribution for French firms, where a small fraction of firms generates most trade. Consistent with these studies, researchers have found similar patterns in all countries where firm-level data have been examined (see, for example, Mayer and Ottaviano (2008) for seven European countries). The recent literature goes further and finds that the largest *individual* exporters matter for trade flows. For example, in related work, Freund and Pierola (2015) show that the top five exporters account for one third of exports on average across 32 developing countries and that these export superstars exert significant influence on sectoral trade patterns.

Export superstars are firms—like Samsung in Korea and Vietnam, Foxconn in China, and Intel in Costa Rica—that shape a country’s exports.¹

The importance of large firms suggests that they should be emphasized in export promotion programs, but the appropriate strategy would still depend on where the superstar exporters originate from. In particular, do export superstars start small and grow large? How quickly do they grow? Do they contribute as much to export growth as they do to aggregate exports? How important is foreign direct investment?

The goal of this paper is to answer these questions and develop a better understanding of the extent to which the largest firms help exports grow and where they come from. Using a firm-level panel for 40 countries, the paper first shows the importance of export superstars—the top five firms—in export growth and diversification, and then uncovers their origins. Over the most recent period available of five consecutive years in each country, the top five firms account for 57 percent of export growth on average and 85 percent of total export growth driven by product markets new to the country (the extensive margin) during that period. The greater importance of export superstars for export growth, as compared with for export volumes, implies that export concentration increases over time. This increased concentration does not merely reflect a shift to more capital intensive sectors as it occurs within industries as well. In particular, within countries and industries, export growth is positively and significantly correlated with the change in the share of exports accounted for by the top five firms.

¹ Results from this literature are consistent with a growing body of macroeconomic work showing that large firms explain a sizable share of aggregate economic behavior. Gabaix (2011) finds that idiosyncratic shocks to the largest firms in the United States explain about one-third of GDP fluctuations. Di Giovanni, Levchenko and Mejean (2014) find even more pronounced effects in France and show that input and output linkages between firms transmit shocks. International trade magnifies these effects, especially in small countries, because the most productive firms grow larger when their market is the world (Di Giovanni and Levchenko 2012).

The second contribution of this paper is to explore the origin of superstar export firms. Superstars are born relatively large and grow quickly into the top 1 percent. In particular, 55 percent of the new exporters that became top five firms during the last consecutive five-year period entered the export sector in the top 1 percent of exporters and on average grew into superstars within two years. In addition, 82 percent of the incumbent superstars were large (on average across countries) nearly one decade ago—so cases of exporters transitioning slowly from the bottom to the top of the size distribution are rare. These results reveal that superstars tend to start as large exporters and grow fast—implying that the majority are already highly productive upon entering the export sector, and that the learning period before becoming a superstar is not long. Examining the top 1 percent of exporters yields qualitatively similar results, indicating that large exporters are rarely if ever born small.

The data do not allow systematic examination of superstars *before* they began exporting to learn about their experience in domestic markets. However, for 10 countries where the superstars can be identified by name, it was possible to research their origins in order to understand how they started. Specifically, identifying firm origins makes it possible to determine whether superstars are domestic or foreign owned and also alleviates potential concerns about traders (nonproducers) in the sample. The majority of superstars are foreign owned, and a very small fraction are traders exclusively.² The larger foreign share in ownership of superstars highlights the role of multinational companies in exports.

From an empirical trade perspective, the presence of these dominant firms implies that the results from studies that evaluate how the average firm responds to trade liberalization may

² Explicit information of the age of the firm when it began operations as an exporter exists for only a very limited number of firms. For those limited cases, note that the top firms began exporting shortly after they had been established as a firm.

not properly reflect aggregate effects, if large or fast growing firms behave differently. From a policy perspective, governments interested in growing exports should consider the environment for creating export superstars. This does not imply that large firms should be subsidized, but governments should ensure that incentives are in place for the most productive firms to grow large and have access to foreign markets. The results on superstar origins highlight that openness to foreign investment may be the most effective strategy for growing exports quickly.

This paper is organized as follows. Section 2 introduces the data. Section 3 records the contribution of large exporters to exports, export growth, and diversification. Section 4 delves into the origin of superstars, and section 5 concludes.

2. Data on Firm Exports

The complete dataset used for this paper contains exporter-level information on manufacturing exports from a total of 40 developing countries in different regions of the world. The years of data available for the full dataset vary by country; however, most of the 2000s and early 2010s are covered in most cases (table 1). This information has been gathered as part of the World Bank Exporter Dynamics Database.³

To assess the quality of the data, the total values obtained from aggregating the customs data at the country level were compared with the total values obtained at the country level from

³ See Fernandes, Freund, and Pierola (2016) for a detailed description of the data and the cleaning process. A “consolidated” product classification that takes into account the transformations made to product codes according to the Harmonized System (HS) classification throughout the years was employed. In addition, in order to mitigate the risk of including transactions that correspond to shipments of samples or personal belongings, the observations corresponding to exporters that, in a given year, had total sales below \$1,000, were dropped. Also dropped were all the observations belonging to chapter 27 according to the HS classification—mineral fuels, oils and products of their distillation, etc. Finally, only the subset of HS codes at six digits that correspond to manufacturing codes according to the International Standard Industrial Classification (ISIC) Revision 3 (chapters 15 to 37) were kept.

the UN Comtrade database. The years in which the total values obtained from the customs data represented less than 70 percent or more than 130 percent of the total values obtained from Comtrade aggregates were dropped. The complete list of countries and years for which data are excluded for reliability or completeness concerns can be found in table A2 in the appendix (including the comparison ratios with Comtrade data).

Table 1 also reports summary statistics on number of firms and firm size, using annual averages for the years used for each country. The number and size of exporters varies significantly across countries. Within countries, there is also a large difference between the median and the mean values per exporter—the mean values are, on average, 44 times larger than the median values per exporter. This difference reflects the highly skewed distribution of firm size.

