Private Enterprise Development in Low-Income Countries

Product and Destination Shifting by Firms in International Trade: Evidence from Kenya's Manufacturing Exporters

Peter W. Chacha

By exploring the patterns and trends of Kenya's exports overtime, this project shows the important role of multi-product and multi-destination exporters in the expansion of exports for low income countries.

Introduction

Developing countries value a healthy growth in the external sector of their economies. This is important for a sustainable balance of payments position, a stable expansion in output, job creation and improvement of the livelihoods of their nationals. Kenya expects to debut middle income status by the year 2030 and exporting is a key pillar to realizing the growth trajectory, currently estimated at 6-7 per cent per year. There is need, therefore, to restructure the current trade policy to yield a desirable response in growth and diversification of Kenya's exports.

This note presents the micro level picture of firm export decisions and unpacks the patterns of export trade for exporters in Kenya. The analysis reveals a high degree of exporter heterogeneity in terms of export sales, number of products and number of destination countries per exporter and skewed distribution of export sales towards multi-product and multi-destination exporters. The year-on-year variation in Kenya's aggregate exports is driven by firms' decisions to enter and/or exit international trade (firm extensive margin) and the decision by continuing firms to increase or reduce the value of export sales (firm intensive margin). We find that in a normal period, the firm intensive margin dominates, while in a slump period export sales from new entrants stabilize aggregate export growth by offsetting the decline in export sales from the exiting firms.

Methods and Data

We follow Amador and Opromolla (2013) to decompose aggregate export growth into extensive and intensive margins in a normal and slump period. We examine the exporter dynamics of entry, exit and survival for the new exporters along with the factors associated with their survival in export markets using both the proportional hazard approach and panel logit with fixed effects that control for unobserved firm heterogeneity. The analysis draws on a unique and unexplored panel of transaction level data for the whole population of exporters over the 2004-2013 period.

Findings

Firstly, export outcomes are extremely heterogeneous across exporters. Table 1 presents the average number of products, the average number of destinations and the average export value per exporter and their spread around the mean.

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Table 1: Summary Statistics, selected years

Exporter Level	Kenyan exporters				Comparators in various countries				
	2005	2007	2009	2012	Mali 2006	Senegal 2006	Tanzania 2006	Portugal 2005	Netherlands 2007
Number of products/exporter									
Mean	6.0	7.6	7.3	7.7	2.5	3.1	2.5	4.6	12.2
Median	2.0	2.0	2.0	2.0	2.0	1.0	1.0	2.0	4.0
Standard deviation	14.6	19.5	16.9	21.6	-	-	-	12.2	-
Number of destinations/exporter									
Mean	2.8	2.6	2.6	2.8	3.9	6.8	3.6	2.8	11.0
Median	1.0	1.0	1.0	1.0	2.0	2.0	1.0	1.0	6.0
Standard deviation	3.9	3.5	3.3	3.7	-	-	-	4.9	-
Exports(US$ '000')/exporter									
Mean	686	881	930	1092	-	-	-	€1.4million	-
Median	16	19	17	19	-	-	-	0.0	-
Standard deviation	4188	4898	5620	6661	-	-	-	€17.8million	-

Source: Computed from Customs data. Mali, Senegal, Tanzania, Portugal and Netherlands information is taken from Cadot et al. (2013), Amador and Opromolla (2013) and Cruesen and Lejour (2011).

The average export value per exporter increased from US$ 686,000 in 2005 to US$ 1,092,000 in 2012, representing a growth of approximately 59% over the two periods. At the same time, the median export value has also increased from US$ 16,000 in 2005 to US$ 19,000 in 2012, indicating a shift in the entire distribution of export value over time. The difference between the median and the mean, together with the large standard deviation across all the years, provides evidence for exporter heterogeneity in export value. The change in the median export value per firm is minimal compared to changes in the average export value, suggesting that rising average exports per firm is driven by relatively strong growth of larger firms.

The average number of products per exporter increased from 6.0 in 2005 to 7.7 in 2012 but it also characterised by large outliers. The median number of products per exporter is 2.0 and does not change over time. The standard deviation around the mean is large across all the years, providing evidence of exporter heterogeneity in product scope as well. The average products per firm in Kenya is higher compared to 2.5 for Mali, 3.1 for Senegal and 2.5 for Tanzania (see Cadot et al., 2013). It is also higher than 4.6 products for Portugal (Amador & Opromolla, 2013) but it is lower relative to 12.2 products for the Netherlands exporters (Cruesen & Lejour, 2011).

The average number of destination countries per exporter lies between 2.6 and 2.8 over the selected years but is also characterised by outliers. The median is fixed at one destination country per exporter, indicating that the distribution does not change over time. The number of destination countries per firm for the Kenyan exporters (2.6-2.8) is lower relative to 3.9 for Mali, 6.8 for Senegal and 3.6 for Tanzania (Cadot et al., 2013). It is also lower relative to 11.0 destination countries for the Netherlands exporters. This represents a conservative geographic diversification of exports for the Kenyan firms.

