Economic Development and the Margins of Trade: Are the Least Developed Countries Different?

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Abstract

The growing literature on trade dynamics suggests that economic development comes with trade growth on two margins — the extensive margin (number of exporters) and the intensive margin (average exporter size). In this paper we show for the first time that, for least-developed countries (LDCs), the extensive margin is relatively more important than the intensive margin at explaining both export growth and economic development. Our study of the margins of export growth documents notable differences between countries, grouped by their level of economic development. While previous studies find a positive link between economic development and average exporter size, we find that this link is weakest for LDCs and strongest for high-income countries. Similarly, we find a positive relationship between the number of exporters and economic development for LDCs, *but* negative or weak correlations between the extensive margin and economic development for middle-income and high-income economies. The findings, which are robust to various alternative specifications, imply that the drivers of export growth and economic development for the poorest countries differ significantly from growth drivers in the other country groups.

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I Introduction

Two main developments stand out in the growing literature on trade and economic development: More papers now focus on the dynamics of trade, and more scholars now show the separate contributions of the intensive and extensive margins to export growth – usually showing the contributions of incumbents, exiters and entrants to export growth (e.g. Fernandes, Freund, and Pierola, 2016; Díez, Mora, and Spearot, 2018). The literature has grown, expanding from early papers on high-income economies (e.g. Bernard, Jensen, Redding, and Schott, 2007; Eaton, Kortum, and Kramarz, 2011), to recent papers that cover countries with a broader range of GDP per capita (e.g. Freund and Pierola, 2015; Fernandes, Klenow, Meleshchuk, Pierola, and Rodríguez-Clare, 2015; Fernandes et al., 2016). This growing literature on trade dynamics suggests that economic development, as measured by GDP per capita, plays a role in supporting exports, so that we observe large differences between the export profiles of high-income countries and the least developed countries.

Our paper focuses on how the relationship between GDP per capita and the margins of trade differ by country group — least developed countries (LDCs), middle-income countries (MICs) and high-income countries (HICs). The paper's focus is motivated by one stylized fact – the absence of income convergence between countries, and by a debate in the literature – whether the distribution of firms in developing economies follows a pattern marked by a *missing middle*, or a *truncated top*. The debate is relevant to policy and export growth, because the shape of firm size distributions defines the number of firms that will start exporting as an economy grows. Therefore, studying how exports change with economic development using cross-country comparisons – as other studies have done – may provide an incomplete perspective, if as the absence of income convergence suggests, structural differences exist that bar countries from leaving the LDC groups for higher levels, and vice versa. To address this gap, we first examine the relative importance of each margin to export growth and then how these margins (exporter numbers and average exporter size) change with GDP per capita within each country.

We introduce several novel findings, organized around the intensive margin (average exporter size), the extensive margin (the number of exporters), and export concentration. On the intensive margin, we find that once we control for country and year effects, the correlation between this margin and GDP per capita is strongest for HICs. This pattern of increasing average exporter size with economic development is weakest for LDCs and MICs. Similarly, there is no correlation between alternative measures of the intensive margin (median exporter size and new exporter size) and economic development for LDCs. Furthermore, we show that while the intensive margin, as others have found, is relatively more important than the extensive margin in explaining export growth, this difference is much more important for HICs and MICs. This difference between LDCs and HICs has notable implications for trade and development policy, as outlined in our discussion of the

debate on how development shapes firm-size distributions.

For the extensive margin, we find the strongest positive correlation with GDP per capita for LDCs. Increasing the number of exporting firms is not associated with higher GDP per capita for high-income countries or middle-income countries. The estimates behind these findings use country and year fixed effects to help address concerns about unobserved drivers of trade patterns. The correlation between the extensive margin and GDP in LDCs may imply that increasing the number of exporters, at least in the short term, needs to be part of export growth policies designed to stimulate economic development for LDCs. Finally, for export concentration, we find mixed outcomes that depend on how the variable is defined. The export share of the top 5% and top 1% of exporters increases, while the Herfindahl-Hirschman Index (HHI) decreases with GDP per capita. The finding implies that as countries develop, they concurrently decrease overall export concentration and increase concentration at the top, save for high-income economies that already have a crop of top firms. The contrast in pattern for the measures of concentration helps to explain how countries add *both* middle-productivity firms and export superstars.[1]

The Exporter Dynamics Database (EDD), a rich collection of firm-level export characteristics from high-income, middle-income and low income countries, is our main data source. The data cover 69 countries between 1997 and 2014, with fewer than ten years for most countries, and the most common years being 2006 to 2012. The database reports the margins of trade, as well as other variables created from firm-level trade data. This paper focuses on the EDD annual firm-level data, collapsed to the country level to get our variables of interest (number of exporters, average exports per firm, etc.). The robustness checks for our main findings use the country-destination variant of the main EDD file. Cebeci, Fernandes, Freund, and Pierola (2012) and Fernandes et al. (2016) provide detailed descriptions of this World Bank database.

This paper makes two key contributions to the literature on how exports change with economic development. First, to the best of our knowledge, this is the first paper to focus on the margins of trade and economic development for LDCs. In a sense, our work extends Fernandes et al. (2016) by looking for heterogeneous responses to economic development between country groups. We likewise do the same when we decompose exports into the extensive and intensive margins. Putting countries into groups recognizes the possibility of differences between countries – structural, institutional and otherwise, that separate countries into tiers. We group countries into LDCs, MICs and HICs following standard norms, as described in section II. The idea that the link between exports and economic development may not follow the same pattern for LDCs and HICs also resonates with the

[1]The sectoral composition of exports may be one possible reason for the differences between country groups in the margins of export growth. This will be consistent with earlier papers that explain differences in the economic development of countries (e.g. Hausmann and Rodrik, 2003; Hausmann, Hwang, and Rodrik, 2007; Hidalgo, Klinger, Barabási, and Hausmann, 2007). Rather than speculate, we leave the question of why patterns of export margins differ for a separate paper.

robust evidence in the literature that countries' incomes per capita are not converging (Durlauf, Johnson, and Temple, 2005; Rodrik, 2011; Subramanian, 2011; Rodrik, 2012). If structural and institutional features keep some economies as LDCs, and others as HICs, our approach avoids those barriers to meaningful cross-country comparisons.

Another contribution comes from emphasizing within-country variations in the relationship between trade margins and economic development. Others have focused on cross-country comparisons. As outlined in the previous paragraph, it is reasonable to expect that, even with increasing GDP per capita, the features of an economy that drive its export growth may remain unchanged for years. Addressing time-invariant country features that influence the margins of export growth calls for regression specifications with country fixed-effects or similar controls. Thus, our results may explain short-run relationships for countries, while Fernandes et al. (2016) may reflect long-run relationships. In that sense, our papers are complementary.

Finally, this paper also provides empirical evidence that informs a debate on how growth in developing countries reflects institutional and policy distortions. The two leading arguments in this literature can be styled as: [1] the missing middle and [2] the truncated top. The *missing middle* argument assumes that developing countries are held back by distortions that prevent smaller and mid-sized firms from growing enough to enter and survive in export markets. As countries develop, the distortions decrease and small firms enter the export market, driving down average exporter size and decreasing export concentration. On the other hand, the *truncated top* argument assumes that developing countries are restrained by the relative lack of superstar firms. As countries develop in this second hypothetical framework, superstars grow and enter the export market, driving up average exporter size and increasing export concentration. This discussion includes several notable papers, (e.g. Tybout, 2000; Hsieh and Klenow, 2009; Hsieh and Olken, 2014; Fernandes et al., 2016). Our findings are consistent with the argument that the short term challenge facing LDCs is a missing middle. When limited to HICs, our findings become more consistent with the conclusion in Fernandes et al. (2016) that exporter size distributions are truncated at the top. The differences in our findings, as mentioned above, reflect our approach to identifying how exports and exporters change with economic development, which may simply reflect the drivers of short run versus long run changes in the margins of trade.

This debate and its implications for how trade margins evolve with development are deeply linked to trade theory. Given a firm-size distribution with firms clustered near the export-entry threshold, Das, Roberts, and Tybout (2007) shows that lower trade costs prompts trade growth on the extensive margin. Similarly, Helpman, Melitz, and Rubinstein (2008) finds that the extensive margin may explain higher trade volumes when trade costs are lowered. These two papers are relevant to the debate, if increasing GDP per capita is linked to institutional changes that lower trade costs. Fernandes et al. (2015) develop a

Melitz-style model of exporting, but with a log-normal distribution of productivity. Within this innovation, half of the variation in exports is expected to occur along the intensive margin, (as opposed to how the extensive margin explains all the variation in exports in a Melitz-Pareto model). The idea that the marginal response of exports to trade costs reflects differences in the underlying (theoretical) firm-size distribution supports the foregoing debate concerning whether the costs imposed by firms in less developed economies creates a firm-size distribution with a *missing middle* or a *truncated top*. The theory is very relevant to how firms contribute to the margins of trade as institutional distortions or costs reduce with economic development.[2]

The recent shift to firm-dynamics in understanding export growth provokes several policy-relevant questions: should countries grow *on the extensive margin* by stimulating more firms to export? Or, should they grow *on the intensive margin* by helping existing exporters to increase average export values? The argument for having more exporters by promoting the missing middle, for example, suggests that policymakers should help a different subset of firms, compared with the argument for helping incumbents grow or supporting the export superstars found in Freund and Pierola (2015).

The rest of the paper is organized as follows. Section II describes the data and provides stylized facts about economic development and margins of trade. Section III presents the main results, and provides robustness checks. Section IV concludes.