While the full dataset contains information for 40 developing countries, it is worth noting that this paper conducts two different exercises: one that decomposes export growth by type of firm (top five firms versus non-top five), and another that explores the origins of the top five firms, five and eight years before. For the purpose of the growth accounting exercise, the total sample of 40 countries is reduced to 32 countries, covering only periods that have five years of consecutive data in each country. A period of eight years of consecutive data is also covered, in which case the sample is further reduced to 18 countries. The details of these reduced samples and the subperiods used in each type of exercise are presented in table A1 in the appendix.

When using the data for examining firm-level growth or churning over time, the identifier codes associated with individual firms may change, for example because of a tax code change or an acquisition. A filter to match the entrants with the exiting firm is used to control for the

possibility that such a code change would result in the false exit of one firm and entry of another firm. The following three characteristics of entering (and exiting) firms are used to help match them: the year of entry (or exit), the total value of exports, and the main product exported. The entrants are then matched with exiters according to three criteria: (i) The entry happened not more than one year before or after the exit (the entry is allowed to happen the year before exit because there may be a short period when both export codes are used). (ii) The total exports of the entrant in the year after entry are not more than double or less than one half of exports of the exiting firm in the year before exit. The year before exit and the year after entry are used to avoid matching partial year exports. (iii) The top HS 6-digit product of the entrant must be the same as the top product of the exiting firm (on average the top product is 85 percent of exports). Using the raw data, there are 40 new superstar firms. Employing the filter, there are seven cases (17.5 percent) of likely code changes. For these seven firms, the data of the exiting and new firms are merged and firms recoded from new to incumbents. The evidence presented in all tables on growth and transitions has been adjusted to take this correction into account.⁴

3. The Role of Superstars

This section demonstrates the role of the top five firms in explaining trade growth and diversification. Focusing on the top five highlights granularity in exports. These firms alone can change a country's revealed comparative advantage (Freund and Pierola 2015).

⁴ Note that the results on the contribution of superstars to growth and diversification are stronger if this adjustment is not made. For example, when calculating an individual firm's contribution to growth, it will be greater if the initial year is at zero. The results on transitions are also stronger, with new firms starting very large.

For the purpose of analyzing how growth is decomposed between the group of top five firms and all other firms, the reduced sample of 32 countries covering a period of five consecutive years of data for each country is used. Note that the overall number of countries available in the full dataset—40—is reduced to 32 because eight countries are dropped given their negative (or almost zero) growth over the five-year period.⁵ These countries are excluded in computing the contribution to growth because the calculation requires putting total growth in the denominator. Their contributions balloon when growth is near zero. When growth is negative, large firms contribute to trade destruction, a somewhat different concern. For the country-industry regressions, which control for country-specific factors, all countries are used. The five-year period used for each country has been selected based on the last period available with data for five consecutive years.

Figure 1 shows the share of manufacturing exports of the top five firms and their share in export growth over the five-year period in each country. Specifically, the share of exports in the last (fifth) year is calculated, and the contribution to growth is reported between year one and year five in the sample.

The top five firms are extraordinary. These firms account for more than one third of exports and more than half of export growth on average. A firm in the top five is typically 11,260 times larger than the median firm in a country.

Export Dynamics

Superstars are the main drivers of export growth. Using the sample of countries with data available, figure 2 shows the contribution of individual firms to total export growth over five

⁵ The eight countries excluded are Botswana, Croatia, Egypt, Lebanon, Madagascar, Paraguay, Senegal, and South Africa.

years (panel a) and over eight years (panel b).⁶ The horizontal axis records the rank of each firm sorted from largest (rank=1) to smallest, for the top 50 firms at the end of the period. The vertical axis shows the firm's average contribution to export growth—across countries—with 95 percent confidence bands. In the five-year sample, on average the top firm is responsible for 30 percent of export growth and the second firm for about 12 percent, though standard errors are large. In the eight-year sample, the largest five firms contribute significantly to export growth, with the top firm alone typically accounting for about 18 percent of export growth.

The greater contribution of the largest firms to export growth as compared with export volume suggests that concentration increases as exports grow. However, this could be because countries tend to specialize in more capital intensive production as they develop, and thus increasing concentration could be a result of a shift from less concentrated industries like apparel to more concentrated ones like machinery. The manner in which concentration and growth are correlated within countries and industries is examined by estimating the following fixed-effects model:

$$d \ln exports_{ci} = \alpha_c + \alpha_i + \beta dshare_{ci} + \varepsilon_{ci} ,$$

Where $d \ln exports_{ci}$ is export growth in a country industry (ci), α_c are country-fixed effects, α_i are industry effects at the HS 2-digit level, $\beta dshare_{ci}$ is the change in the share of the top firm (or top five firms) in the country industry, and ε_{ci} is the error term. The country effects pick up the fact that some countries have overall faster export growth, perhaps because of trade liberalization or other country-specific factors. The industry effects pick up the fact that some industries grow faster than others, for example because of global demand shocks. The regression is estimated on the full five-year sample of 40 countries and also on the eight-year period sample.

⁶ See appendix table A1 for details on the group of countries and periods used for this calculation.

The results are reported in table 2. Controlling for country and industry fixed effects, a 1 percentage point increase in the share of the top firm in an industry is associated with 0.6 percent faster export growth over five years and 1 percent faster export growth over eight years. Similarly, a 1 percentage point increase in the share of the top five firms is associated with more than one percent faster export growth. Overall the results imply that rapid export growth is correlated with more concentration in the top five firms. To put this into context, a country-industry at the 75th percentile for the change in share saw concentration rise by 9 percentage points in the eight-year sample. The increase in concentration is thus associated with roughly 9 percent higher trade growth in this period.

The positive correlation between export growth and concentration is consistent with existing evidence of the importance of allocative efficiency in export growth. As the most productive firms account for a larger share of exports, allocative efficiency improves and exports grow quickly. Fernandes et al. 2016 show evidence that export concentration in the top five percent tends to increase with exports. The results in this paper take this a step further, showing that concentration in the top five firms, and even in the top firm, increase as a country's exports grow. The results are consistent with evidence on firm-size distributions from the macroeconomic literature. Hsieh and Klenow (2009) find that as countries develop and allocative efficiency improves, the firm size distribution gets wider, with a few extraordinarily large firms. Di Giovanni and Levchenko (2012) find that trade opening makes the largest firms more important, and hence volatility increases as small economies open to trade.

