Exporters During the Trade Collapse: The (Surprising) Resiliency of the Small Exporter

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How did small exporters fare relative to large exporters during the 2008-09 crisis? Examining the performance of Mexican exporters reveals that crisis did not make smaller exporters more likely to exit, grow less, or expand their product line less. Workhorse models of trade, in response to an aggregate demand or credit shock, would predict the opposite. The same models, however, are consistent with the data before and after the crisis: within industry, (i) firm exit rate is decreasing in size; (ii) conditional on survival, export growth is largely decreasing in size, (iii) net product addition is increasing in size.

JEL Codes: F11, F15

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1 Introduction

The trade collapse/crisis of 2008-2009 has led to extensive research, both, theoretical and empirical, into the cause(s) of the collapse.[1] Most of the literature, understandably, has focused on the issue of explaining the large decline in aggregate trade, with a focus on two main explanations - decline in aggregate demand and an aggregate credit shock.[2] In this paper, we look at the trade collapse from a different perspective and ask the following question: Is the pattern observed in the margins of trade adjustment during the crisis period relative to pre and post-crisis periods consistent with the predictions of the current workhorse models of trade when combined with an aggregate shock (to demand or credit supply)?

Drawing on the Mexican customs data for transactions with the United States (U.S.) during the period 2004-2010, we study how the margins of adjustment at the level of individual exporters and the products they exported behaved during the trade crisis of 2008-09, and importantly, then compare it to the patterns observed in the pre-crisis and post-crisis period.[3] We find that the pattern of pre-crisis as well as post-crisis correlation of firm size with

[1] World trade flows declined by about 12 percent during 2008-09 according to the World Trade Organization (WTO).

[2] Vertical supply chains may have an amplification effect. See Bems, Johnson and Yi (2012) for a survey of the trade collapse literature.

[3] Mexico provides a good setting to study the trade collapse because most of the factors pointed out in the trade collapse literature - demand collapse, financial consraints and disruption of supply chains - are important in Mexico. Mexico relies largely on the US market for its exports, which was the origin of the financial crisis. Mexico has a weak financial system (see Hanson (2010) for drawbacks of the Mexican financial system). A large fraction of Mexico's exports are due to Maquiladora trade, which captures supply chains.

firm exit, growth in exports and net product addition is consistent with a large body of work, both empirical and theoretical, on firm level heterogeneity and international trade.[4] However, we also find that the crisis did not make smaller exporters more likely to exit, grow less, or expand less their product line, and this is at odds with the chief mechanism(s) highlighted in the literature combined with an aggregate shock.

Starting with firm exit (firm-level extensive margin), we find that firm exit rate is decreasing in size in all periods.[5] Importantly, the probability of exit of exporters relative to the top size decile of exporters is stable across the pre-crisis, crisis and post-crisis periods, even after controlling for industry fixed effects. Thus, smaller firms did not become more likely to exit during the crisis.

Second, while growth in sales of exporters (firm-level intensive margin) is decreasing in the size of exporters in all three periods, sales do not contract for exporters of all size categories during the crisis. It is only the larger exporters who suffer a contraction in their exports. After controlling for industry fixed effects, conditional on survival, export growth of firms smaller than the median exporter relative to the top decile is significantly higher in both pre-crisis and recovery period, and this pattern is stable even during the crisis period. The within industry analysis also reveals that exporters in the top decile exhibit better export growth relative to exporters of intermediate size (between median and top decile), except during the crisis when their export performance is not (statistically) different from the top decile. Thus, during the pre and post-crisis

[4]Throughout the paper, we define exit as exit from the U.S. market or exit from a particular industry of the U.S market. Given the data constraint, we cannot observe whether firms exit from the market altogether.

[5]Size of an exporter is proxied by the total sales in the initial year of a period.

periods export growth is declining in size, but not monotonically. Instead, it is a u-shaped pattern.[6]

Third, the probability of increasing the number of products (within firm-product level extensive margin) relative to that of the exporters in the top decile is monotonically increasing in size in all three periods, and remains stable during the crisis period.

Ignoring the effect of size and decomposing aggregate exports into extensive and intensive margin changes confirms that the intensive margin drives the majority of changes in exports - both at the firm and the firm-product level. This is consistent with the findings of other firm level studies - Bricongne et al. (2012) (for French exporters) and Behrens, Corcos and Mion (Forthcoming) (for Belgian exporters). Importantly, unlike us, they do not compare their findings from the crisis period with those from the pre or post-crisis periods to assess whether the behavior of margins of adjustment for small versus large firms was different in the crisis period as compared to other periods.

The pattern of pre-crisis correlation of firm size with firm exit, growth in exports and product line is consistent with a large body of work, both empirical and theoretical, on firm-level heterogeneity in international trade. The decline in exit probabality with the size of exporters is consistent with the self selection of more productive firms into becoming exporters, as emphasized in Melitz (2003) and Bernard et al. (2003).[7] Arkolakis (2010) explains the negative relationship between export growth and size by replacing the fixed

[6]We are not aware of a theoretical model that predicts this type of a export growth pattern.

[7]See Clerides, Lach and Tybout (1998) (for Mexico, Colombia and Morocco), Bernard and Jensen (1999) (for U.S.), and Aw, Chung and Roberts (2000) (for Taiwan) for emprical evidence.

cost of exporting in the Melitz/Chaney model with an increasing marginal cost of reaching additional consumers in destination markets.[8] Lastly, the increase in number of products exported with size can be generated in a multi-product generalization of the Melitz framework as done in Bernard, Redding and Schott (2011), Bernard, Redding and Schott (2010), Mayer, Melitz and Ottaviano (2011), and Arkolakis and Muendler (2011). The larger more productive firms can profitably export more products.