II Data

Our primary data source is the Exporter Dynamics Database (EDD), a collection of the basic firm-level characteristics of exports, organized as country-year observations for a broad set of countries. Variables in the EDD include the number of exporters, average exporter size and total exports — these enable the measurement of growth and of the contributions of the intensive and extensive margin. The EDD also describes export diversification, in terms of the Herfindahl-Hirschmann Index (HHI), share of top exporters, as well as the number of products and destinations per exporter. Country of origin and year are also included in the database, among other measures of exporter dynamics.[3]

[2] The margin of trade that captures more growth depends on the nature of costs facing exporters. Lawless (2010) shows that the negative effect of distance on trade is considerably larger for the extensive margin. This is consistent with other papers that also find large effects on the extensive margin (e.g. Bernard et al., 2007; Mayer and Ottaviano, 2008). (Eaton, Eslava, Kugler, and Tybout, 2007) argues for the importance of the intensive margin, showing that new exporters, while small when they begin exporting, contribute to half of total growth with in a decade. This is consistent with interpretations of the original Melitz (2003) model that trade growth should rest largely on the extensive margin (e.g. Crozet and Koenig, 2010; Lawless, 2010).

[3] A copy of the data is maintained by the World bank at (http://data.worldbank.org/data-catalog/exporter-dynamicsdatabase). Details on how the EDD was sourced, cleaned and compiled are outlined in Fernandes et al. (2016) and Cebeci et al. (2012). The Database provides detail on the export dynamics and composition of aggregate export flows, while protecting information that could be traceable

The database covers the years 1997 to 2014 for 69 countries. Not all countries are represented for all years in the data; the most common years in the data are between 2006 and 2012. Countries like Belgium, Cameroon and Peru have data for more than 15 years, while others like Kuwait, Thailand and Niger have fewer than four. In the data we have 20 LDCs, 38 middle-income countries and 11 high-income countries. The definitions of country groups by stage of development follows the United Nations (UN) definitions of LDCs and the World Bank definition of HICs. Countries outside the LDC and HIC categories are classified as middle-income developing countries. Table A.1 in the appendix lists the countries, years covered, and the country groups (LDCs, MICs, HICs).[4]

Real GDP per capita data and other country-year information come from World Bank (2017). Our measures of market size are GDP (constant 2010 US$) and Consumption (constant 2010 US$), both from the same source. Summaries and regression estimates are limited to the years covered by both data sources: World Bank (2017) provides GDP per capita data for most country-years between 1960 and 2015, and as mentioned, the EDD covers an unbalanced panel between 1997 and 2014. The two sources provide 623 usable country-year observations for the baseline test specifications.

Compared with Fernandes et al. (2016), we use the more recent version of the EDD that covers more years of data and a larger number of countries. (We are thankful for the efforts of the World Bank team to update the EDD.) The methodology for collecting and cleaning the data remained the same, as described in Cebeci et al. (2012), enhancing our confidence in interpreting the estimates. Furthermore, as explained in Section I, we focus on country-year observations, given the nature of our research questions, rather than the country-sector-destination, country-destination and country-sector observations featured in previous work.

II.1 Data Summary and Descriptives

Table 1 summarizes the main variables used for the paper. The first panel in the table shows the averages within each of the three country groups, for variables measured across the years available for each country; to avoid biasing these averages for countries with more years of available data, the table shows averages of country-averages. To create this table, each country was first represented with its average value across the years for each

to any specific firm.

[4] The country groups are available at the following links: (http://data.worldbank.org/region/least-developed-countries:-un-classification) and (https://datahelpdesk.worldbank.org/knowledgebase/articles/906519). Both classification schemes are largely driven by GDP per capita. The UN defines countries as LDCs based on a rating system that combines low GDP per capita with macroeconomic vulnerability and low human capacity indices. The World Bank defines a country's classification based on gross national income per capita in a given year, and we used a country's group classification based on the last year of the EDD data. Even though Asian countries and high-income countries are under-represented in the data, the EDD is the largest collection of country-level data indicating the firm-level composition of exports.

variable. Then the averages of these country-averages were reported for the country groups — LDCs, MICs, and HICs. (This explains why the regression tables that follow report 623 observations, but Table 1 uses only 69 observations of country-averages.)

We begin by looking at aggregate export value and its margins separately for the country groups. Describing export margins in separate columns for LDCs, MICs and HICs creates a novel opportunity to address differences in how exports respond to economic growth drivers for countries at different stages of economic development. The rationale is that as countries develop, exports grow when one or both of these margins improve: the number of exporters increase, average exporter size rises, or both average exports and the number of exporters increase. Section I introduces the idea that economic structure and exports differ by stage of economic development - likely due to country-specific features. If country-specific features or other structural barriers prevent economic development for some countries, we should expect to see different patterns for the groups that result. Therefore, the summary table shows the country groups' averages, in addition to measures of dispersion for the key variables within each group.

The table reveals notable differences in the extensive and intensive margins of exports. LDCs have fewer, and smaller exporters. While both the extensive margin and the intensive margin are smaller for LDCs, the extensive margin for LDCs is relatively much smaller. The extensive margin, i.e. the average number of exporters in each country-year ranged from just over 1,000 for LDCs to nearly 30,000 for the twelve high-income countries. The number of exporters matters because if all exporters in all countries shipped the same dollar value of goods, the difference in the number of exporters indicates that high-income countries will export 27 times as much as LDCs. The minimum observed number of exporters was 18, for Timor Leste and the maximum observed was 110,000, for Germany (2009–2012). Similarly, the intensive margin when averaged across countries, ranged from $1.7m for LDCs to nearly $3.8 m for HICs. The minimum average exporter size was $141,000 for Sao Tome and Principe, and the highest was $11.7 million for Belgium. In sum, average exporter sizes for LDCs are slightly less than those of MICs and about half of those of HICs, but the number of exporters is seven times larger for MICs and almost 30 times larger for HICs.

As expected, LDCs have smaller economies, and are poorer. GDP per capita is on average almost 50 times larger in HICs than in LDCs. For LDCs, GDP in 2010 dollars for the average country-year was $19 billion, with the comparable figure for MICs roughly ten times larger, and 30 times larger for HICs. The tests that follow use logged values of the real GDP and GDP per capita variables.

The variables that describe export concentration yield some of the most interesting contrasts in our data. The share of aggregate exports controlled by the top 5% of exporters seem to suggest that concentration is highest in high-income countries, 85% on average;

Table 1: Summary Statistics

Variables	LDCs	MICs	HIC
Values			
Real GDP (1mn USD)	18,840	174,733	629,070
GDP per capita (USD)	716	5,904	37,055
Number of exporters	1,102	7,777	31,652
Exports per firm (USD)	1,713,362	2,538,731	3,829,360
Exporter value of median firm (USD)	79,054	59,581	51,008
Export per firm: entrant	248,921	323,549	454,797
Share of Top 5%	0.74	0.82	0.86
Share of Top 1%	0.48	0.56	0.62
Herfindahl-Hirschman Index	0.118	0.045	0.014
Dest. per firm	2.7	2.8	4.4
Prod. per firm	5.0	5.7	7.8
Countries	20	38	11
Minimum Values			
Real GDP (1mn USD)	237	4,678	17,715
GDP per capita (USD)	342	866	13,048
Number of exporters	18	221	5,722
Exports per firm (USD)	140,857	515,682	1,204,122
Exporter value of median firm (USD)	6,405	1,336	13,075
Export per firm: entrant	65,858	58,902	87,349
Share of Top 5%	0.45	0.64	0.78
Share of Top 1%	0.15	0.35	0.45
Herfindahl-Hirschman Index	0.002	0.002	0.004
Dest. per firm	1.5	1.4	2.5
Prod. per firm	1.6	1.7	4.6
Maximum Values			
Real GDP (1mn USD)	114,299	1,879,604	3,450,702
GDP per capita (USD)	1,270	39,378	85,833
Number of exporters	6,995	44,607	110,366
Exports per firm (USD)	4,049,447	7,488,207	11,700,000
Exporter value of median firm (USD)	380,882	277,919	230,154
Export per firm: entrant	621,736	1,587,558	2,413,773
Share of Top 5%	0.94	0.99	0.92
Share of Top 1%	0.77	0.93	0.74
Herfindahl-Hirschman Index	0.396	0.450	0.043
Dest. per firm	7.0	4.6	8.9
Prod. per firm	22.8	13.3	13.3

the top 1% variable shows a similar pattern. However, the HHI of exports is consistently higher for the poorer countries. The average HHI of 0.12 for LDCs is almost ten times larger than the comparable number for HICs and three times larger than the comparable number for MICs. This contrast between HHI and the export share of the top 5% provides vital context for the debate on whether firm size distributions in poorer economies are distorted in ways that create a *truncated top* or leave out a *missing middle*.

The measures of export concentration offer what appears to be conflicting evidence. It may be argued that distortions in low-income economies lead to a *truncated top* for firm size distributions, given the pattern of higher export concentration with GDP per capita. This is if export concentration is measured as the export share of the top 5% of exporting firms, as was done in Fernandes et al. (2016). However, the HHI measure suggests that export concentration decreases with GDP per capita, with the higher export concentrations in poorer countries. The HHI pattern is more consistent with a model of a *missing middle*. This decrease in concentration with economic development matches the pattern in Table 1, where the median exporter size decreases with economic development. These descriptive patterns could simply be due to the differences in exporter numbers. HICs and MICs, having larger numbers of exporters are expected to have lower export HHIs, all other things being equal. On the other hand, the share of exports by the top 5% allows only a limited insight into how exports are allocated between firms, while HHI as a measure uses the full distribution of exporter sizes.[5] Both measures, however, are valuable as they provide a clearer picture of the distribution of market shares.

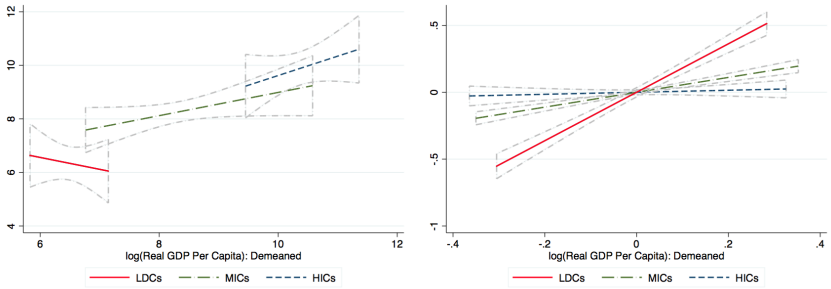
The last variables in Table 1 suggest that firms in low-income countries appear to be more specialized. Firms in LDCs and MICs export to an average of three destination countries, and export five products on average, while HICs have larger averages — four destination countries and almost eight product categories. We must emphasize that these averages do not reflect the fact that firm sizes and scope vary widely, such that the distribution of these variables are skewed, with the average being typically much higher than the median for each country. The presence of intermediaries, firms that export goods produced by other firms should also be considered in interpreting these variables, as discussed in Fernandes et al. (2016) and Freund and Pierola (2015).