Figure 3 shows the contribution of the top five firms to overall export growth and to the growth observed in each margin of trade—intensive and extensive—using the same five-year period sample mentioned previously. The top five firms account for 57 percent of total export

growth. Figure 3 also reports superstars' contribution to export growth by margins of trade. For that purpose, the intensive and the extensive margin are defined in the following way: For a comparison between year 1 and year 5 within the period considered for each country, the intensive margin is composed of all those export flows at the country-product (HS6-digit) destination-year level that existed in year 1 and year 5. All other flows at the product-market level that disappear or appear in year 5 (with respect to year 1) are considered the extensive margin. Thus defined, the margins of trade reveal the development of new goods or markets at the *country* level. This classification allows one to determine how much of a country's export diversification is driven by superstars. On average, the top five firms account for over 85 percent of diversification at the country level over the five-year period.⁷

4. Origin of Superstars

Given their role in exports, export growth, and diversification, it is important to understand superstars' origins. For that purpose, the five-year sample, covering 40 developing countries, is used. The percentile at which the top five firms (and superstars in general) placed five years earlier is then analyzed. Finally, for firms in the ten countries where it is possible to trace their origins, some characteristics of today's superstars before they began exporting are explored.

Table 3a presents the distribution of the top five largest firms at the end of the period, in terms of their size (relative to firms in the same country) at the beginning of the period, for the 40 countries with five consecutive years of data. Table 3b shows the top five firms in the beginning of the period and evaluates how they develop over time, i.e. in which group they end

⁷ Results produced using alternative samples (5-year period excluding financial crisis years and 8-year period) are presented in appendix table A3. The considerable contribution of the top five firms remains so for the 5-year sample excluding financial crisis years, and while it decreases for the 8-year sample, the contribution of top five firms to diversification remains nontrivial—almost a third.

up at the end of the five consecutive year period. The evidence in table 3a shows that almost two-thirds of the top five firms were already large (within the top 1 percent) five years earlier. A sizable share of them—17 percent—are “new” in the sense that they were not in the sample five years earlier. It is very rare—5 percent—to find top five firms that emerge from the bottom half of the firm-size distribution. Similarly, the evidence in table 3b indicates that most of the top five firms stayed in the group of the largest firms (within the top 1 percent) over the 5-year period.

Table 4 explores the “new” top 5 exporters—those exporters that do not exist in year 1 but show in the top five firms group by year 5. It records, for each new exporter, the segment of the size distribution in its first year of exporting. Nearly 40 percent of the superstars “born” within the period analyzed were born straight into the top five exporters. More than three-quarters were born in the top 10 percent. Only 12 percent of future superstars were born in the bottom half of the distribution. For the 18 countries with data for eight consecutive years of data, the pattern is similar, with over 20 percent born in the top 5 percent and 81 percent born in the top 10 percent. The evidence indicates that the top five firms are born large and also stay large or exit; shrinking is rare. There is an up-or-out phenomenon.

The results show that most of today’s largest firms were already top five or large firms in the past or were new firms that became large—i.e., they were not small exporters that grew slowly into the top five. Also analyzed is the speed at which the firms that entered into the sample sometime after the beginning of the period became top five firms. For that purpose, the number of years that each firm took to become a top five firm, after they first appear in the sample, is counted. On average—across the 33 “new” top five firms identified—the pace was two years across countries. Again, these results reflect that patterns are similar, even in countries located in different regions, and the top five firms of the present were born relatively large and

grew fast. The short gestation period could be because the data are only five years, so the firms must grow fast. Using the 8-year panel for 18 countries, which would allow a longer gestation, there are 27 new firms over the period. The pace is 2.8 years in this sample, again suggesting that superstars grow quickly.

Superstar Characteristics

Unfortunately, the data do not allow observations of superstars *before* they begin exporting, as there is no information on domestic sales or how they became exporters. However, given that in ten countries it was possible to identify the superstars by name, the origins of their top five firms were examined. Table 4 presents a summary of the findings from this investigation. In all ten countries, the overwhelming majority of the top five firms are either producers or manufacturers—only Colombia and Madagascar have a few traders.⁸ The absence of traders among the largest firms is consistent with evidence from Bernard et al. (2010) and Ahn et al. (2011), who find that that the most productive firms or largest firms export directly.

Superstars are also linked to the presence of foreign capital.⁹ On average, 65 percent of superstars are more than 50 percent foreign owned. Finally, although a very limited number of firms provide information on their age when they began operations as exporters, for those firms where this information is known, they began exporting shortly after they had been established as

⁸ There could be many producers that export, but an intermediary firm that coordinates the process could appear in the data as a large exporter. This would have implications about the interpretation of the results in terms of accurately capturing firm-level production for the export sector. For the purpose of this investigation, a firm is defined as a trader if it acts as an intermediary, without engaging in any type of transformation of the merchandise traded. If a firm engages in packaging or basic processing of goods (for example sorting or drying), that firm is considered a “transformer” and is not counted as a trader.

⁹ The importance of foreign capital among the group of top five firms is consistent with the work of Helpman, Melitz, and Yeaple (2004). They develop a model to explore the role of firm heterogeneity in explaining the structure of trade and find that within exporters, only the most productive—the top five firms in the context of this paper—engage in FDI.

a firm. The case of successful domestic firms that turn to export markets and enter the top 5 over time seems to be a very rare event.¹⁰

To sum up, the group of top five firms is a unique group of firms: They explain most of the export growth and diversification observed across countries, and they are born big or very rapidly become so. The cases of small firms making it to the top are rare.

Robustness—Results on the Top 1 percent of exporters

This paper focuses on the top five firms to highlight that individual firms matter and to understand where they come from. It might be the case that large firms—but not top five firms—behave differently. However, a parallel analysis to the one presented in the sections above, examining a much broader category, observes the same patterns, (see Freund and Pierola 2012). In particular, the top 1 percent account for 51 percent of exports, 85 percent of export growth, and nearly all diversification. The top 1 percent of exporters was generally large in the past or was born large. Overall these results confirm that large and very large firms do not originate as small exporters.