However, the finding that the crisis did not make smaller exporters more likely to exit, grow less, or expand less their product line is at odds with the combination of the self selection of most productive firms into exporting and an aggregate shock.

In case of a sharp reduction in aggregate demand (emphasized by Eaton et al. (2010) and Behrens, Corcos and Mion (Forthcoming)) average sales and profit margins diminish, and the least productive firms shrink and are most likely to exit the market altogether. Larger, more productive, firms are more likely to survive by contracting profit margins. Among the surviving firms, the same mechanism will also cause the export sales of smaller exporters to fall relative to larger exporters.[9] These predictions are inconsistent with our findings.

Eaton et al. (2010) also emphasize the heterogeneity in demand shock across industry type - durable versus non-durable. They find that the collapse

[8]Constant elasticity of substitution in Melitz model implies export growth is identical for all exporters. See Eaton et al. (2007) and Kehoe and Ruhl (2003) for similar findings on size and export growth.

[9]In Arkolakis (2010) the elasticity of sales with respect to destination market wage is positive and decreasing in productivity. Thus, a negative shock to the destination market wage reduces the sales of less productive smaller exporters more than the sales of more productive larger exporters.

in demand for durables was the most important factor behind the collapse. Accounting for this heterogeneity in the degree of durability at the industry level does not alter our findings.

The interaction between credit constraints and firm heterogeneity is also going to cause the smaller and less productive firms to be more affected by credit restrictions as a result of their size or lack of sufficient collateral and/or credit guarantees (Greenaway, Guariglia and Kneller (2007), Muuls (2008), and Manova (2008)). But, due to the lack of firm-level data on credit constraints most of the empirical work uses sector level measures of credit dependence and focuses on implications for aggregate exports. For example, Chor and Manova (2012) and Iacovone and Zavacka (2009).[10] Our findings are robust to the inclusion of a measure of heterogeneity in financial dependence at industry level (as developed in Rajan and Zingales (1998)).

Lastly, we investigate the role of differences in the degree of vertical supply chain integration (at firm-level). Bems, Johnson and Yi (2011*b*), Alessandria, Kaboski and Midrigan (2010) and Levchenko, Lewis and Tesar (2010) emphasize the amplifying role of global production chains and inventory adjustment. We find that heterogeneity in vertical supply chain integration does not alter or explain our finding.

In fact, we find that larger firms saw a greater percentage increase in exit rates in industries that were characterized as durable or financially dependent

[10]There are a few studies that use firm-level data, but they also do not investigate the issue of the differential impact of tighter credit conditions on exporters of different sizes within an economy or within sectors in an economy. For instance, Bricongne et al. (2012) for France and Paravisini et al. (2011) for Peru. Amiti and Weinstein (2011) use matched firm-bank data from Japan to show that banks transmitted financial shocks to exporters during the systemic crisis that plagued Japan in the 1990s.

during the post-crisis period. [11]

To sum up, while the workhorse models of trade are consistent with the data in the pre and post-crisis periods, their predictions under an aggregate shock for the crisis period are inconsistent with the data as we do not find any evidence of relatively poor performance of small exporters.

One way to explain our findings is by incorporating, in the models, another dimension of heterogeneity at the level of firms. For example, Holmes and Stevens (2012) posit that industries consist of large firms producing standardized goods and small firms making custom goods. The crisis could have affected the standardized goods more than custom goods, and hence affected larger firms more than smaller firms. Another example could be where within industries larger firms are more connected to international financial market and thus more affected by the credit crunch resulting from the financial crisis.

The contribution of our paper lies in exploiting the rich micro structure of the current workhorse models of trade and mapping it to the data, in the context of the 2008-09 trade collapse. The literature on trade collpase has used these models, directly or indirectly, largely to understand the aggregate decline in trade and not the adjustment behavior of different sized firms.[12] In a more general context, we investigate the response of individual exporters to a large negative aggregate shock. In contrast a vast body of empirical work uses

[11] Also true for industries characterized as differentiated. We examine the importance of differences in the degree of differentiation (at industry level). Although we do not find any support for its role in explaining our main finding, the u-shaped relationship of export growth with size is largely due to the relative performance of firms in differentiated industries. Results are shown in the Appendix A.3. See Levchenko, Lewis and Tesar (2011) and Gopinath, Itskhoki and Neiman (2011) for role of product differentiation during the crisis.

[12] Gopinath and Neiman (2011) look at response of different sized importers to an aggregate shock.

firm-level trade data to examine the behavior of individual exporters during episodes of trade liberalizations or decline in trade costs.

The rest of the paper is organized as follows. The next section discusses the data and its basic features. This is followed, in section 3, by the decomposition of Mexican exports into intensive and extensive margin changes, ignoring the role of firm size. Section 4 discusses the intensive and extensive margin adjustment by firm size. In section 5, we juxtapose our findings with the theory and explore importance of heterogeneity in demand collapse, credit constraints, and vertical supply chain integration. Section 6 concludes.