[5] Consider a scenario in which the top three firms in an LDC are responsible for 50% of the country's exports — for a country like Zambia with most exports coming from a few multinationals in the copper business, this scenario is not far-fetched. Export size drops off rapidly after this top three, so that the top 5% of exporters accounts for less than 75% of aggregate exports. In a higher-income country, exports are less concentrated at the very top, but the top 5%, in this case 1,500 firms out of 30,000, account for more than 85% of aggregate exports.

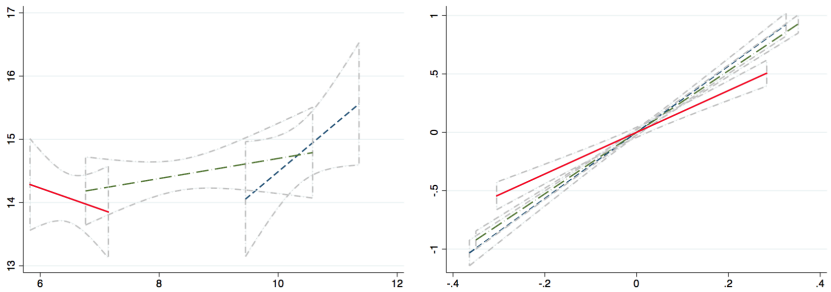
Figure 1: The Margins and Market-Share Concentration of Trade

a Number of Exporters

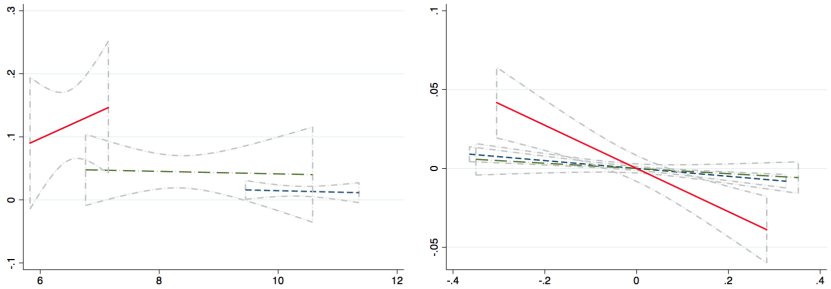
Cross-country variation | Within-country variation



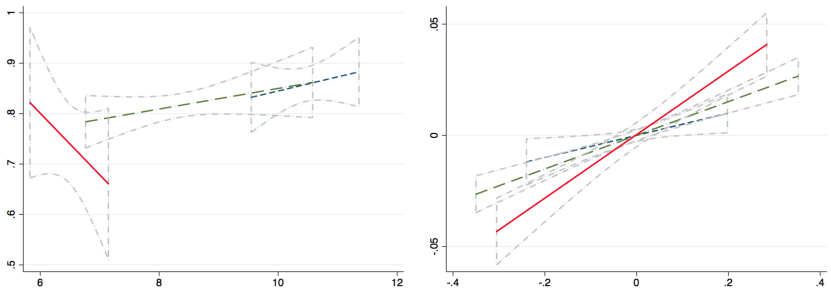
b Average Export Value per Firm



c Herfindahl-Hirschman Index



d Export Share of Top 5% of Firms



Note: For the cross-country figures (the left hand side) we first create a country's average for the variable and then correlate this average with each country's average GDP per capita, and for the within-country figures (the right hand side) we subtract from each observation the country average for the same variable and then correlate these observations with the demeaned GDP per capita. The margins of trade are in logs.

III Empirics

III.1 Export Patterns by Stage of Development

Figure 1 shows how the margins of trade and exporter market-share concentration change with GDP per capita – presenting both cross-country variation and within-country variation. The panels of the figure are consistent with the summaries of average values in Table 1. The figures on the left of each panel show cross-country variation — correlations using the average GDP per capita and the average of the relevant variable for each country. The figures on the right show the within-country variation — correlations using the demeaned GDP per capita and the demeaned relevant variable for each country. (The graphs are comparable to Figure 2 in Fernandes et al. (2016), with separate plots for the country groups – LDC, MIC, and HIC.)

The approach represented in the figure has two distinctive advantages: First, it probes farther into the relationships between the various variables and GDP per capita, and permits the relationship to be nonlinear. Second, those relationships may hold in a long term scenario that allows an LDC to become a MIC, but not necessary in the short term. By offering the option of interpreting short-term scenarios, examining within-country variation therefore complements previous studies that emphasize cross-country variation.

The panels show noticeably different patterns for within-country variation vs. cross-country comparisons. The relationships between economic development and the variables depend on how the comparison is made. For the most part, the figures on the left match those in Fernandes et al. (2016), with a few key differences between the country groups. The number of exporters (panel a) increases as countries develop. This pattern, however, is not true for LDCs (although noise in the pattern, as seen by the large confidence intervals, limits the interpretation of the graph for LDCs). Just as with the cross-country comparison figures on the left, the top right panel of Figure 1 also shows a strong, positive relationship between increases in real GDP per capita and exporter numbers. Remarkably, it is primarily for LDCs that the relationship between the extensive margin and economic development is positive and statistically significant. Furthermore, differences between the country groups show up at the intensive margins (panel b). In the second panel of the figure , the relationship between the intensive margin and GDP per capita is slightly stronger for HICs and MICs.[6]

Figure 1 also shows measures of exporter market-share concentration (panel c and d). In panel c), where export concentration is measured as HHI, we see an overall decrease

[6]Plotted but not shown, are graphs for total exports and median exporter size. Those graphs are not shown to conserve space. A similar figure is observed for entrants, exiters, and successful entrants using average exports per firm (Appendix Figure A.1) and median exports per firm (Appendix Figure A.3). The main takeaway is that the importance of the intensive margin of new exporters for export growth in LDCs diminishes when using alternative measures of the intensive margin.

in concentration with GDP per capita. The differences between the country groups are notable: Concentration decreases for LDCs with economic development (the opposite of what the cross-country variation figures show), and there appears to be no relationship between export concentration and GDP per capita for MICs and HICs. This differs largely from the pattern in the last panel of the figure (which appears consistent with the plot in Fernandes et al. (2016) that uses the top 5% exporter's market share as a measure of export concentration). The different measurements of exporter market-share concentration provide opposing conclusions: HHI decreases with economic development, but the export share of the top 5% increases with economic development. While not shown, the positive correlation observed in panel d) is driven almost entirely by the largest firms, the top 1% of exporters.

Margins of Trade and Export Growth

Table 2: Margins of Trade and Export Growth

Dep. Var. ⇒	**Margin**		**Margin**		**Margin**	
	Extensive	**Intensive**	**Extensive**	**Intensive**	**Extensive**	**Intensive**
ln(Exp)	0.726***	0.274***	0.279***	0.721***	0.463***	0.537***
	(0.015)	(0.015)	(0.047)	(0.047)	(0.048)	(0.048)
ln(Exp)*MICs					-0.274***	0.274***
					(0.059)	(0.059)
ln(Exp)*HICs					-0.356***	0.356***
					(0.087)	(0.087)
Country FE	No	No	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Number of obs.	623	623	623	623	623	623
Num. of clusters			69	69	69	69
Adjusted R^2	0.851	0.449	0.415	0.826	0.525	0.859

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; robust standard errors, cluster at the country level, shown in parenthesis. Both total exports ($Exp.$) and the margins of trade are in logs. MIC equals 1 if the country is a middle income country and HIC equals 1 if the country is a high income county; $LDCs$ are the omitted group where relevant.

To support the preliminary evidence observed above, we document the contributions of the margins of trade to export growth. To do this, we follow Bernard, Jensen, Redding, and Schott (2009) in decomposing total exports into the extensive and intensive margins. Then we regress the logarithm of total exports on the logarithm of the intensive and extensive margins of trade. As expected, the coefficients on the extensive and intensive margins sum to one, with each coefficient representing the share of the overall variation in trade explained by each margin.

Table 2 provides results that are consistent with previous papers, while supporting the novel contributions of this paper. With the needed country fixed effects, about two-thirds of export growth comes from the intensive margin or increases in average exporter size, from columns 3 and 4 of the table. (Without the fixed effects in columns 1 and 2, it appears

that about 75% of export growth is on the extensive margin or exporter numbers). Column 3 highlights the novelty of this paper in showing differences by country-group.

The table clearly shows that the intensive margin of export growth is much more important for HICs and MICs, than for LDCs. For LDCs, the baseline category in the regression, there is little difference between the contributions of the extensive (46%) and intensive margins of trade (54%). Meanwhile, export growth for countries in the high-income and middle-income group comes almost entirely from the intensive margin (almost 90% in HICs and about 80% in MICs), with these differences, as shown in the table, being statistically significant. In sum, analyses using the within-country variation - in both Figure 1 and Table 2, indicate that the growth margins of LDCs, MICs, and HICs are different, and that the intensive margin is relatively more important for LDCs in explaining both total exports and economic development.