5. Conclusions

Using a dataset containing firm-level information on exports from a diverse group of developing countries, this paper contributes to the literature on firm-level analysis of trade by providing

¹⁰ In addition to the evidence on whether the top five exporters are traders or are foreign-owned; for a limited group of countries (Jordan, Peru and Tanzania) phone interviews were conducted with the top firms. The interviews confirmed the high share of foreign ownership and also revealed that majority began exporting within two years of establishment.

complementary evidence on the importance and origin of the top five largest exporters in a country.

The top five exporters are part of a unique group. They are larger and more diversified than the rest of firms. Together they account for one third of export volumes, and over half of growth and diversification over five years. They are often linked to foreign capital, and many are born to be exporters. The top five firms themselves do not grow as a result of a lengthy process. In fact, they seem to be born large, and when they are not, it does not take them long to become superstars.

This analysis shows how the top five firms dramatically influence trade, but data limitations prevent exploring why this happens, beyond showing that foreign investment plays an important role . Further research is needed to understand the contribution of variation in firm-level technologies (including foreign technology) and increasing returns to scale in explaining why large firms dominate exports in some sectors.

From a policy perspective, the research underscores the importance of allowing firms to grow large to expand trade. While countries often seek to encourage small and medium-sized enterprises to export, such policies are unlikely to have large aggregate effects. Instead, it is important that the business climate is conducive to rapid firm growth and that it does not discriminate against firms of any size. The results also imply that opening to foreign direct investment, in particular, is key to trade growth.

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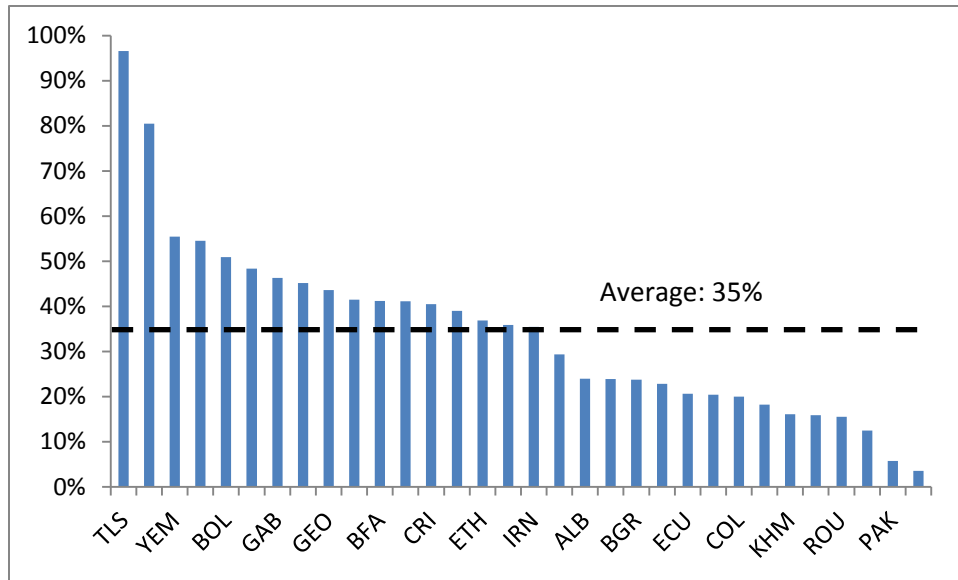
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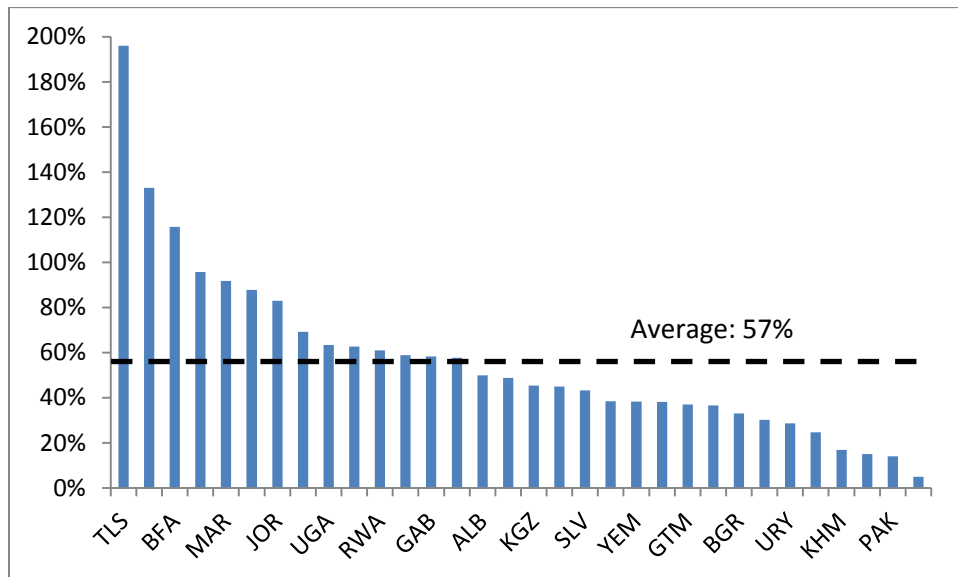
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Figure 1: Top 5 Firms' Average Contribution to Exports and Export Growth