2 Data

The data we use for our analysis are administrative records of the Mexican customs agency on every transaction crossing the Mexican border. Prior to carrying out an international transaction, Mexican exporters and importers must fill out a customs form, called a pedimento aduanal in Spanish, on which they report the total value of the shipment (in US dollars), the products' tariff classification code[13], the price and the quantity of the products, the destination/origin country, as well as information on Mexican importers themselves such as to their name, tax payer id and address.

We use data from July 2004 to June 2010. From the original transaction-level data, we, first, aggregate up to monthly firm-product level exports and then cut monthly firm-product level exports whose value is less than 2000 USD

[13]The code is 8-digit and the first 6-digit is same as the HS code. There is a classification change in July 2007 due to the change in the HS from HS 2002 to HS 2007. We used the concordance between them to create a unified classification that can be applied to both before and after the classification change. The concordance to our own classification is available upon request. The results of our analysis do not change if we use the actual classification as the product category.

in order to focus on not-one-time exporters.[14] Furthermore, we restrict the sample to exports to the U.S.. The U.S. accounted for more than 80 percent of Mexican exports during this period.[15] Then, the data are aggregated up to a yearly level. One year in our analysis starts with July of one year and ends in June of next year.[16]

The period 2007-08 to 2008-09 is the crisis period. We think of the three periods before the crisis period as 'normal', and use them as benchmarks for comparison. We will refer to these as the pre-crisis periods. The period after the crisis period is the recovery period or the post-crisis period. Basic features of the data are presented in detail in the Appendix.

3 Crisis and Margins of Adjustment

The effect of the crisis on the Mexican economy was quite severe. Between the second quarter of 2008 and the first quarter of 2009 real exports declined by 27 percent while real imports declined by 29 percent. [17] Figure 1 shows the merchandise exports and imports for Mexico from January 2006 to August 2010. The largest drop in both imports and exports took place between July

[14]This significantly reduces the number of exporter-product pairs, but none of the results of our analysis change if we use the whole sample. The U.S. custom also uses the cutoff of 2000 USD to distinguish between small and non-small shipment, and the latter type of shipment is examined with more care.

[15]We constructed our own exporter ID, taking into account the misspelling of tax payer ID, name and address. The procedure is available from the authors. The results do not change if we use tax payer id as it is as the firm ID.

[16]We also conduct our analysis at a half yearly frequency. The first half (H1) of a year covers the months from January to June, and the second half (H2) of a year covers July to December. The results at half yearly frequency are consistent with the yearly results.

[17]Data are expressed in constant 2003 Mexican Pesos and come from the Sistema de Cuentas Nacionales de Mexico, Instituto Nacional de Estadística y Geografía (INEGI).

2008 and January 2009. During this period the value of exports fell by 45% whereas the value of imports fell by 42%.

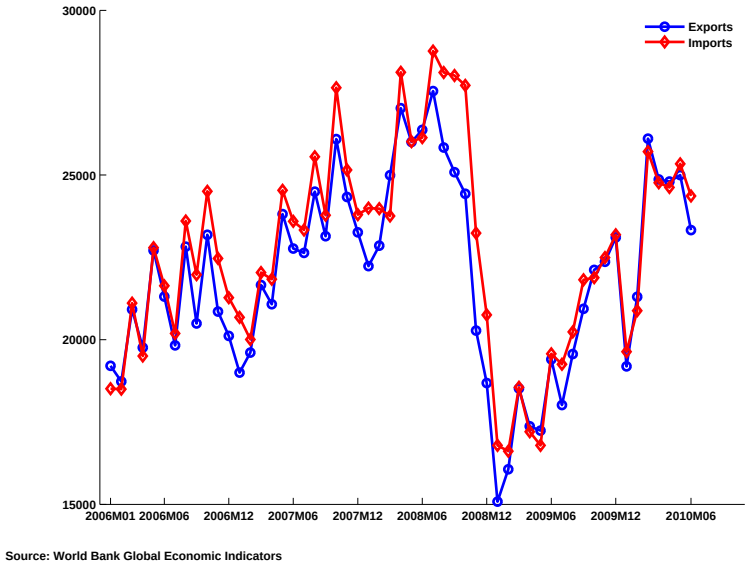

Figure 1: Merchandise exports and imports of Mexico (current US $, million)

3.1 Margins of Adjustment at Exporter-Product Level

We start by looking at the margins of adjustment of Mexican exports at the level of individual exporters and their products. Between any two time periods - t and $t-1$, we segment the total population of exporting firms and their products into (a) stayers or survivors (present in both time periods), (b) exiters (present in $t-1$ but not in t, and (c) new entrants (present in t but not in $t-1$). So, the change in the value of exports can be written as

$$
\begin{aligned}
\frac{X_t - X_{t-1}}{X_{t-1}} = & \underbrace{\sum_{i \in \Omega_{t-1} \bigcap \Omega_t} \sum_{p \in \Psi_{i,t-1} \bigcap \Psi_{i,t}} \frac{X_{p,i,t} - X_{p,i,t-1}}{X_{t-1}}}_{\text{sub-intensive margin}} \\
& + \underbrace{\sum_{i \in \Omega_{t-1} \bigcap \Omega_t} \left[\sum_{p \in \Psi_{i,t}, p \notin \Psi_{i,t-1}} \frac{X_{p,i,t}}{X_{t-1}} - \sum_{p \in \Psi_{i,t-1}, p \notin \Psi_{i,t}} \frac{X_{p,i,t-1}}{X_{t-1}} \right]}_{\text{sub-extensive margin}} \\
& + \underbrace{\sum_{i \in \Omega_t, i \notin \Omega_{t-1}} \frac{X_{i,t}}{X_{t-1}} - \sum_{i \in \Omega_{t-1}, i \notin \Omega_t} \frac{X_{i,t-1}}{X_{t-1}}}_{\text{extensive margin}} \quad ,
\end{aligned} \tag{3.1}
$$

where $X_{i,t}$ is exports of firm i at time t, $X_{p,i,t}$ is exports for product p by firm i at time t, Ω_t is the set of exporting firms at time t, $\Psi_{i,t}$ is the set of products exported by firm i at time t, and $X_t = \sum_{i \in \Omega_t} X_{i,t}$ is the total exports at time t.