III.2 Methods

To determine how the various margins of trade differ by country group, other factors that may correlate with the margins must be addressed. Therefore, we use the following baseline model:

$$Y_{it} = \alpha_i + \delta_t + \beta_1 (RGDP_{PC})_{it} + \beta_2 MIC_i (RGDP_{PC})_{it} + \beta_3 HIC_i (RGDP_{PC})_{it} + u_{it} \quad (1)$$

In Equation (1), α_i represents country fixed effects, to control for country-specific characteristics that may correlate with the dependent variable. δ_t represent calendar year fixed effects; this controls for variables that affect all countries in a given year, e.g. the Great Recession years, which are covered in the data. As expected, i indexes the country, and t the calendar year. Y_{it} captures the outcome variable of interest —the various measures of the margins of trade. These include: [1] total export, [2] traditional measures of the margins of trade (*average exporter size and the number of exporting firms*), [3] extended measures of the intensive margin (*export value of the median firm and average exports per entrant*), and [4] measures of exporter market-share concentration (*Herfindahl-Hirschman Index, export share of the top 5% of firms, and export share of the top 1% of firms*). Section II includes definitions for these variables. $(RGDP_{PC})_{it}$ is the log real GDP per capita (GDP per capita at constant 2010 US$) for each country i in year t. MIC_i equals one if the country is a middle-income country, and zero otherwise; HIC_i equals one if the country is a high-income country, and zero otherwise. As mentioned earlier, Appendix Table A.1 shows the list of countries in the data sample and their country groups.

As LDCs make up the omitted group, β_1 shows the correlation between real GDP per capita and the margins of trade for LDCs. $MIC_i \cdot (RGDP\ PC_{it})$ captures the difference between LDCs and MICs as real GDP per capita changes, and $HIC_i \cdot (RGDP\ PC_{it})$

captures this same difference for LDCs and HICs. Thus, β_2 and β_3 are estimators of interest. Lastly, u_{it} is the error term. The decision to exclude the market size in the baseline empirical model follows one main rationales: we control for it using country fixed effects. As such including it, would only control for changes in the market size. We, at first, exclude it because exports are a notable share (and a bigger share for many LDCs) of most measures of market size (such as GDP). Leaving market size out of the baseline specification *avoids the bias* that comes with putting exports on both sides of the equation. To address concerns that exports or exporter numbers may be growing, simply because of aggregate economic growth, the robustness checks include specifications that proxy for market size.

The expected sign for β_1, β_2, and β_3 depends on the variable of interest and the model of how economic development shapes firm and exporter size distributions. As outlined in Section I, measures of the intensive margin and concentration can help to test whether the data is consistent with a model of the missing middle or a model of the truncated top. In either scenario, the extensive margin increases as a country develops. For the missing middle, a negative correlation ($\beta_1 < 0$) is expected for the intensive margin and concentration estimates; the model does not differentiate by the level of economic development, so β_2 and β_3 should not be statistically significant. For the truncated top, a positive correlation ($\beta_1 > 0$) is expected for the intensive margin and concentration estimates; the model does not differentiate by the level of development, so β_2 and β_3 should also not be statistically significant. The findings are more with a model of the missing middle for LDCs ($\beta_1 < 0$), and more importantly, show significant differences between LDCs on one hand, and MICs and HICs on the other ($\beta_2 \neq 0$ and $\beta_3 \neq 0$).

III.3 Estimates

GDP per Capita and the Margins of Trade

Table 3 shows the relationship between GDP per capita and total exports (as well as the relationships with the intensive and extensive margins of trade). For each outcome variable we run a regression without country fixed effects (α_i) (Columns 1, 4, and 7). Estimates of cross-country variation are the results that most closely resemble the specification in Fernandes et al. (2016). Column (1) shows that total exports and economic development are highly correlated across countries and, unsurprisingly, that both the extensive (Column 4) and the intensive margin (Column 7) contribute to this growth. These results are consistent with the findings in Table 4 of Fernandes et al. (2016), and its implication that truncated firm-size distributions may be holding back exports for countries with low GDP per capita.

Table 3: The Margins of Trade: LDCs vs MICs and HICs

Dep. Var.⇒	ln(export value)			ln(num. exporters)			ln(avg. exp. per firm)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ln($RGDP_{PC}$)	1.01***	1.42***	2.07***	0.76***	0.44	1.40***	0.24***	0.99***	0.67**
	(0.04)	(0.26)	(0.58)	(0.03)	(0.29)	(0.46)	(0.02)	(0.22)	(0.31)
MIC*ln($RGDP_{PC}$)			-1.01			-1.41***			0.39
			(0.64)			(0.46)			(0.40)
HIC*ln($RGDP_{PC}$)			-1.27*			-2.20***			0.93**
			(0.76)			(0.56)			(0.40)
Country FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num. of obs.	623	623	623	623	623	623	623	623	623
Num. of clusters		69	69		69	69		69	69
Adjusted R^2	0.548	0.781	0.795	0.506	0.251	0.431	0.254	0.708	0.715

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; robust standard errors, cluster at the country level, shown in parenthesis. GDP per person is in 2010 US dollars. MIC equals 1 if the country is a middle income country and HIC equals 1 if the country is a high income country; $LDCs$ are the omitted group where relevant.

We include country fixed-effects in Columns (2), (5), and (8), and the results show little change. The coefficient on GDP per capita increases in size while retaining its positive sign for exports as a dependent variable. However, the estimated relationship between GDP per capita and extensive margin regression loses statistical significance. Other papers interpret similar findings to conclude that the key to economic development is increasing average exporter sizes; that is, by helping successful exporters grow into export superstars, rather than supporting small firms to raise the number of exporters. A possible explanation is that the difference between columns 4 and 5 points to the importance of country-specific economic features and relationships in explaining how increasing average income is linked to the extensive margin of trade.

Finally, we interact real GDP per capita with the country-group dummies for MICs and HICs to see how the relationship depends on the stage of development. Exports and GDP per capita are linked for all countries (Column 3). While the association is strongest for LDCs, the difference with middle-income and high-income countries is not statistically significant. This difference by country group, however, becomes significant once we split exports into its margins. On the extensive margin (Column 6), economic development comes with increased exporter numbers for LDCs, while the association is less for MICs and and even more so for HICs. In fact, there is no association between the extensive margin and GDP per capital for MICs and a negative association for HICs, as seen in Appendix Table A.2. The intensive margin yields coefficients that are smaller in size than those observed for the extensive margin, but LDCs still have a positive and statistically significant correlation with GDP per capita (Column 9). More importantly, the association is stronger for HICs and this difference is statistically significant.

GDP per Capita and Measures of the Intensive Margin

Table 4 shows the relationship between GDP per capita and alternative measurements for the intensive margin. It replicates the intensive margin results from Table 3, but also include the median export value for firms and the average export value for entrants. If exporter size distributions have a truncated top, not only should the average exporter size increase, but so should the median value. Additionally, if there was a truncated top, the average entrant's export value should also increase. As the firm size distribution becomes less truncated hypothetically, the subset of firms that become new exporters should be larger and have higher per-firm export values. The estimates using these alternative variables for the intensive margin reinforce the finding that as LDC countries develop their new exporters and surviving exporters tend to be both large and small. For MICs and HICs, on the other hand, there is a strong and positive correlation between these three variables and economic development (See Appendix Table A.2).

The estimates in Column 4 of Table 4 show that even before controlling for the country

of origin, the median value is not increasing with GDP per capita. Column (7) shows a positive correlation between average exporter size for entrants and real GDP per capita, although the relationship is weaker than the association for the overall intensive margin (Column 2). These results change in magnitude, but not statistical significance, once controls for the country of origin are introduced (Columns 5 and 8). However, the paper's focus is on the relationship for LDCs and whether the correlation differs by country group.

Different results emerge once real GDP per capita is interacted with the HICs and MICs variables, the country groups that capture stages of economic development. In Column 6 of Table 4, the coefficient on median exporter size is actually negative for LDCs, but the difference is not statistically significant. Here MICs and HICs have very different results than those of LDCs. The median exporter size increases with GDP per capita for middle-income countries and even more so for high-income countries, with both differences being statistically significant. Column 9 provides evidence that average exporter size for entrants increases with development, but the coefficient is not statistically different from zero for LDCs. While both MICs and HICs have a positive association between this exporter size and GDP per capita (see Appendix Table A.2), the only statistically significant difference that is that between LDCs and HICs.

GDP per Capita and Export Concentration

Another testable prediction for the truncated top and the missing middle arguments builds on the relationship between exporter market-share concentration and GDP per capita. In Table 5, we provide three measurements for concentration of exports: [1] the export share of the top 5% of exporters, [2] the export share of the top 1% of exporters, and [3] the Herfindahl-Hirschman Index. An increase in export concentration would be interpreted as support for a model of the truncated top. On the other hand, we would interpret a decrease in this correlation as support for a model of the missing middle. These measurements of export concentration provide contrasting results, as observed in Section II.

Using the market share of the top exporters as a measurement of concentration gives a positive relationship between concentration and economic development when we don't control for the country of origin (Column 1 for Top 5% and Column 4 for Top 1%), but using the HHI gives a negative relationship (Column 7). Interestingly, all of these measurement lose statistical significance when we control for the country of origin (see Column 2 for the top 5%, Column 5 for Top 1% and Column 8 for HHI).[7] The results, however, depend on the stage of economic development, which becomes clear when country groups are interacted with real GDP per capita. For the top 5% variable (Column 3) and top 1% (Column 6) variables, there is a positive, but insignificant relationship between concentration and economic development for LDCs, and, more importantly, the difference is negative and

[7]This may be a result of there being small variation in these variables over the short term.

Table 4: The Intensive Margin of Exports: LDCs vs MICs and HICs

Dep. Var.⇒	ln(avg. exports per firm)			ln(avg. exp. per firm): Median			ln(avg. exp. per firm): Entrant		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ln($RGDP_{PC}$)	0.24***	0.99***	0.67**	0.01	0.71	-0.17	0.15***	1.46**	0.45
	(0.02)	(0.22)	(0.31)	(0.03)	(0.47)	(0.69)	(0.03)	(0.56)	(0.92)
MIC*ln($RGDP_{PC}$)			0.39			1.65**			1.04
			(0.40)			(0.69)			(0.95)
HIC*ln($RGDP_{PC}$)			0.93**			2.53**			3.14***
			(0.40)			(1.14)			(1.06)
Country FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num. of obs.	623	623	623	608	608	608	540	540	540
Num. of clusters		69	69		68	68		66	66
Adjusted R^2	0.254	0.708	0.715	0.041	0.250	0.308	0.100	0.123	0.142

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; robust standard errors, cluster at the country level, shown in parenthesis. GDP per person is in 2010 US dollars. MIC equals 1 if the country is a middle income country and HIC equals 1 if the country is a high income country; $LDCs$ are the omitted group where relevant.