a. Share in Exports in Year 5



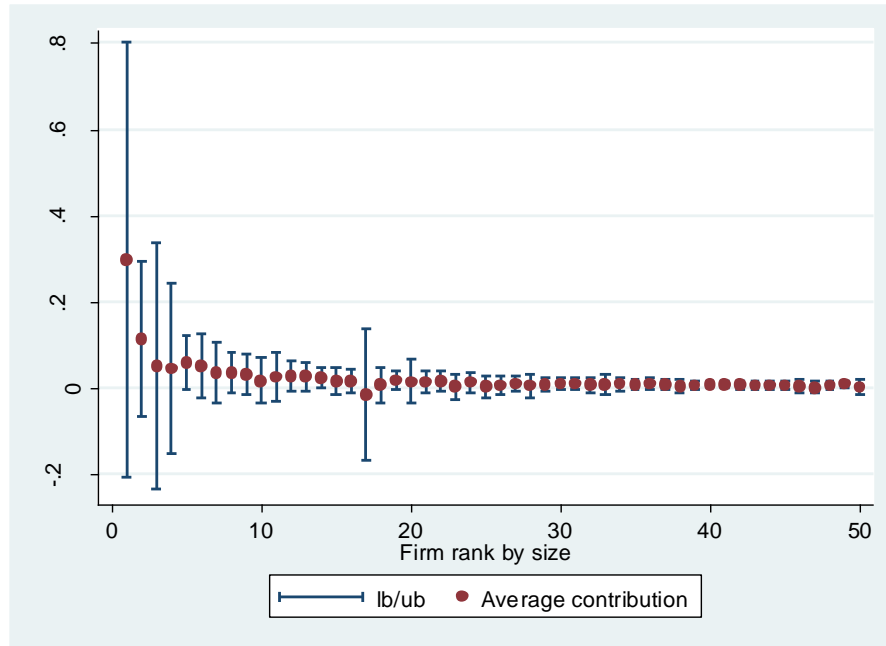
b. Contribution to Export Growth (comparison Year 5 vs. Year 1)



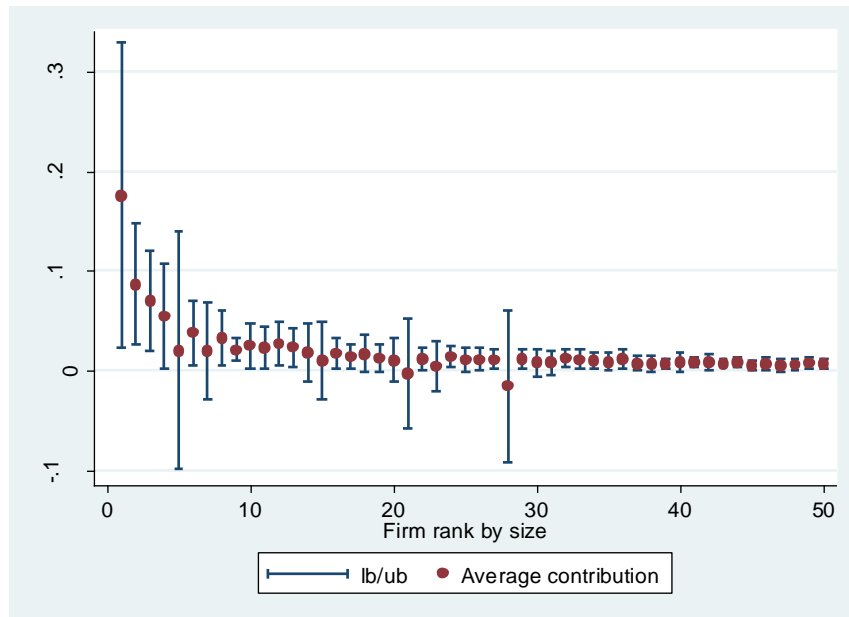
Note: Average for the latest five-year period of consecutive data for each country. See Appendix Table A1 for details on the period taken for each country.

Figure 2: Average Contribution to Export Growth, by firm

a. 5-Year Sample

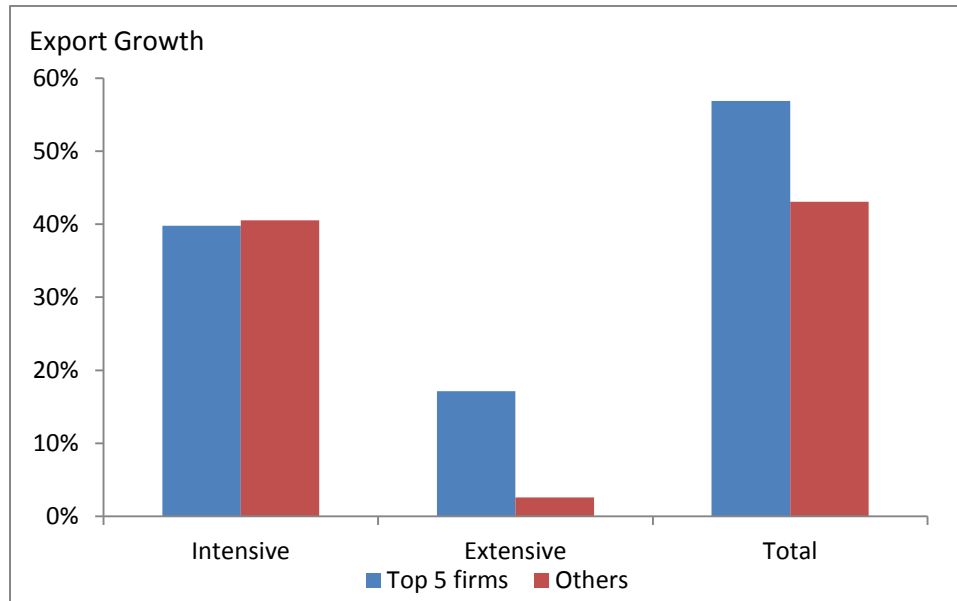


b. 8-Year Sample



Note: Graph shows average contribution to total export growth by the largest firms, when firms are ranked from largest to smallest, using end of period size. Panel a. is five-year growth in a sample of 32 countries. Panel b. is eight-year growth in a sample of 18 countries.

Figure 3: The Extensive and Intensive Margins of Trade



Note: Average export growth for the latest five-year period of consecutive data for each country. See Appendix Table A1 for details on the period taken for each country.