The change in aggregate exports has three components. First, changes in trade volume for stayer products of stayer firms; this is called the sub-intensive margin and it is the first term on the right-hand side in the equation above. The second component is the sum of the second and third term in square bracket - changes in trade volume brought about due to the adding (new entrants) and dropping (exiters) of products by stayer firms. This is called the sub-extensive margin, and it captures the effect of changes in product scope of continuing exporters on the export volume. Lastly, changes in trade volume due to exit and entry of firms is called the extensive margin. Note that changes in extensive margin also involve products, but exit of a firm will imply exit of all the products it exports, and similarly entry of a new firm will imply entry of all products that it exports. Therefore, extensive margin changes are only expressed at the firm level. This also reflects the fact that the firm makes the decisions to enter/exit/stay as well as which products to export.

Table 1: Extensive and intensive margin of exports: firm and product level (in percent)

Type of firm	Type of Product	2004/05-2005/06	2005/06-2006/07	2006/07-2007/08	2007/08-2008/09	2008/09-2009/10
Stayer	All	9.24	10.41	7.11	-16.70	8.16
	Stayers	8.09	9.13	2.90	-13.96	8.62
	Exiters	-3.16	-2.19	-3.31	-5.08	-3.48
	New Entrants	4.31	3.47	7.51	2.34	3.01
	Entry plus Exit	1.16	1.28	4.20	-2.74	-0.47
Exiters	Exiters	-2.01	-1.53	-0.59	-0.63	-0.69
New Entrants	New Entrants	1.01	1.38	1.27	2.05	1.60
Growth in Exports		8.24	10.26	7.78	-15.28	9.06

Table 1 shows the decomposition in (3.1). The row for 'All' products simply gives us the intensive margin adjustment at the firm level by ignoring entry and exit of products. This is then broken down into sub-intensive margin and sub-extensive margin. Sub-intensive margin is reflected in the numbers for the combination of stayer firms and stayer products. Sub-extenisve margin is the sum of two combinations - stayer firms and new entrant products and stayer firms and exiter products. This is shown in the row for 'Entry plus Exit'. Comparing the two, we find that the decline in exports during the crisis period was largely due to the decline in sub-intensive margin. The pre-crisis periods also show the same picture, though in a positive direction. Again, the growth in exports in the recovery period is due to the growth in the sub-intensive margin. While the net effect of changes in product scope is negative during the crisis period, it is small compared to the effect of sub-intensive margin changes.

This is consistent with the findings of other firm level studies - Bricongne et al. (2012) (for French exporters) and Behrens, Corcos and Mion (Forthcom-

ing) (for Belgian exporters). Importantly, unlike us, they do not compare their findings from the crisis period with those from the pre or post-crisis periods to assess whether the behavior of margins of adjustment for small versus large firms was different in the crisis period as compared to other periods. The importance of intensive margin in the pre-crisis periods is also consistent with other studies, such as Bernard et al. (2009).

4 Margins of Adjustment by Size of Exporter

Our analysis so far confirms the basic finding of many studies regarding the trade adjustment in the 2008 crisis - decline in trade was driven by intensive margin adjustment. The growth in intensive margin during the recovery period bolsters the importance of intensive margin adjustment further. However, the literature has not investigated if the dominance of intensive margin adjustment holds when one looks at exporters of different types. To be specific, in this section we investigate whether exporters of different sizes adjusted differently during the crisis period as compared to pre-crisis amd post-crisis period.

We focus on (i) probability of firm exit, (ii) probability of (net) product addition, and (iii) growth in sales during the pre-crisis, crisis and post-crisis periods for firms of different sizes. Recent literature on firm-level heterogeneity and trade finds evidence that more productive firms self-select into becoming exporters, and they are bigger in size - have greater export sales and employment.[18] Chaney (2008) and Bernard et al. (2003) show that models with firm-level heterogeneity in productivity, fixed costs of exporting, and variable iceberg costs of exporting can replicate the size distribution of firms very well. Since we do not have data on firm characterestics like output and employment,

[18]See Clerides, Lach and Tybout (1998) (for Mexico, Colombia and Morocco), Bernard and Jensen (1999) (for U.S.), and Aw, Chung and Roberts (2000) (for Taiwan and Korea).