Table 5: Export Concentration: LDCs vs MICs and HICs

Dep. Var.⇒	Share of top 5%			Share of top 1%			Herfindahl-Hirschman Index		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ln($RGDP_{PC}$)	0.03***	0.04	0.09	0.04***	-0.00	0.15	-0.02***	-0.05	-0.12*
	(0.00)	(0.03)	(0.06)	(0.00)	(0.08)	(0.09)	(0.00)	(0.04)	(0.07)
MIC*ln($RGDP_{PC}$)			-0.09*			-0.13			0.13*
			(0.05)			(0.10)			(0.06)
HIC*ln($RGDP_{PC}$)			-0.23***			-0.59***			0.08
			(0.08)			(0.13)			(0.06)
Country FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num. of obs.	602	602	602	615	615	615	623	623	623
Num. of clusters		68	68		67	67		69	69
Adjusted R^2	0.114	0.180	0.223	0.155	0.099	0.244	0.061	0.025	0.053

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; robust standard errors, cluster at the country level, shown in parenthesis. GDP per person is in 2010 US dollars. MIC equals 1 if the country is a middle income country and HIC equals 1 if the country is a high income country; $LDCs$ are the omitted group where relevant.

statistically significant for the difference estimates with HICs and even for the difference in the Top 5% estimates with MICs. Note, however, that only the richest countries see an overall decrease in concentration with increases in GDP per capita (see Appendix Table A.2). For HHI (Column 9), there is a negative relationship (with a 10% level of significance) between overall exporter market-share concentration and economic development for LDCs, and the difference estimate is positive and statistically significant for MICs and positive, but not statistically significant, for HICs. Note, however, that only the LDCs see an overall decrease in HHI with increases in GDP per capita (see Appendix Table A.2)

III.4 Robustness Checks

The robustness checks address three potential challenges to the baseline specification. First, the section introduces specifications to answer concerns that the relationship between GDP per capita and trade margins may be explained away by changes in the market size. We focus on proxies for market size that reflect the size of national economies, without putting exports on both sides of the equation. Second, the section presents results using country-destination data with controls for economic size, much like Fernandes et al. (2016). Finally, our main findings are shown to be robust to how country groups are defined, the type of non-linear relationship, and whether we exclude the smallest exporters.

Controlling for Country Size

Tables 6 replicates Tables 3, but uses the logarithm of domestic consumption as a control for country size. This proxy for GDP helps to check that the estimated relationships between GDP per capita and the margins of trade are not simply due to GDP changes. Using aggregate final consumption as a proxy for GDP avoids the bias that could result from using exports as the dependent variable while using GDP - which contains exports - as a predictive variable. Table 6 shows that, even with controls for country size, the relationship between GDP per capita and the margins of trade (the extensive margin and the intensive margin) maintains, for the most part, its sign and statistical significance. The coefficients are generally smaller in this specification, in line with expectations that proxies for economic size can explain a small portion of the positive relationship between the margins of trade and economic development. The coefficient on GDP per capita in column 9 is not statistically significant in Table 6, but this difference only reinforces the idea from previous tables that growth on the intensive margin of trade is associated with other features of high-income economies that are absent in LDCs, not necessarily GDP per capita.[8]

[8]The are fewer usable observations in this table, compared with Table 3 because we could not obtain data on final consumption expenditure for four countries. When the observations in Table 3 were limited to the same set of observations, our conclusions do not change. All the coefficients for the subsample retain the same sign and have comparable sizes. Statistical also significance remained the same, except for the

Table 6: The Margins of Trade: Controlling for Country Size

Dep. Var.⇒	ln(export value)			ln(num. exporters)			ln(avg. exp. per firm)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ln($RGDP_{PC}$)	0.32***	1.33**	1.71***	0.24***	0.03	1.07*	0.08***	1.30***	0.64
	(0.02)	(0.51)	(0.64)	(0.03)	(0.32)	(0.54)	(0.02)	(0.45)	(0.51)
MIC*ln($RGDP_{PC}$)			-0.38			-1.11**			0.73**
			(0.51)			(0.50)			(0.35)
HIC*ln($RGDP_{PC}$)			-0.69			-1.80***			1.11***
			(0.49)			(0.54)			(0.32)
ln(Consumption)	0.90***	-0.06	-0.18	0.70***	0.44	0.13	0.20***	-0.50	-0.31
	(0.02)	(0.53)	(0.53)	(0.03)	(0.33)	(0.28)	(0.02)	(0.45)	(0.49)
Country FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num. of obs.	560	560	560	560	560	560	560	560	560
Num. of clusters		65	65		65	65		65	65
Adjusted R^2	0.900	0.813	0.815	0.838	0.247	0.378	0.364	0.733	0.745

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; robust standard errors, cluster at the country level, shown in parenthesis. Both GDP per person and final consumption expenditure are in 2010 US dollars. MIC equals 1 if the country is a middle income country and HIC equals 1 if the country is a high income country; $LDCs$ are the omitted group where relevant.

Table 7 replicates Tables 3, but uses data at the country-destination level. The results do not change in any meaningful way, while the larger dataset allows us to control for variables typically included in a gravity equation (distance, similarities in language, history, GDP, etc.) using country-destination fixed effects. The coefficient on the interaction with MICs for the intensive margin changes sign, but remains indistinguishable from zero statistically, while the coefficients of the dummy interactions for export values become more statistically significant in Column 3. These estimates also reinforce the point that trade, and especially the extensive margin, is relatively much more important for the economic development of LDCs than for that of MICs and HICs. Appendix Tables A.3 – A.4 replicate the other two tables in this section (Tables 4 – 5), using data at the country-destination level. The results, as in the previous table are consistent with our main findings using country-level data.

We find similar estimates for the alternative definitions of the intensive margin (Appendix Table A.3) and for the measures of concentration (Appendix Table A.4). For the alternative definition of the intensive margin, we see that the estimates for the relationship between GDP per capita and the median firm's export value are negative when not controlling for country-destination (Column 4), and positive statistically significant when we control for country-destination (Column 5). For the measurements of concentration, we see little change other than the difference between HICs and LDCs becomes statistically significant when comparing HHI and real GDP per capita.

Appendix Tables A.5 – A.7 replicate the three baseline tables and include real GDP in all regressions. Fernandes et al. (2016) include this variable in their analysis, as a measure of country size. This holds for our estimates without country fixed effects. However, our regressions with country fixed effects, by definition, partially control for country size. Including GDP as a control in these estimates, as mentioned earlier, only helps to control for changes to country size that are not fixed over time, and not captured by GDP per capita. In the regressions that do not use country fixed effects (Columns 1, 4, and 7 in Appendix Table A.5), adding real GDP decreases the estimated correlation between real GDP per capita and total exports, the intensive margin, and the extensive margin. The sign and significance of the difference coefficients remain unaffected.

when controlling for both country of origin and real GDP, no correlation between total exports and real GDP per capita is observed (Column 2). It may seem that once we control for GDP, there is no relationship between trade and GDP per capita, but as the estimates of the intensive and extensive margin show, the real reason is that these margins have opposing correlations with total exports. As GDP per capita increases, the extensive margin decreases (-1.39 in Column 5) and the intensive margin increases (1.23 in Column 8). However, on interacting GDP per capita with country groups, the correlations disappear on both margins for LDCs. The estimates in columns 3, 6 and 9 of Table A.5 show

coefficient on HIC in column 3, and the first two coefficients in column 9.

Table 7: The Margins of Trade: Country-Destination Data

Dep. Var.⇒	ln(export value)			ln(num. exporters)			ln(avg. exp. per firm)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ln($RGDP_{PC}$)	0.67***	1.47***	1.85***	0.60***	0.68***	0.87***	0.15***	0.80***	0.91***
	(0.01)	(0.10)	(0.18)	(0.00)	(0.05)	(0.07)	(0.00)	(0.08)	(0.15)
MIC*ln($RGDP_{PC}$)			-0.49**			-0.16**			-0.25
			(0.19)			(0.08)			(0.17)
HIC*ln($RGDP_{PC}$)			-1.01***			-1.77***			0.69***
			(0.25)			(0.14)			(0.21)
Country-Dest FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num. of obs.	73,050	73,050	73,050	85,693	85,693	85,693	73,050	73,050	73,050
Num. of clusters		9,848	9,848		11,925	11,925		9,848	9,848
Adjusted R^2	0.095	0.184	0.185	0.150	0.139	0.148	0.031	0.100	0.101

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; robust standard errors, cluster at the country-destination level, shown in parenthesis. GDP per person is in 2010 US dollars. MIC equals 1 if the country is a middle income country and HIC equals 1 if the country is a high income country; $LDCs$ are the omitted group where relevant.

that the differences with MICs and HICs are statistically significant; we get negative and statistically significant coefficients for the interacted estimates for the extensive margin, and positive and statistically significant estimates for HICs for the intensive margin. Thus, the paper's main findings still hold – that the previous finding that the intensive margin of export growth is relatively more important at explaining GDP per capita growth applies only to the richer countries. Using alternative measures of the intensive margin (Appendix Table A.6) reinforces this point. Finally, most of the estimates for LDCs in specifications that use measures of concentration are not statistical significant (Appendix Table A.7).

Alternative Country Group Definitions

Appendix Tables A.8 – A.10 replicate the three tables, but use a different definition for LDCs. Given the GDP per capita overlap between LDCs and MICs as defined in the paper, we created a new variable for the least-developed countries that avoids this issue. First, countries in our sample were grouped into quintiles, based on their average GDP per capita. Instead of excluding LDCs, the excluded category represents the lowest quintile countries. Splitting countries this way breaks the reasonable assumption that GDP per capita and classification into the standard country groups is monotonic. Nonetheless, as in Tables 3 and 4, Exports and GDP per capita are highly correlated for the poorest countries (Column 3 of Appendix Table A.8) and the key differences are found in the trade margin estimates, rather than the overall trade level estimates. For the extensive margin (Column 6), countries in the higher quintiles don't have the same strong association between real GDP per capita and the number of exporters observed in the poorest countries. For the intensive margin, the correlation is barely positive for the poorest counties, but difference is much positive and significant for the middle and upper quintile countries (Column 9). Using alternative measures of the the intensive margin (Appendix Table A.9) shows that there may be no clear relationship between GDP per capita and the intensive margin of export growth for the poorest countries; the differences, for the most part, are not statistically significant. Concentration (Appendix Table A.10) also does not increase with GDP per capita for the poorest countries, using either the top 5% share, top 1%, or the HHI; the differences with other quintiles are, for the most part, not statistically significant.