Table 1: Sample and Summary Statistics

Country	Period	Nr. Firms	Total Exports (US\$ millions)	Median Value per Exporter (US\$)	Average Value per Exporter (US\$)
	(1)	(2)	(3)	(4)	(5)
Albania (ALB)	2005 - 2012	1,563	993,359,808	40,500	625,054
Bangladesh (BGD)	2006 - 2013	6,078	17,891,153,920	367,841	2,886,444
Bolivia (BOL)	2007 - 2012	673	1,495,921,664	78,146	2,247,493
Botswana (BWA)	2006 - 2013	1,123	1,016,332,032	10,486	930,353
Bulgaria (BGR)	2002 - 2006	11,091	7,879,537,152	26,952	718,957
Burkina Faso (BFA)	2008 - 2012	312	104,832,952	29,231	335,363
Cambodia (KHM)	2002 - 2006	424	2,066,680,320	843,795	4,807,905
Cameroon (CMR)	2002 - 2006	580	637,600,640	31,814	1,148,114
Chile (CHL)	2005 - 2012	5,365	36,208,734,208	40,005	6,726,048
Colombia (COL)	2007 - 2013	7,107	11,571,018,752	53,083	1,629,979
Costa Rica (CRI)*	2005 - 2012	2,191	6,842,205,184	30,721	3,158,138
Croatia (HRV)	2007 - 2012	7,696	9,774,957,568	27,824	1,271,768
Dominican Republic (DOM)	2006 - 2013	1,818	4,858,437,632	44,097	2,714,813
East Timor (TLS)	2008 - 2012	15	33,548,350	125,985	2,273,481
Ecuador (ECU)	2006 - 2013	2,066	3,236,098,560	29,477	1,561,941
Egypt (EGY)	2007 - 2012	6,189	15,069,222,912	96,395	2,470,788
El Salvador (SLV)	2002 - 2009	2,219	3,432,910,080	27,479	1,573,222
Ethiopia (ETH)	2008 - 2012	390	167,853,168	23,989	428,373
Gabon (GAB)	2004 - 2008	116	239,340,848	104,831	2,097,305
Georgia (GEO)	2005 - 2012	1,562	883,260,096	27,723	714,480
Guatemala (GTM)	2006 - 2013	3,390	4,995,635,200	32,625	1,473,168
Iran (IRN)	2006 - 2010	9,275	11,442,183,168	95,967	1,308,349
Jordan (JOR)	2007 - 2012	2,025	4,243,461,120	67,892	2,096,607
Kyrgyzstan (KGZ)	2007 - 2012	608	523,354,624	49,600	862,415
Lebanon (LBN)	2008 - 2012	4,393	2,368,050,944	39,978	539,389
Madagascar (MDG)	2007 - 2011	948	824,550,592	22,372	863,868
Mexico (MEX)	2000 - 2007	25,182	161,754,464,256	39,312	6,446,129
Morocco (MAR)*	2006 - 2013	4,286	12,847,093,760	73,885	2,995,590
Pakistan (PAK)	2003 - 2010	13,174	14,658,394,112	59,875	1,108,154
Paraguay (PRY)	2007 - 2012	554	1,227,046,272	195,160	2,226,237
Peru (PER)*	2006 - 2013	5,333	10,919,166,976	49,021	2,048,309
Romania (ROU)	2007 - 2011	9,125	40,413,159,424	259,879	4,408,905
Rwanda (RWA)	2007 - 2012	334	54,282,376	10,601	154,380
Senegal (SEN)	2008 - 2012	588	989,538,176	69,383	1,683,516
South Africa (ZAF)	2005 - 2012	18,726	36,337,516,544	36,462	1,937,652
Tanzania (TZA)	2005 - 2012	1,183	689,965,952	21,804	558,736
Uganda (UGA)	2001 - 2005	295	130,461,416	18,426	405,933
Uruguay (URY)	2005 - 2012	1,327	2,525,859,072	38,041	1,926,733
Yemen (YEM)	2008 - 2012	226	143,505,712	25,985	662,752
Zambia (ZMB)	2004 - 2011	832	3,923,584,768	18,795	4,462,401

Note: The averages shown in columns 2-5 are annual average for the period/years reported in column 1.

Table 2: Concentration and Export Growth

<i>Dependent variable is the export growth at the country-year-industry level (dlnexport)</i>				
	5-year growth		8-year growth	
	Top Firm	Top 5 Firms	Top Firm	Top 5 Firms
	(1)	(2)	(3)	(4)
dshare	0.573***	1.435***	0.990***	1.203***
	(0.193)	(0.297)	(0.262)	(0.376)
Sector fixed effects	x	x	x	x
Country fixed effects	x	x	x	x
Observations	2,775	2,775	1,404	1,404
R-squared	0.12	0.12	0.19	0.19

Note: Standard errors clustered at the country level.

Table 3: Superstars' Transitions

a. Where were Y-5 Top5's firms, 5 years ago?

Country	Top 5 firms	Rest top 1 percent	Top 02-10 pct	Top 11-50 pct	Bottom 50	NE
ALB	60%	20%	20%	0%	0%	0%
BFA	20%	0%	20%	40%	0%	20%
BGD	40%	40%	20%	0%	0%	0%
BGR	40%	40%	20%	0%	0%	0%
BOL	100%	0%	0%	0%	0%	0%
BWA	40%	20%	20%	0%	0%	20%
CHL	80%	20%	0%	0%	0%	0%
CMR	60%	0%	40%	0%	0%	0%
COL	60%	0%	40%	0%	0%	0%
CRI	60%	0%	20%	0%	0%	20%
DOM	40%	20%	40%	0%	0%	0%
ECU	40%	40%	0%	20%	0%	0%
EGY	0%	60%	40%	0%	0%	0%
ETH	40%	0%	0%	40%	0%	20%
GAB	80%	0%	20%	0%	0%	0%
GEO	40%	20%	0%	0%	0%	40%
GTM	80%	0%	0%	0%	0%	20%
HRV	40%	40%	0%	0%	0%	20%
IRN	20%	40%	0%	0%	0%	40%
JOR	40%	40%	0%	0%	0%	20%
KGZ	40%	0%	20%	0%	0%	40%
KHM	80%	0%	20%	0%	0%	0%
LBN	40%	40%	0%	0%	0%	20%
MAR	20%	40%	0%	0%	0%	40%
MDG	40%	40%	20%	0%	0%	0%
MEX	60%	20%	0%	0%	0%	20%
PAK	20%	60%	0%	0%	0%	20%
PER	40%	60%	0%	0%	0%	0%
PRY	40%	0%	40%	0%	0%	20%
ROU	60%	0%	0%	0%	20%	20%
RWA	0%	0%	40%	20%	0%	40%
SEN	40%	0%	60%	0%	0%	0%
SLV	60%	20%	0%	0%	0%	20%
TLS	20%	0%	0%	0%	20%	60%
TZA	0%	0%	60%	20%	0%	20%
UGA	20%	0%	20%	0%	0%	60%
URY	60%	20%	20%	0%	0%	0%
YEM	60%	0%	0%	0%	0%	40%
ZAF	40%	60%	0%	0%	0%	0%
ZMB	60%	0%	0%	20%	0%	20%
Average	45%	19%	15%	4%	1%	17%

b. Where did Y-1 Top5's firms go, 5 years later?