Secondly, multi-product and multi-destination exporters account for the largest share of export value. Table 2 separates exporters into four exclusive groups, namely: single product-single destination exporters; single product-multi-destination exporters; multi-product and single destination exporters; and

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multi-product and multi-destination exporters. The value of exports attributed to each group of exporters is also calculated for 2005 and 2012.

Table 2: The distribution of value of exports across exporter types, 2005 and 2012

Exporter type	Number of exporters				Value of exports			
	2005		2012		2005		2012	
	N	% of pop	N	% of pop	US$ mn	% of total	US$ mn	% of total
SP&SD	1 531	39	1 609	31	82	3	290	5
SP&MD	220	6	308	6	254	9	613	11
MP&SD	690	18	1247	24	49	2	166	3
MP&MD	1477	38	2011	39	2 306	86	4 580	81
Total	**3 918**	**100**	**5 175**	**100**	**2 691**	**100**	**5 649**	**100**

Notes: Computed from customs data. SP & SD exports one product to one destination, SP&MD: exports a single product to at least two destinations; MP&SD: export at least two products to a single destination and MP & MD exports at least two products to at least two countries.

Multi-product and multi-destination exporters made up 38% and 39% of the population of exporters in 2005 and 2012, respectively. This type, accounted for approximately 86% and 81% of the export value in 2005 and 2012. Single product and multi-destination exporters made up 6% of exporters in 2005 and 2012 and accounted for 9% and 11% of exports value in 2005 and 2012, respectively. Single product and single destination exporters, together with multi-product and single-destination exporters made up 57% and 55% of the population of exporters in 2005 and 2012 but were responsible for only 5% and 8% of the exports value for 2005 and 2012. This indicates that exports are highly concentrated among multi-product and multi-destination exporters.

Thirdly, the intensive margin dominates the year-on-year variation of Kenya's aggregate exports but there is a lot of churning in entry and exit of firms. Table 3 shows the result of disaggregated export growth into the contribution of firm extensive and intensive margins.

Table 3: Decomposition of Kenya's aggregate growth into extensive and intensive margins

	Aggregate Growth(%)	Firm extensive margin			Intensive margin
		Entrants			
		Net(%)	(%)	Exiters(%)	Continuing (%)
2005-2006	22.3	5.7	6.8	-1.1	16.5
2006-2007	26.6	2.5	4.2	-1.8	24.1
2007-2008	2.0	0.3	2.0	-1.7	1.7
2008-2009	2.2	0.2	1.8	-1.6	2.0
2009-2010	1.8	2.4	3.5	-1.0	-0.6
2010-2011	29.5	0.9	2.6	-1.7	28.6
2011-2012	-1.27	-1.24	2.4	-3.6	-0.03
Average	11.9	1.5	3.3	-1.8	10.3

Notes: Net margin is obtained by summing up the extensive margins. All values are in percent (%) calculated relative to initial period value.

The year-on-year variation in export growth is primarily driven by changes in the firm intensive margin,

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although it is very volatile across the years. In a normal period, such as 2005-2006, aggregate exports grew by 22.3%, out of which the firm intensive margin (continuing exporters) accounted for 73.9% (=16.5/22.3) and the net firm extensive margin accounted for 25.6% (=5.7/22.3). However, in a slump period (contraction) such as 2011-2012, aggregate export growth contracted by -1.27%. Out of this, the firm intensive margin declined by -0.03%, while the net firm extensive declined by -1.24%, resulting in an overall decline in aggregate exports by -1.27%. The collapse in growth of aggregate exports in 2011-2012 is largely driven by exit of firms, which contributed to a gross decrease in exports of -3.6%. This decrease is, however, offset by the positive growth in exports by 2.4% due to entry of new firms.

Fourthly, exiting firms are on average smaller in terms of export value, product and destination scope compared to continuing firms. Table 4 presents the average value of exports, the number of products and destination-countries per exporter type.

Table 4: Trade characteristics of exiters, entrants and continuing exporters, selected years

Year	Variables	Exiters(t-1)	Continuers(t-1)	Entrants(t)	Continuers(t)
2005	Log(Export Value)	8.05	10.74	8.66	11.02
	Number of products	2.16	7.30	2.78	8.58
	Number of countries	1.26	3.85	1.33	4.00
	N	(1,126)	(2,097)	(1,791)	(2,097)
2007	Log(Export Value)	8.41	10.95	8.66	11.14
	Number of products	2.57	9.24	3.45	10.06
	Number of countries	1.31	3.53	1.27	3.55
	N	(1,845)	(2,706)	(1,985)	(2,796)
2009	Log(Export Value)	8.27	10.98	8.40	10.97
	Number of products	2.80	9.77	3.02	9.71
	Number of countries	1.20	3.29	1.28	3.39
	N	(1,655)	(2,884)	(1,765)	(2,884)
2012	Log(Export Value)	8.30	11.09	8.32	11.01
	Number of products	3.14	10.26	3.22	9.87
	Number of countries	1.27	3.59	1.34	3.62
	N	(2,096)	(3,194)	(1,955)	(3,194)

Notes: Continuers are present in year t-1 and year t. Exiters are present in year t-1 but not in year t; while entrants are present in year t but not in year t-1. The number of exporters (N) is in bracket.