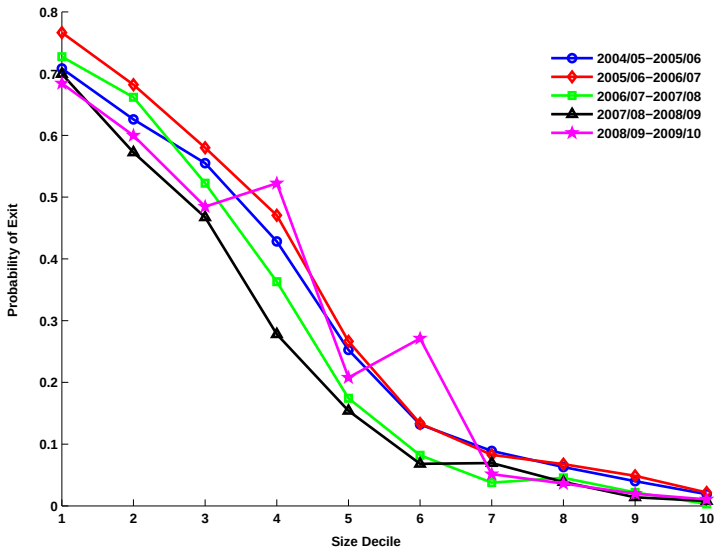

Figure 2: Probability of Firm Exit by Size

value of exports of a firm in year $t-1$ is taken as a proxy for size of the firm for a given period.

4.1 Firm Exit

Figure 2 shows the exit probabilities by firm size for the three pre-crisis periods, the crisis period and the post-crisis period. The first thing to note is that for every period the exit probaility is declining in size of the firm. This is consistent with models of trade that emphasize that more productive larger firms are able to pay the sunk costs of entry into export markets and remain profitable. Therefore, they face a lower probability of exit. Comparing the exit probabilities across different time periods, we find that firm exit probabilities did not exhibit any significant change during the crisis period as compared to pre and post-crisis periods for any size category. In particular, the exit probabilities for smaller firms do not increase during the crisis period.

In order to control for industry specific effects and their interaction with

firm size we use the following parsimonious econometric specification

$$E_{ij,t,t-1} = \beta_0 + \sum_{1}^{9} \beta_k k_{th}\, Decile_{ij,t-1} + \mu_j + \epsilon_{ij,t} \quad , \tag{4.1}$$

where i, j and t index exporters, industries (HS chapter, which is the first two digits of the HS product code), and years, respectively; E_{ij} the dummy for exit; $k_{th}\, Decile_{ij}$ is a dummy variable indicating whether firm i's export revenue in industry j is in the k-th decile within industry j; and μ_j is an industry fixed effect.[19] The omitted category for $k_{th}\, Decile_{ij}$ is the last decile: the top 10 percent exporters. Therefore, β_k reveals exit probability of the exporters in the k-th decile compared to the top decile of exporters within industries.

Table 2 (in the Appendix) shows the result for exporters' exit from the U.S. market (in a certain industry). Each column shows the result from the same regression but for a different period. Columns (1)(2)(3), which correspond to the results from the three pre-crisis periods, show that the coefficient on k_{th} decile (bottom $k * 10\%$ exporters) is higher than that of $k + 1_{th}$ decile. This suggests the exit probability is monotonically decreasing in size within industries.[20] The pattern is similar across all three periods. Does the trade crisis make smaller exporters even more likely to exit from the export market? Column (4) shows the result for the trade crisis period. The comparison between Column (4) and other columns suggests that the patterns are remarkably similar for these two types of the period. Column (5) shows the result for the recovery period, which again looks similar. The trade crisis, therefore, did not make smaller exporters more likely to exit from the export market as

[19] This means that firms may not necessarily be exiting altogether from the U.S. market in case firms export in more than one HS chapter.

[20] This is also consistent with the literature on industry dynamics. For example, see Klette and Kortum (2004).

compared to the pre and post-crisis periods.

Table 2: Regression (Probit analysis) of Exit on Relative Size of Exporters

	(1)	(2)	(3)	(4)	(5)
Dependent Variable			Exit in the next period		
Initial Year	2004/05-	2005/06-	2006/07-	2007/08-	2008/09-
Final Year	2005/06	2006/07	2007/08	2008/09	2009/10
Type of Period	Normal	Normal	Normal	Crisis	Recovery
bottom10	0.71***	0.72***	0.74***	0.71***	0.73***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom20	0.69***	0.69***	0.71***	0.69***	0.71***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom30	0.65***	0.66***	0.67***	0.64***	0.67***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom40	0.60***	0.59***	0.62***	0.59***	0.61***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom50	0.56***	0.55***	0.55***	0.51***	0.56***
	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)
bottom60	0.46***	0.45***	0.46***	0.42***	0.48***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
bottom70	0.37***	0.36***	0.36***	0.34***	0.39***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
bottom80	0.27***	0.27***	0.26***	0.25***	0.27***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
bottom90	0.14***	0.13***	0.16***	0.13***	0.17***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
N	28518	28574	27940	28418	28697

The table reports coefficients on decile dummies from exporter-industry-level probit analysis of the exit from U.S. market on these decile dummies, industry fixed effects. The omitted category is the 10th decile, so each coefficient reveals the relative performance of the exporters in the k-th compared to the top 10% exporters within industries. Robust standard errors in parentheses. Significance: * 10 percent, ** 5 percent, *** 1 percent.