Country	Top 5 firms	Rest top 1 percent	Top 02-10 pct	Top 11-50 pct	Bottom 50	NE
ALB	60%	20%	20%	0%	0%	0%
BFA	20%	0%	40%	0%	0%	40%
BGD	40%	20%	0%	20%	0%	20%
BGR	40%	40%	0%	0%	0%	20%
BOL	100%	0%	0%	0%	0%	0%
BWA	40%	0%	0%	20%	0%	40%
CHL	80%	20%	0%	0%	0%	0%
CMR	60%	0%	20%	0%	0%	20%
COL	60%	40%	0%	0%	0%	0%
CRI	60%	20%	0%	0%	0%	20%
DOM	40%	60%	0%	0%	0%	0%
ECU	40%	40%	20%	0%	0%	0%
EGY	0%	60%	20%	0%	20%	0%
ETH	40%	0%	40%	0%	0%	20%
GAB	80%	0%	20%	0%	0%	0%
GEO	40%	40%	0%	0%	0%	20%
GTM	80%	0%	0%	20%	0%	0%
HRV	40%	40%	0%	0%	0%	20%
IRN	20%	20%	0%	0%	0%	60%
JOR	40%	20%	20%	0%	0%	20%
KGZ	40%	20%	0%	20%	0%	20%
KHM	80%	0%	20%	0%	0%	0%
LBN	40%	40%	0%	0%	0%	20%
MAR	20%	40%	0%	0%	0%	40%
MDG	40%	0%	0%	20%	0%	40%
MEX	60%	20%	0%	0%	0%	20%
PAK	20%	60%	0%	0%	0%	20%
PER	40%	60%	0%	0%	0%	0%
PRY	40%	0%	60%	0%	0%	0%
ROU	60%	40%	0%	0%	0%	0%
RWA	0%	0%	40%	0%	0%	60%
SEN	40%	0%	60%	0%	0%	0%
SLV	60%	40%	0%	0%	0%	0%
TLS	20%	0%	0%	0%	40%	40%
TZA	0%	20%	60%	0%	0%	20%
UGA	20%	0%	60%	0%	0%	20%
URY	60%	40%	0%	0%	0%	0%
YEM	60%	0%	20%	20%	0%	0%
ZAF	40%	60%	0%	0%	0%	0%
ZMB	60%	20%	0%	20%	0%	0%
Average	45%	23%	13%	4%	2%	15%

Note: Panel a shows the size distribution of recent top 5 firms 5 years earlier. Panel b tracks the size distribution of the top 5 firms at the beginning of the period to the end of the five-year period considered for each country. See Appendix Table A1 for the details of the five-year period taken for each country.

Table 4: First-Year Size Distribution of New Top 5 Superstars

Country	Top 5 firms	Rest top 1 percent	Top 02-10 pct	Top 11-50 pct	Bottom 50	Total New Top 5 in Year 5
BFA				1		1
BWA				1		1
CRI	1					1
ETH			1			1
GEO	2					2
GTM				1		1
HRV	1					1
IRN	1	1				2
JOR					1	1
KGZ	1	1				2
LBN		1				1
MAR	1		1			2
MEX			1			1
PAK		1				1
PRY	1					1
ROU		1				1
RWA				1	1	2
SLV			1			1
TLS	2				1	3
TZA			1			1
UGA	1		1		1	3
YEM	2					2
ZMB			1			1
Total	13	5	7	4	4	33
Percent (%)	39%	15%	21%	12%	12%	

Note: The panel shows the size distribution upon entry of the top 5 firms that began exporting during a period of five consecutive years for which we can identify them.

Table 5: Features of the Top 5 Superstars

	Type of Exporter		Ownership	
	Producer	Trader	Foreign	Domestic
Botswana, 2013	100%	0%	60%	40%
Bulgaria, 2006	100%	0%	100%	0%
Colombia, 2015	60%	40%	40%	60%
Costa Rica, 2014	100%	0%	100%	0%
Jordan, 2009	100%	0%	80%	20%
Madagascar, 2011	80%	20%	100%	0%
Pakistan, 2010	100%	0%	0%	100%
Peru, 2013	100%	0%	60%	40%
Tanzania, 2012	100%	0%	60%	40%
Uganda, 2005	100%	0%	50%	50%
Average	94%	6%	65%	35%

Note: This table reports characteristics of the top 5 exporters in ten countries where we can identify them. The years used in the identification of the top 4 firms were latest year available for the sample except in the case of Jordan where we use year 2009. A firm is defined as a trader if it only acts as an intermediary, without engaging in any activity that implies any type of transformation of the merchandised traded.