Other robustness checks yields results that are consistent with our main findings. Appendix Table A.11 replicates the main tables, but exclude the smallest firms from the data, those that export less than $1,000 USD in a given year. The results maintain the same sign and significance as the Tables 3 - 5, with a few exceptions, and similar sizes across the board. For totals exports, the results are almost identical, except for a difference in statistical significance for HICs. For the other measures, dropping the smallest firms does not change any conclusion. The HHI measure loses statistical significance, but this is to be expected from dropping the smallest exporters.

Appendix Table A.12 eliminates country classifications, using a squared term instead to check for differences in the relationship of trade margins to GDP per capita for countries at different stages of development. The main motivation for this robustness check is that, our approach would be unnecessary if the coefficient of the quadratic term is not statistically significant. If however, a linear relationship does not describe the link between GDP per capita and the margins of trade, one should consider how patterns may differ for LDCs, compared with high-income countries. These results support our approach. The quadratic terms have the opposite sign of the linear term in all specifications, and the estimates are consistent with the main findings: exports and exporter numbers increase with GDP per capita, up to a point. The reversal between HHI and the export share of the top 5% of firms is also present in these estimates. In sum, our results are robust to multiple alternative specifications.

IV Conclusion

In this paper, we show that one size does not fit all. We provide new evidence that for countries at different stages of development, the relationships between GDP per capita and the margins of trade also differ. GDP per capita growth for LDCs is linked to a stronger response on the extensive margin (the number of exporters), while the intensive margin (average exporter size) and export concentration are less correlated with economic development for LDCs. For high-income countries, development has a stronger correlation with average exporter size. The findings are relevant to policy: first, in showing that the patterns of growth and development in LDCs differs from other developing countries, and second, in implying that growth policies should be tailored. What works in South Africa, for example may not work for Zambia, just as what works in Mexico may not work in Haiti.

The evidence in the paper is relevant to the debate on how distortions to resource allocation in developing countries impact firms, including exporters. The two leading arguments in this literature are that the distortions create: [1] a missing middle, or [2] a truncated top. The missing middle argument holds that developing countries are held back by costly distortions that prevent smaller and mid-sized firms from growing, and growing enough to enter and survive in export markets. As countries develop, the distortions decrease and small firms enter the export market, driving down average exporter size and decreasing export concentration. On the other hand, the truncated top argument assumes that what holds back developing countries is the relative paucity of superstar exporters, such that as countries develop, superstars grow in number and enter the export market, driving up average exporter size and increasing export concentration. Our findings are consistent with the argument that *both* the missing middle and truncated top are holding back LDCs (at least for exports).

The paper opens up several opportunities for additional work. First, our preliminary evidence on the *missing middle* vs. *truncated top* debate could be parsed out further, given a broader firm-level dataset covering more countries. We also provide opportunities for work on a theoretical model that matches the differences in the patterns observed in this paper for LDCs, MICs and HICs. Finally, while this paper's stated goal is documenting the existence of differences in the relationship between trade margins and GDP per capita for country groups, it is important to explain 'why' the patterns change. Thus, future work should include empirical analyses of the potential causes of differences in the margins of trade by stage of economic development.

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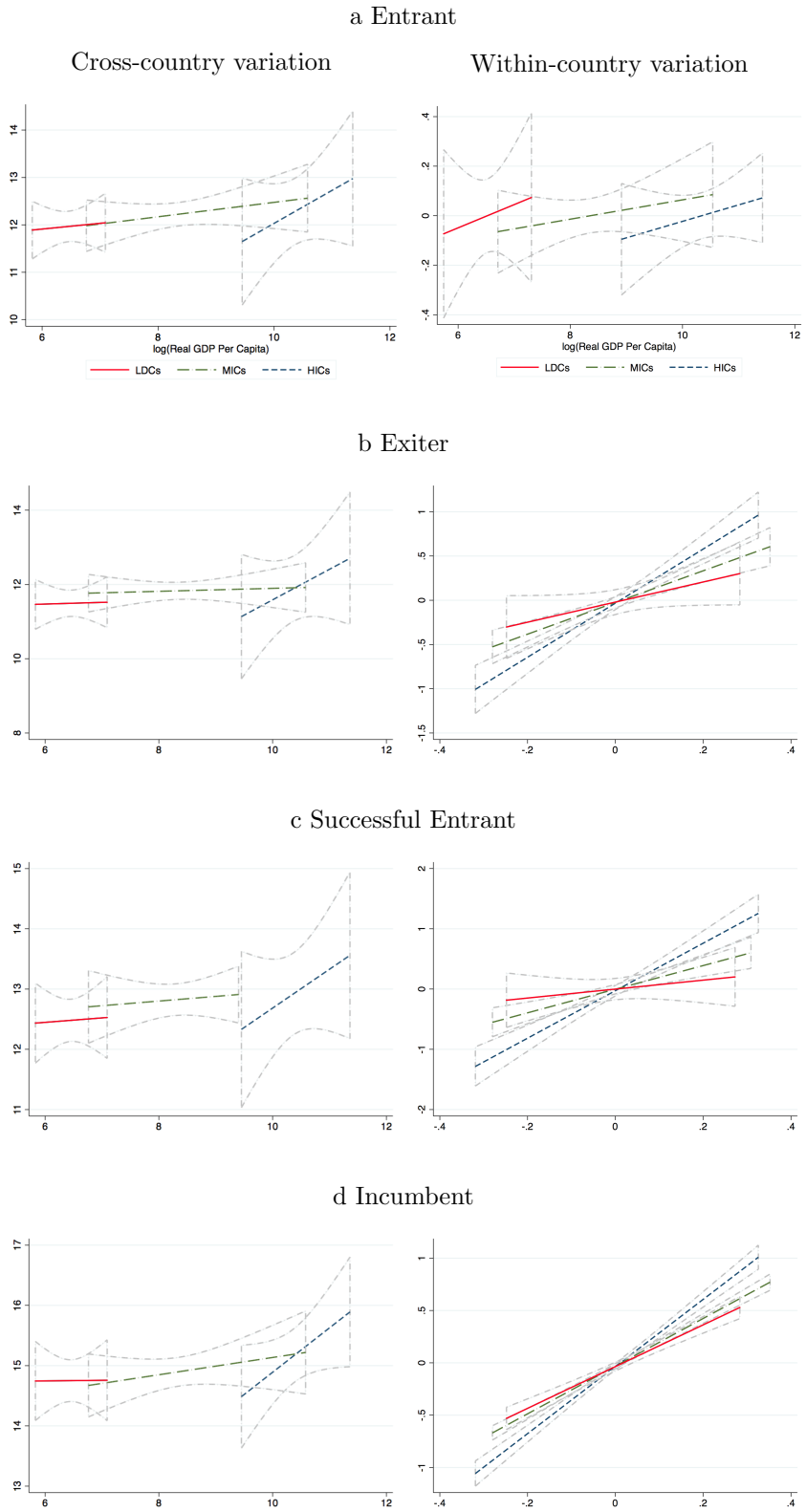
Appendix A

Figure A.1: Average Exporter Size by Firm type

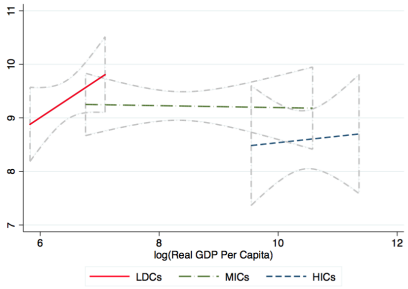


Note: For the cross-country figures (the left hand side) we first create a country's average for the variable and then correlate this average with each country's average GDP per capita, and for the within-country figures (the right hand side) we subtract from each observation the country average for the same variable and then correlate these observations with the demeaned GDP per capita. All variables are in logs.