4.2 Export Growth

Now, we analyze the growth in exports of firms of different sizes between two years in a period. Table 3 shows the exports in year t relative to year $t-1$ by size (in year $t-1$) for the three pre-crisis periods, the crisis period and the post-crisis period. Growth in exports is declining in size in all time periods. What stands out is the performance of firms of different sizes during the crisis period. The smaller firms - bottom 60 percent - continued to expand their exports even during the crisis, and the effect of the crisis is seen largely on the

Table 3: Growth in Exports by Size

Size(t-1)	$Exports(t)/Exports(t-1)$				
	2004/05-2005/06	2005/06-2006/07	2006/07-2007/08	2007/08-2008/09	2008/09-2009/10
0-20	35.80	8.63	21.54	11.38	16.66
20-40	4.99	1.96	3.25	2.52	4.63
40-60	1.90	1.31	2.04	1.43	1.53
60-80	1.26	1.28	2.70	1.07	1.21
80-90	1.15	1.08	1.04	0.96	1.02
90-100	1.05	1.08	1.01	0.81	1.07

top 40 percent firms. Even among these firms the brunt of the crisis is felt by the top 10 percent exporters whose sales declined by 19 percent. This implies that the decline in Mexican exports to the United States was due to decline in exports of the largest 10 percent exporters.

We test this finding using the more robust econometric specification

$$\ln X_{ij,t} - \ln X_{ij,t-1} = \beta_0 + \sum_{1}^{9} \beta_k k_{th}\, Decile_{ij,t-1} + \mu_j + \epsilon_{ij,t} \quad . \tag{4.2}$$

$X_{ij,t}$ is the value of exports of firm i in industry j at time t. Table 4 shows the result for the change in the log of exports. Since this variable is defined for only those exporter-industry pairs that survived, the analysis shows that how exporters of different initial relative size grow conditional on survival. Columns (1)(2)(3) reveal an interesting pattern: (i) Smallest exporters are growing at the highest rate; (ii) the growth rate is decreasing in size up to the 7th-9th deciles; (iii) but exporters in the 10th decile (top 10 percent exporters) have a higher growth rate than those next-to-top level exporters. Findings (i)(ii) are consistent again with any model of firm size distribution, but (iii) is not. For example, stylized fact 8 of Klette and Kortum (2004) says "Smaller firms have a lower probability of survival, but those that survive tend to grow faster than

larger firms. Among larger firms, growth rates are unrelated to past growth or to firm size". Arkolakis (2010), on the other hand, predicts a monotonically declining relationship between firm productivity and export growth. Why does export growth exhibit this u-shaped pattern in normal years is left to future research.[21]

Does the trade crisis reduce smaller exporters' export growth? Column (4) shows the result for the crisis period. The comparison between Column (4) and other columns again suggests that patterns (i)(ii) are similar. We see a weaker pattern for (iii): during the crisis period there is no statistically significant difference between the performance of the top 10 percent exporters and the top 20-30 percent exporters. Column (5) shows the results for the post-crisis period, and suggests that the pattern goes back completely to the pre-crisis period. If anything, during the crisis, the growth rate of exports for smaller exporters (bottom 60 percent) relative to exporters in the top decile became slightly higher.

4.3 Likelihood of Product Addition

Next, we examine the likelihood of (net) product addition by exporters. The econometeric specification is

$$P_{ij,t,t-1} = \beta_0 + \sum_{1}^{9} \beta_k k_{th}\, Decile_{ij,t-1} + \mu_j + \epsilon_{ij,t} \quad , \tag{4.3}$$

where P_{ij} the dummy for an increase in the number of products exported. The results are shown in Table 5 (in the Appendix). Columns (1)(2)(3) show that the probability that exporters add new products within the same industry is monotonically increasing in the size in the pre-crisis periods. Does the trade

[21] The analysis by Sutton (2007) on persistence of leadership may provide a possible framework.

Table 4: Regressions of Export Volume Changes on Relative Size of Exporters

	(1)	(2)	(3)	(4)	(5)
Dependent Variable			$\Delta \log Exports$		
Initial Year	2004/05-	2005/06-	2006/07-	2007/08-	2008/09-
Final Year	2005/06	2006/07	2007/08	2008/09	2009/10
Type of Period	Normal	Normal	Normal	Crisis	Recovery
bottom10	1.68***	1.62***	1.71***	1.84***	1.63***
	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)
bottom20	1.14***	1.11***	1.09***	1.18***	1.11***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
bottom30	0.74***	0.61***	0.70***	0.69***	0.74***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
bottom40	0.42***	0.38***	0.44***	0.50***	0.38***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
bottom50	0.19***	0.17***	0.17***	0.18***	0.17***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
bottom60	0.04	-0.03	0.02	0.07**	0.04
	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)
bottom70	-0.03	-0.02	-0.06*	-0.03	-0.08**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
bottom80	-0.12***	-0.09***	-0.08**	-0.05	-0.06*
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
bottom90	-0.07**	-0.09***	-0.05*	-0.02	-0.06**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
R^2	0.12	0.12	0.13	0.14	0.12
N	18468	18424	18518	18576	18650

The table reports coefficients on decile dummies from exporter-industry-level regressions of the changes in the log of exports on these decile dummies, industry fixed effects. The omitted category is the 10th decile, so each coefficient reveals the relative performance of the exporters in the k-th compared to the top 10% exporters within industries, conditional on survival. Robust standard errors in parentheses. Significance: * 10 percent, ** 5 percent, *** 1 percent.

crisis make smaller exporters even less likely to add new products in their export market? Column (4) shows the result for the trade crisis period, and Column (5) shows the result for the recovery period. The comparison between Column (4) and other columns suggests that the patterns are remarkably similar across different periods. The trade crisis did not make smaller exporters less likely to expand their product lines.

We test the robustness of our benchmark specification ((4.1),(4.2), and (4.3)) to the inclusion of log of total exports of firm i in year $t-1$ and the

number of HS chapters (first two digits of the HS product code) in which firm i exports in year $t-1$ as explanatory variables. Total exports capture the effect of overall productivity of the firm on its performance in an industry while the number of HS chapters captures how diversified a firm is across industries. The extent of diversification could also affect the relative performance of a firm within an industry.