Across all the years, continuing exporters are on average larger compared to entering exporters. Using the export value[1] to illustrate, in 2005 the exiters had an average export value of US$ 3,133 compared to an average export value of US$ 46,166 for the continuing exporters. Entering firms had an average export value of US$ 5,767.5 compared to US$ 61,083 for the continuing exporters. This suggests that amongst the population of exporters, continuing exporters are larger, followed by entering firms. Exiters are small in terms of their exports (size) by the time they exit export markets

Fifth and last, there is a higher exit rate of new entrants into exports within the first year of entry. Figure 1 show the Kaplan-Meier survival estimates for the duration of active trade for the population of exporters that started to export in 2005 or thereafter.

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[1] Value obtained by taking exponent of the log(export value).

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Figure 1: The Kaplan-Meier survival estimates for the duration of trade
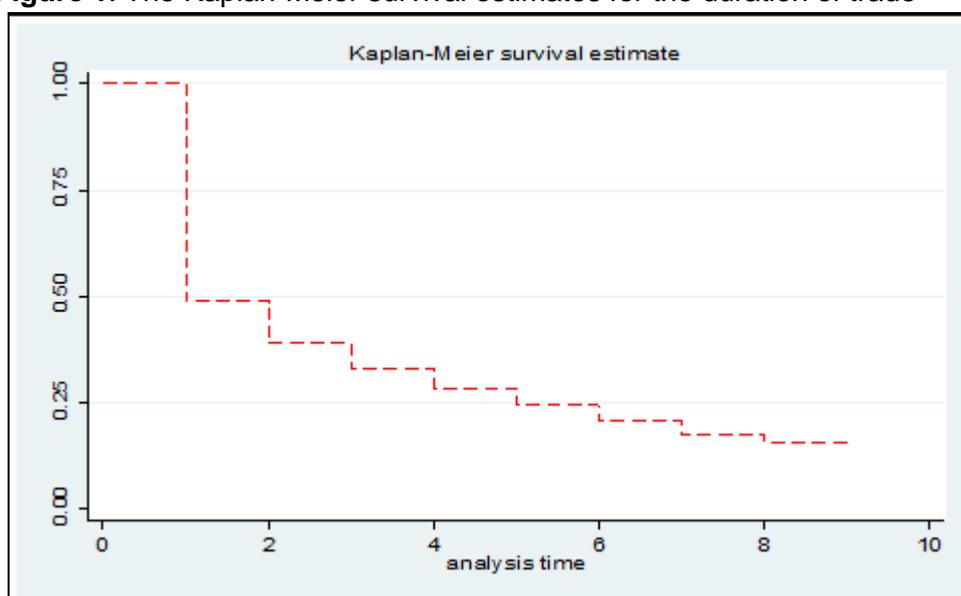
From the Kaplan–Meier survival function, approximately 52% of new exporter's trade relationships end within the first year of entry, while approximately 75% fail within the first five years of entry. Overall, the hazard rate falls as export spells grow older. Kenya's export relations experience a steeper death rate within the first year of entry compared to 33% in the US (Besedes & Prusa, 2006a).

Possible policy implications

The results from this note are specific to Kenya but do not deviate substantially from the findings in the related literature and may be generalised to other SSA countries that share common characteristics with Kenya. A couple of policy implications may be drawn from this. Firstly, the decomposition of Kenya's year-on-year growth of aggregate exports revealed that the continuing firms drive this growth, accounting for up to 73% of the variation in growth in a normal year. However, it also revealed an important role for the new entrants into exports. Firm extensive margin (sales from new entrants) is crucial for stabilization of export growth during a slump period because it offsets the negative effect from a decline in sales of the exiting exporters. Thus, both entry and survival of firms in international trade could potentially be a key objective of trade policy.

Secondly, a lot of new entrants (52%) exit just after the first year, suggesting that market access costs might be too high causing high exit rates. This note and the related literature emphasize the need to raise firm productivity (size) to overcome market access costs. There is scope for policy to leverage the results from this note to launch future intervention programmes targeting to raise firm productivity. Such programmes should be accompanied by a properly controlled study to identify the impact of the programme.

Moving Forward
In this note we had little to say about the characteristics of firms behind the observed trade patterns. In the future we will explore possible access to panel of firm characteristics by engaging with Authorities in Kenya to match customs statistics with annual income returns.

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