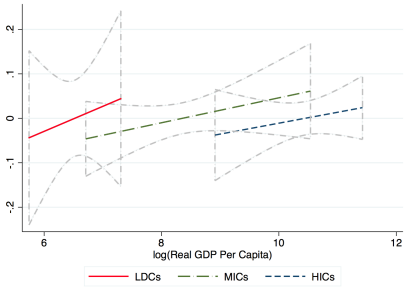
Figure A.3: Median Exporter Size

a Entrant

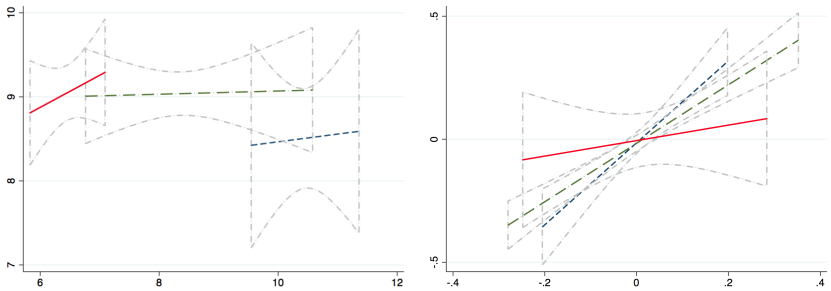
Cross-country variation



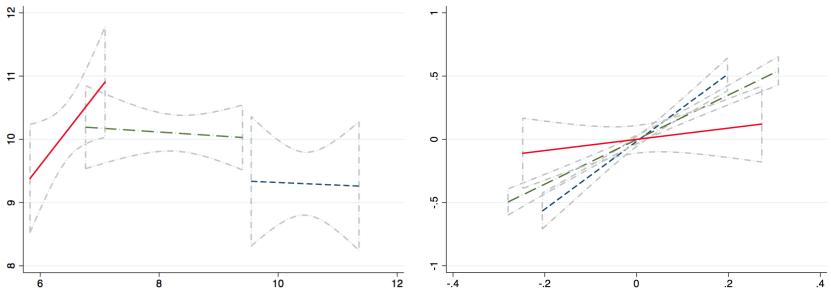
Within-country variation



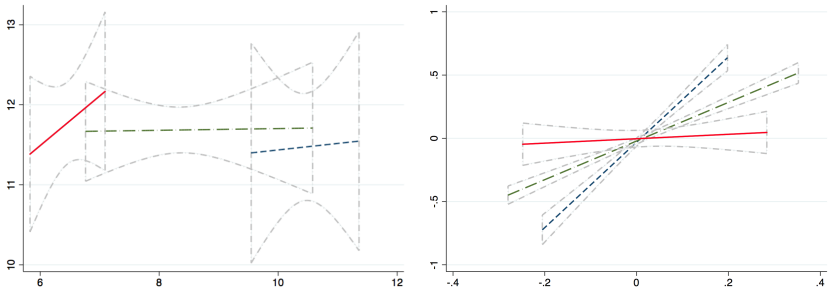
b Exiter



c Successful Entrant



d Incumbent



Note: For the cross-country figures (the left hand side) we first create a country's average for the variable and then correlate this average with each country's average GDP per capita, and for the within-country figures (the right hand side) we subtract from each observation the country average for the same variable and then correlate these observations with the demeaned GDP per capita. All variables are in logs.

Table A.1: Countries by Income Category

Country	Code	First year	Last year	Country	Code	First year	Last year
Least Developed Countries (LDCs)							
Burkina Faso	BFA	2005	2012	Niger	NER	2008	2010
Bangladesh	BGD	2005	2014	Nepal	NPL	2011	2014
Ethiopia	ETH	2008	2012	Rwanda	RWA	2001	2012
Guinea	GIN	2009	2012	Senegal	SEN	2000	2012
Cambodia	KHM	2000	2009	Sao Tome and Principe	STP	2014	2014
Lao PDR	LAO	2006	2010	Timor-Leste	TLS	2006	2012
Madagascar	MDG	2007	2012	Tanzania	TZA	2003	2012
Mali	MLI	2005	2008	Uganda	UGA	2000	2010
Myanmar	MMR	2011	2013	Yemen, Rep.	YEM	2008	2012
Malawi	MWI	2006	2012	Zambia	ZMB	1999	2011
Middle Income Countries (MICs)							
Albania	ALB	2004	2012	Kyrgyz Republic	KGZ	2006	2012
Bulgaria	BGR	2001	2006	Kuwait	KWT	2009	2010
Bolivia	BOL	2006	2012	Lebanon	LBN	2008	2012
Brazil	BRA	1997	2014	Sri Lanka	LKA	2013	2013
Botswana	BWA	2003	2013	Morocco	MAR	2002	2013
Chile	CHL	2003	2012	Mexico	MEX	2000	2012
Cote d'Ivoire	CIV	2009	2012	Macedonia, FYR	MKD	2001	2010
Cameroon	CMR	1997	2013	Mauritius	MUS	2002	2012
Colombia	COL	2007	2013	Nicaragua	NIC	2002	2014
Costa Rica	CRI	1998	2012	Pakistan	PAK	2002	2010
Dominican Republic	DOM	2002	2014	Peru	PER	1997	2013
Ecuador	ECU	2002	2014	Paraguay	PRY	2007	2012
Egypt, Arab Rep.	EGY	2006	2012	Romania	ROU	2005	2011
Gabon	GAB	2002	2008	El Salvador	SLV	2002	2009
Georgia	GEO	2003	2012	Swaziland	SWZ	2012	2012
Guatemala	GTM	2005	2013	Thailand	THA	2012	2014
Iran, Islamic Rep.	IRN	2006	2010	Turkey	TUR	2002	2013
Jordan	JOR	2003	2012	Uruguay	URY	2001	2012
Kenya	KEN	2006	2014	South Africa	ZAF	2001	2012
High Income Countries (HICs)							
Belgium	BEL	1997	2013	Norway	NOR	1997	2014
Germany	DEU	2009	2012	New Zealand	NZL	1999	2010
Denmark	DNK	2001	2012	Portugal	PRT	1997	2012
Spain	ESP	2005	2014	Slovenia	SVN	1997	2011
Estonia	EST	1997	2011	Sweden	SWE	1997	2006
Croatia	HRV	2007	2012				

The classifications are available at these links: LDC classifications and High-Income Country classifications. Countries that are neither in the LDC and HIC categories are classified as middle-income countries. Country classification is based on classification in the last year of data availability.

Table A.2: The Margins of Trade: All Variables

Dep. Var.⇒	ln(Exp)	ln(exporters)	ln(mean)	ln(median)	ln(entrant)	Top 5%	Top 1%	HHI
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
LDC*ln($RGDP_{PC}$)	2.07***	1.40***	0.67**	-0.17	0.45	0.09	0.15	-0.12*
	(0.58)	(0.46)	(0.31)	(0.69)	(0.92)	(0.06)	(0.09)	(0.07)
MIC*ln($RGDP_{PC}$)	1.05***	-0.01	1.06***	1.47***	1.49***	0.00	0.02	0.01
	(0.32)	(0.22)	(0.27)	(0.44)	(0.55)	(0.02)	(0.06)	(0.02)
HIC*ln($RGDP_{PC}$)	0.79**	-0.80**	1.60***	2.35**	3.59***	-0.14**	-0.43***	-0.04
	(0.37)	(0.32)	(0.22)	(0.99)	(0.48)	(0.06)	(0.08)	(0.02)
Country fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num. of obs.	623	623	623	608	540	602	615	623
Num. of clusters	69	69	69	68	66	68	67	69
Adjusted R2	0.795	0.431	0.715	0.308	0.142	0.223	0.244	0.053

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; robust standard errors, cluster at the country-destination level, shown in parenthesis. GDP per person is in 2010 US dollars. MIC equals 1 if the country is a middle income country and HIC equals 1 if the country is a high income country; $LDCs$ are the omitted group where relevant. The mean here is average exports per firm and the entrant is average export per entering firm.

Table A.3: The Intensive Margin of Exports: Country-Destination Data

Dep. Var.⇒	ln(avg. exports per firm)			ln(avg. exp. per firm): Median			ln(avg. exp. per firm): Entrant		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ln($RGDP_{PC}$)	0.15***	0.80***	0.91***	-0.04***	0.43***	0.25*	-0.08***	0.37***	-0.05
	(0.00)	(0.08)	(0.15)	(0.00)	(0.08)	(0.15)	(0.00)	(0.09)	(0.17)
MIC*ln($RGDP_{PC}$)			-0.25			0.29*			0.64***
			(0.17)			(0.16)			(0.18)
HIC*ln($RGDP_{PC}$)			0.69***			2.60***			3.74***
			(0.21)			(0.25)			(0.30)
Country-Dest FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num. of obs.	73,050	73,050	73,050	70,106	70,106	70,106	60,981	60,981	60,981
Num. of clusters		9,848	9,848		9,550	9,550		9,143	9,143
Adjusted R^2	0.031	0.100	0.101	0.018	0.021	0.025	0.021	0.006	0.010

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; robust standard errors, cluster at the country-destination level, shown in parenthesis. GDP per person is in 2010 US dollars. MIC equals 1 if the country is a middle income country and HIC equals 1 if the country is a high income country; $LDCs$ are the omitted group where relevant.

Table A.4: Export Concentration: Country-Destination Data

Dep. Var.⇒	Share of top 5%			Share of top 1%			Herfindahl-Hirschman Index		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ln($RGDP_{PC}$)	0.04***	0.03	0.01	0.04***	-0.01	-0.01	-0.05***	-0.11***	-0.14***
	(0.00)	(0.02)	(0.03)	(0.00)	(0.02)	(0.04)	(0.00)	(0.01)	(0.02)
MIC*ln($RGDP_{PC}$)			0.02			0.01			0.03
			(0.03)			(0.05)			(0.03)
HIC*ln($RGDP_{PC}$)			-0.19***			-0.30***			0.21***
			(0.05)			(0.07)			(0.04)
Country-Dest FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num. of obs.	40,522	40,522	40,522	22,298	22,298	22,298	73,079	73,079	73,079
Num. of clusters		4,907	4,907		2,575	2,575		9,852	9,852
Adjusted R^2	0.070	0.055	0.057	0.082	0.057	0.062	0.070	0.009	0.010

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; robust standard errors, cluster at the country-destination level, shown in parenthesis. GDP per person is in 2010 US dollars. MIC equals 1 if the country is a middle income country and HIC equals 1 if the country is a high income country; $LDCs$ are the omitted group where relevant.

Table A.5: The Margins of Trade: Controlling for RGDP

Dep. Var.⇒	ln(export value)			ln(num. exporters)			ln(avg. exp. per firm)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ln($RGDP_{PC}$)	0.28***	-0.16	0.58	0.21***	-1.39**	0.33	0.07***	1.23**	0.25
	(0.03)	(0.73)	(0.98)	(0.03)	(0.64)	(0.90)	(0.02)	(0.50)	(0.51)
MIC*ln($RGDP_{PC}$)			-0.63			-1.13**			0.50
			(0.61)			(0.48)			(0.37)
HIC*ln($RGDP_{PC}$)			-0.56			-1.69***			1.13***
			(0.69)			(0.56)			(0.38)
ln(RGDP)	0.90***	1.70**	1.29*	0.69***	1.96***	0.93	0.22***	-0.26	0.37
	(0.02)	(0.77)	(0.70)	(0.03)	(0.68)	(0.62)	(0.02)	(0.53)	(0.47)
Country FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num. of obs.	623	623	623	623	623	623	623	623	623
Num. of clusters		69	69		69	69		69	69
Adjusted R^2	0.894	0.798	0.801	0.830	0.374	0.448	0.370	0.708	0.715

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; robust standard errors, cluster at the country level, shown in parenthesis. Both GDP per person and GDP are in 2010 US dollars. MIC equals 1 if the country is a middle income country and HIC equals 1 if the country is a high income country; $LDCs$ are the omitted group where relevant.