Table 5: Regression (Probit analysis) of Expansion of Number of Products on Relative Size of Exporters

	(1)	(2)	(3)	(4)	(5)
Dependent Variable			Increase in the number of products		
Initial Year	2004/05-	2005/06-	2006/07-	2007/08-	2008/09-
Final Year	2005/06	2006/07	2007/08	2008/09	2009/10
Type of Period	Normal	Normal	Normal	Crisis	Recovery
bottom10	-0.14***	-0.14***	-0.15***	-0.13***	-0.13***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
bottom20	-0.13***	-0.13***	-0.14***	-0.13***	-0.12***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
bottom30	-0.13***	-0.13***	-0.13***	-0.12***	-0.11***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
bottom40	-0.12***	-0.11***	-0.12***	-0.11***	-0.10***
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
bottom50	-0.11***	-0.10***	-0.10***	-0.09***	-0.09***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom60	-0.09***	-0.09***	-0.10***	-0.08***	-0.07***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom70	-0.07***	-0.07***	-0.08***	-0.08***	-0.06***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom80	-0.06***	-0.06***	-0.05***	-0.05***	-0.06***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom90	-0.03***	-0.04***	-0.03***	-0.03***	-0.02***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
N	28384	28533	27880	28274	28450

The table reports coefficients on decile dummies from exporter-industry-level probit analysis of the expansion of the number of products on these decile dummies, industry fixed effects. The omitted category is the 10th decile, so each coefficient reveals the relative performance of the exporters in the k-th compared to the top 10% exporters within industries. Robust standard errors in parentheses. Significance: * 10 percent, ** 5 percent, *** 1 percent.

5 Performance of Big versus Small Exporters in Workhorse Models of Trade

To summarize, we find that: (i) firm exit probability is decreasing in size in all periods, and small firms' exit probability (relative to large firms) does not increase during the crisis period; (ii) smaller firms' exports grow faster than those of the larger firms, and it is only the large exporters who suffer a contraction in exports during the crisis period; (iii) the likelihood of increasing the number of products exported is increasing in firm size in all periods, and relative to the top decile this probability during the crisis is no different from that in the pre-crisis and post-crisis period.

Patterns of pre-crisis and post-crisis correlations of firm size with firm exit, growth in exports and products line expansion is consistent with a large body of work. Decreasing exit probabality with size of exporters is consistent with the self selection of more productive firms into becoming exporters by paying a sunk cost of entry into foreign markets - Melitz (2003), Chaney (2008) and Bernard et al. (2003). Faster growth of exports for smaller exporters is consistent with Arkolakis (2010), wherein the fixed cost of exporting is replaced with an increasing marginal cost of reaching additional consumers in destination markets (advertising costs). Smaller firms decide to reach fewer consumers, but a decline in trade costs or an increase in destination market size allows them to add additional consumers at lower marginal costs than larger firms. Lastly, the increase in the likelihood of adding products with firm size can be generated in a multi-product generalization of the Melitz framework - Bernard, Redding and Schott (2011) and Bernard, Redding and Schott (2010). In these frameworks larger more productive firms can profitably export more number of products.

In what follows we examine the predictions of theory about the performance of small versus big exporters during the trade crisis, within this class of new trade models that feature firm-level heterogeneity in productivity. We focus on two main factors that have been highlighted in the literature as the main causes of the trade crisis - demand collapse and credit collapse -, and an amplification mechanism - vertical specialization. The question we ask is - does the main mechanism - reallocation of resources (and market shares) across firms with different productivity levels - that generates the correct pre and post-crisis correlations between firm size and margins of adjustment also predict the correlations consistent with the data during the crisis.

5.1 Demand Collapse

A shock to aggregate demand would cause cut-off productivity level to rise. The least productive smaller firms, that are closest to cut-off productivity level, are most likely to exit the market altogether. Larger, more productive, firms are more likely to survive by contracting profit margins. Thus, the survival porbabilities of smaller exporters relative to larger exporters should fall. A decline in foreign demand reduces export sales (conditional on survivial). In Arkolakis (2010), the elasticity of sales with respect to foreign wage is decreasing in productivity, implying that less productive smaller exporters suffer greater decline in sales than the more productive larger exporters.

Thus, in the worksorse models of trade an aggregate demand shock would imply relatively poor performance of smaller firms.

Eaton et al. (2010) have emphasized the role of heterogeneity in demand shock across industries as the most important factor in explaining the trade collapse. In line with their central finding that bulk of the decline in international trade is attributable to a decline in demand of durables, we test for a

differential impact of the crisis on exporters of different sizes in durable versus non-durable goods industries using the following specification

(5.1)

$$Y_{ij,t,t-1} = \beta_0 + \sum_{1}^{9} \beta_k k_{th} Decile_{ij,t-1} + \sum_{1}^{9} \beta_k k_{th} Decile_{ij,t-1} * \text{Durable}_{ij,t-1} + \mu_j + \epsilon_{ij,t} \ .$$

i, j and t index exporters, industries, and years, respectively; 'Durable' takes value one for firms whose industry j is classified as durable goods industry; $Y_{ij,t,t-1}$ can be (i) the change in the log of exports between two periods, (ii) the dummy for exit of the exporter, or (iii) the dummy for an increase in the number of products exported. The results for the three outcome variables are shown in Tables 6, 7, and 8.