Appendix

Table A1: Countries and years used to define the 5- consecutive year period used

Country	5-year Period	5-year Period (no fin. crisis)	8-year Period
ALB	2008-2012	2007-2011	2005-2012
BFA	2008-2012		
BGD	2009-2013	2007-2011	2006-2013
BGR	2002-2006	2002-2006	
BOL	2008-2012	2007-2011	
BWA	2009-2013	2007-2011	2006-2013
CHL	2008-2012	2007-2011	2005-2012
CMR	2002-2006	2002-2006	
COL	2009-2013	2007-2011	
CRI	2008-2012	2007-2011	2005-2012
DOM	2009-2013	2007-2011	2006-2013
ECU	2009-2013	2007-2011	2006-2013
EGY	2008-2012	2007-2011	
ETH	2008-2012		
GAB	2004-2008		
GEO	2008-2012	2007-2011	2005-2012
GTM	2009-2013	2007-2011	2006-2013
HRV	2008-2012	2007-2011	
IRN	2006-2010	2006-2010	
JOR	2008-2012	2007-2011	
KGZ	2008-2012	2007-2011	
KHM	2002-2006	2002-2006	
LBN	2008-2012		
MAR	2009-2013	2007-2011	2006-2013
MDG	2007-2011	2007-2011	
MEX1	2003-2007	2003-2007	2000-2007
PAK	2006-2010	2006-2010	2003-2010
PER	2009-2013	2007-2011	2006-2013
PRY	2008-2012	2007-2011	
ROU	2007-2011	2007-2011	
RWA	2008-2012	2007-2011	
SEN	2008-2012		
SLV	2005-2009	2005-2009	2002-2009
TLS	2008-2012		
TZA	2008-2012	2007-2011	2005-2012
UGA	2001-2005	2001-2005	
URY	2008-2012	2007-2011	2005-2012
YEM	2008-2012		
ZAF	2008-2012	2007-2011	2005-2012
ZMB	2007-2011	2007-2011	2004-2011
Nr. Countries	40	33	18
Nr. Countries for gwth acc.	32	27	17

Table A2: Countries and Years Dropped from Original Sample (% represent the comparison ratio between the data used in the paper and total trade from Comtrade data)

Country	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
ALB					108%	110%	103%	102%	103%	118%	111%	109%	111%	
BFA						100%		100%	100%	100%	100%	100%	NA	
BGD						96%	102%	96%	99%	101%	100%	99%	105%	100%
BGR		103%	105%	102%	101%	98%	99%							
BOL							94%	101%	100%	101%	100%	100%	100%	
BWA				60%	89%	96%	98%	97%	87%	117%	92%	92%	93%	97%
CHL				94%	94%	92%	95%	96%	109%	91%	95%	100%	98%	
CMR	103%	104%	99%	97%	94%	100%	99%	100%	101%	100%	99%	100%	99%	
COL								100%	100%	100%	102%	103%	102%	99%
CRI	108%	107%	107%	106%	106%	98%	113%	105%	98%	98%	105%	102%	101%	
DOM			66%	68%	60%	65%	83%	88%	95%	106%	111%	104%	101%	101%
ECU			100%	105%	104%	105%	100%	108%	99%	99%	99%	99%	99%	99%
EGY									126%	96%	103%	93%	102%	
ETH									97%	93%	93%	98%	96%	
GAB			98%	97%	98%	98%	108%	99%	99%					
GEO				98%	98%	98%	97%	98%	98%	112%	119%	108%	127%	
GTM						98%	97%	97%	99%	96%	96%	98%	95%	100%
HRV								100%	100%	100%	100%	100%	100%	
IRN							100%	NA	NA	NA	100%			
JOR				51%	48%	56%	71%	70%	76%	93%	86%	77%	95%	
KGZ							100%	100%	79%	107%	100%	100%	100%	
KHM	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%				
LBN								100%	100%	100%	100%	100%	101%	
MAR			100%	100%	100%	100%	102%	104%	99%	100%	101%	95%	99%	
MDG								97%	101%	103%	117%	107%	133%	
MEX	100%	98%	100%	100%	100%	100%	100%	100%	100%	100%				
PAK				96%	95%	90%	94%	97%	99%	102%	101%			
PER	101%	101%	100%	100%	101%	101%	100%	100%	98%	99%	101%	102%	100%	99%
PRY								89%	84%	96%	96%	101%	99%	
ROU						100%	101%	99%	98%	97%	97%	98%		
RWA		99%	100%	100%	100%	101%	102%	101%	107%	80%	100%	92%	98%	
SEN	46%	56%	94%	70%	66%	73%	68%	70%	82%	82%	73%	78%	71%	
SLV			104%	104%	105%	105%	98%	104%	113%	108%				
TLS							93%	54%	89%	96%	88%	100%	86%	
TZA				110%	102%	102%	99%	98%	94%	100%	91%	96%	100%	
UGA	92%	92%	85%	111%	105%	107%		97%	69%	67%	71%			
URY		99%	100%	99%	98%	98%	96%	93%	91%	86%	86%	93%	87%	
YEM									102%	100%	91%	92%	100%	
ZAF		127%	135%	121%	118%	113%	114%	114%	115%	103%	116%	105%	94%	
ZMB	99%	103%	103%	103%	102%	122%	101%	102%	100%	100%	100%	96%		

*NA indicates non availability of data in comtrade for comparison

Table A3: Growth accounting exercise using different samples

TOP 5 FIRMS									
Sample	Stat.	Share in Total Growth							Total Growth (8)
		Ext NSS (1)	Ext SS (2)	Int NSS (4)	Int SS (5)	Total NSS (6)	Total SS (7)		
5 years	Mean	3%	17%	41%	40%	43%	57%	71.41%	
5 years	Median	5%	8%	34%	38%	53%	47%	46.85%	
5 years (no fin. crisis)	Mean	6%	15%	45%	34%	50%	50%	70.29%	
5 years (no fin. crisis)	Median	9%	5%	41%	39%	54%	46%	51.63%	
8 years	Mean	19%	8%	40%	33%	59%	41%	121.74%	
8 years	Median	13%	5%	43%	34%	66%	34%	71.71%	
TOP 1 PERCENT									
Sample	Stat.	Share in Total Growth							Total Growth (8)
		Ext NSS (1)	Ext SS (2)	Int NSS (4)	Int SS (5)	Total NSS (6)	Total SS (7)		
5 years	Mean	-1%	21%	16%	64%	15%	85%	71.41%	
5 years	Median	3%	13%	8%	62%	22%	78%	46.85%	
5 years (no fin. crisis)	Mean	4%	14%	2%	81%	5%	95%	67.85%	
5 years (no fin. crisis)	Median	3%	11%	7%	73%	6%	94%	49.42%	
8 years	Mean	10%	17%	5%	68%	16%	84%	121.74%	
8 years	Median	5%	13%	7%	67%	15%	85%	71.71%	