Table A.6: The Intensive Margin of Exports: Controlling for RGDP

Dep. Var.⇒	ln(avg. exports per firm)			ln(avg. exp. per firm): Median			ln(avg. exp. per firm): Entrant		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ln($RGDP_{PC}$)	0.07***	1.23**	0.25	-0.20***	1.31	-1.33	-0.04	2.67*	-0.12
	(0.02)	(0.50)	(0.51)	(0.04)	(1.03)	(1.36)	(0.03)	(1.35)	(1.58)
MIC*ln($RGDP_{PC}$)			0.50			1.96**			1.19
			(0.37)			(0.80)			(1.03)
HIC*ln($RGDP_{PC}$)			1.13***			3.19***			3.41***
			(0.38)			(1.14)			(1.21)
ln(RGDP)	0.22***	-0.26	0.37	0.25***	-0.62	1.02	0.24***	-1.27	0.48
	(0.02)	(0.53)	(0.47)	(0.03)	(1.12)	(0.91)	(0.03)	(1.27)	(0.99)
Country FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num. of obs.	623	623	623	608	608	608	540	540	540
Num. of clusters		69	69		68	68		66	66
Adjusted R^2	0.370	0.708	0.715	0.144	0.252	0.313	0.204	0.125	0.141

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; robust standard errors, cluster at the country level, shown in parenthesis. Both GDP per person and GDP are in 2010 US dollars. MIC equals 1 if the country is a middle income country and HIC equals 1 if the country is a high income country; $LDCs$ are the omitted group where relevant.

Table A.7: Export Concentration: Controlling for RGDP

Dep. Var.⇒	Share of top 5%			Share of top 1%			Herfindahl-Hirschman Index		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ln($RGDP_{PC}$)	0.03***	-0.00	0.17	0.04***	-0.23	0.23	0.00	0.07	-0.02
	(0.00)	(0.06)	(0.11)	(0.01)	(0.21)	(0.17)	(0.00)	(0.06)	(0.13)
MIC*ln($RGDP_{PC}$)			-0.11*			-0.15			0.10
			(0.06)			(0.11)			(0.07)
HIC*ln($RGDP_{PC}$)			-0.28***			-0.62***			0.03
			(0.09)			(0.13)			(0.08)
ln(RGDP)	-0.00	0.04	-0.07	0.01	0.25	-0.06	-0.03***	-0.13**	-0.08
	(0.00)	(0.06)	(0.06)	(0.00)	(0.18)	(0.12)	(0.00)	(0.06)	(0.07)
Country FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num. of obs.	602	602	602	615	615	615	623	623	623
Num. of clusters		68	68		67	67		69	69
Adjusted R^2	0.113	0.181	0.228	0.156	0.124	0.244	0.200	0.040	0.057

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; robust standard errors, cluster at the country level, shown in parenthesis. Both GDP per person and GDP are in 2010 US dollars. MIC equals 1 if the country is a middle income country and HIC equals 1 if the country is a high income country; $LDCs$ are the omitted group where relevant.

Table A.8: The Margins of Trade: LDC Alternative

Dep. Var.⇒	ln(export value)			ln(num. exporters)			ln(avg. exp. per firm)		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ln($RGDP_{PC}$)	1.01***	1.42***	1.59***	0.76***	0.44	1.17**	0.24***	0.99***	0.42*
	(0.04)	(0.26)	(0.40)	(0.03)	(0.29)	(0.49)	(0.02)	(0.22)	(0.24)
D2nd*ln($RGDP_{PC}$)			1.99***			0.16			1.83***
			(0.71)			(0.85)			(0.50)
D3rd*ln($RGDP_{PC}$)			-0.15			-0.92*			0.77**
			(0.48)			(0.52)			(0.31)
D4th*ln($RGDP_{PC}$)			-1.10*			-1.22**			0.13
			(0.64)			(0.52)			(0.59)
D5th*ln($RGDP_{PC}$)			-0.59			-1.84***			1.25***
			(0.49)			(0.57)			(0.28)
Country-Dest FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num. of obs.	623	623	623	623	623	623	623	623	623
Num. of clusters		69	69		69	69		69	69
Adjusted R^2	0.548	0.781	0.822	0.506	0.251	0.390	0.254	0.708	0.740

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; robust standard errors, cluster at the country level, shown in parenthesis. GDP per person is in 2010 US dollars. Quintiles are based on real GDP per capita, with the countries with the lowest GDP per capita (*Developed* 1*st*) omitted where relevant.

Table A.9: The Intensive Margin of Exports: LDC Alternative

Dep. Var.⇒	ln(avg. exports per firm)			ln(avg. exp. per firm): Median			ln(avg. exp. per firm): Entrant		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ln($RGDP_{PC}$)	0.24***	0.99***	0.42*	0.01	0.71	0.04	0.15***	1.46**	1.06
	(0.02)	(0.22)	(0.24)	(0.03)	(0.47)	(0.72)	(0.03)	(0.56)	(0.80)
D2nd*ln($RGDP_{PC}$)			1.83***			0.08			-0.98
			(0.50)			(1.47)			(1.74)
D3rd*ln($RGDP_{PC}$)			0.77**			1.51**			0.46
			(0.31)			(0.75)			(0.86)
D4th*ln(($RGDP_{PC}$)			0.13			0.42			-0.57
			(0.59)			(0.81)			(1.14)
D5th*ln($RGDP_{PC}$)			1.25***			1.89*			2.33**
			(0.28)			(1.08)			(0.90)
Country-Dest FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num. of obs.	623	623	623	608	608	608	540	540	540
Num. of clusters		69	69		68	68		66	66
Adjusted R^2	0.254	0.708	0.740	0.041	0.250	0.292	0.100	0.123	0.142

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; robust standard errors, cluster at the country level, shown in parenthesis. GDP per person is in 2010 US dollars. Quintiles are based on real GDP per capita, with the countries with the lowest GDP per capita (*Developed* 1*st*) omitted where relevant.

Table A.10: Export Concentration: LDC Alternative

Dep. Var.⇒	Share of top 5%			Share of top 1%			Herfindahl-Hirschman Index		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
ln($RGDP_{PC}$)	0.03***	0.04	0.08	0.04***	-0.00	0.09	-0.02***	-0.05	-0.11
	(0.00)	(0.03)	(0.07)	(0.00)	(0.08)	(0.07)	(0.00)	(0.04)	(0.07)
D2nd*ln($RGDP_{PC}$)			0.02			0.17			0.04
			(0.07)			(0.14)			(0.11)
D3rd*ln($RGDP_{PC}$)			-0.08			-0.04			0.11
			(0.07)			(0.10)			(0.07)
D4th*ln($RGDP_{PC}$)			-0.08			-0.10			0.07
			(0.07)			(0.09)			(0.09)
D5th*ln($RGDP_{PC}$)			-0.18*			-0.47***			0.07
			(0.09)			(0.12)			(0.07)
Country FE	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num. of obs.	602	602	602	615	615	615	623	623	623
Num. of clusters		68	68		67	67		69	69
Adjusted R^2	0.114	0.180	0.217	0.155	0.099	0.235	0.061	0.025	0.036

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; robust standard errors, cluster at the country level, shown in parenthesis. GDP per person is in 2010 US dollars. Quintiles are based on real GDP per capita, with the countries with the lowest GDP per capita (*Developed* 1*st*) omitted where relevant.

Table A.11: The Margins of Trade: All Variables (excluding the smallest firms)

Dep. Var.⇒	ln(Exp)	ln(exporters)	ln(mean)	ln(median)	ln(entrant)	Top 5%	Top 1%	HHI
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ln(RGDP PC)	2.00***	1.33***	0.68**	-0.13	0.50	0.08	0.19*	-0.11
	(0.58)	(0.43)	(0.33)	(0.60)	(0.88)	(0.06)	(0.10)	(0.07)
MIC*ln(RGDP PC)	-1.05	-1.42***	0.37	1.57**	0.97	-0.08*	-0.15	0.13**
	(0.63)	(0.42)	(0.41)	(0.59)	(0.88)	(0.05)	(0.10)	(0.06)
HIC*ln(RGDP PC)	-1.09	-2.02***	0.93**	0.68	3.05***	-0.12	-0.66***	0.07
	(0.72)	(0.47)	(0.41)	(2.04)	(1.04)	(0.11)	(0.12)	(0.06)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num. of obs.	565	565	565	550	487	543	557	565
Num. of clusters	64	64	64	63	61	62	62	64
Adjusted R^2	0.787	0.507	0.695	0.350	0.133	0.268	0.272	0.054

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; robust standard errors, cluster at the country-destination level, shown in parenthesis. GDP per person is in 2010 US dollars. MIC equals 1 if the country is a middle income country and HIC equals 1 if the country is a high income country; $LDCs$ are the omitted group where relevant. Firms exporting less than $1,000 in export value are excluded.

Table A.12: The Margins of Trade: All Variables (Non-Linear Regression)

Dep. Var.⇒	ln(Exp)	ln(exporters)	ln(mean)	ln(median)	ln(entrant)	Top 5%	Top 1%	HHI
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ln(RGDP PC)	4.67***	4.77***	-0.11	-2.78	-2.28	0.39**	0.85**	-0.22
	(1.72)	(1.44)	(1.09)	(2.24)	(2.94)	(0.18)	(0.35)	(0.15)
ln(RGDP PC)^2	-0.21**	-0.28***	0.07	0.23	0.24	-0.02**	-0.05**	0.01
	(0.10)	(0.09)	(0.07)	(0.14)	(0.18)	(0.01)	(0.02)	(0.01)
Country Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Num. of obs.	623	623	623	608	540	602	615	623
Num. of clusters	69	69	69	68	66	68	67	69
Adjusted R^2	0.796	0.393	0.710	0.276	0.129	0.222	0.171	0.031

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; robust standard errors, cluster at the country-destination level, shown in parenthesis. GDP per person is in 2010 US dollars.