In durable goods industries, exit probability of all size deciles relative to top 10 percent firms (across durable and non-durable industries) is higher. Interestingly, this pattern did not change during the crisis period, but became stronger in the recovery period. Importantly, there is no clear monotonic effect of durability on exit rates of small versus big firms. With respect to export growth, surviving small exporters (bottom 10, 20 and 30) have higher relative growth rates in durable than in non durable industries. There is no systematic difference across time periods. Again, in the recovery period, export growth of all size deciles relative to top 10 percent exporters became worse in durable goods industries. Lastly, there is no discernible difference between durable and non durable goods industries in terms of product addition both in the pre-crisis and crisis periods. However, performance of non top 10 percent exporters relative to top 10 percent exporters became worse in the recovery period in durables.

Overall, we do not find any conclusive evidence that smaller firms in durable goods industries were worst hit by the crisis as compared to larger

firms. In fact, looking at exit probabilities, one finds that the contribution of durables was roughly the same for all size categories (relative to top 10 percent) during the post-crisis period. Given that on average smaller firms have much larger exit rates than larger firms, this means that the increase in exit probability attributable to being in durables is proportionally smaller for the smaller size deciles. Thus, the relatively larger firms faced a greater percentage increase in exit probability in durable goods industries.

5.2 Credit Constraints

In the presence of credit constrained firms, the interaction between an aggregate shock to credit supply and firm heterogeneity is also going to cause the smaller and less productive firms to be more affected as a result of their size or lack of sufficient collateral and/or credit guarantees (Greenaway, Guariglia and Kneller (2007), Muuls (2008)). Therefore, they are less likely to survive in tighter credit conditions. The interaction between credit constraints and firm heterogeneity also sharpens the reallocation of market shares from the least productive (and hence smaller) firms to the most productive (and larger) exporters - Manova (2008). Hence, smaller firms should experience a greater decline in sales.

The existing literature on the importance of credit shock in driving the trade crisis is primarily focused on aggregate implications of a credit shock. For instance, Paravisini et al. (2011) use matched firm-bank data from Peru, and find that exports of firms who borrowed from banks with a higher level of foreign debt suffered. Chor and Manova (2012), using data on monthly US imports, find that countries with higher inter-bank rates (tighter credit conditions) exported less to the U.S.

In the absence of firm-bank matched data, we test the implications of

credit constraints for performance of exporters of different size using the specification

(5.2)

$$Y_{ij,t,t-1} = \beta_0 + \sum_{1}^{9} \beta_k k_{th}\, Decile_{ij,t-1} + \sum_{1}^{9} \beta_k k_{th}\, Decile_{ij,t-1} * \mathrm{RZ}_{j,t-1} + \mu_j + \epsilon_{ij,t} \quad ,$$

where the notation is the same as in (A.2), except that 'RZ' denotes the Rajan and Zingales index of financial dependence at the HS 2 level. The construction of this index is explained in Rajan and Zingales (1998).

In general, for all three outcome varaibles, in financially dependent industries patterns are not so stable in pre-crisis periods. As a result, arriving at any clear conclusion about differences in behavior across time periods is very hard. Table 9 shows the results for exit. Survival disadvantage of non top 10 percent exporters is larger in financially dependent than non-dependent industries. This pattern did not become systematically stronger during the crisis period. But, in the recovery period, this disadvantage has become larger. As we saw in the case of durables, the contribution of financial dependence to overall exit probability of firms in bigger size deciles (greater than median) seems to be prortionally higher. When we look at the growth in exports, as shown in Table 10, there is no discernible systematic difference between financially dependent and non-dependent industries. There is no clear evidence that smaller firms performance deteriorated more in financially dependent industries. Lastly, for product addition in Table 11, the disadvantage of non top 10 percent exporters is larger in financially dependent industries. Again, we don't find much change in the pattern over periods.

These results confirm that in the pre-crisis periods in the financial dependent industries smaller exporters have worse performance than top 10 percent exporters. However, during the crisis period we do not find convincing evi-

dence of a change in this pattern in a quantitatively significant manner. In fact, in the recovery period there is strong evidence that financial dependence matters more, especially for firm exit where the adverse effects seem to be larger for relatively bigger firms.

5.3 Vertical Supply Chains

According to Bems, Johnson and Yi (2011*a*) vertical specialization trade fell by more than value-added trade (12.9 percent versus 10.3 percent).[22] A large fraction of exports from Mexico to the U.S. is part of vertical supply chains - often referred to as maquiladora exports. Our data allow us to classify exports, at the firm-product level, into processed versus non-processed.[23] The last column of the Table 12 shows that maquiladora exports accounted for about 82 to 85 percent of all exports between 2004 and 2010. It also shows that maquiladora exports are much larger than non-maquiladora exports. Figure 3 shows the evolution of maquiladora and non-maquiladora exports from January 2006 to December 2010, with January 2006 normalized to 1. During the crisis maquiladora exports see a much bigger decline as compared to non-maquiladora exports.

Given these facts, we investigate whether firm exit, net product addition, and sub-intensive margin growth behaved differently for maquila versus non-maquila exporters. We adopt the following specification

(5.3)

$$Y_{ij,t,t-1} = \beta_0 + \sum_{1}^{9} \beta_k k_{th} Decile_{ij,t-1} + \sum_{1}^{9} \beta_k k_{th} Decile_{ij,t-1} * \text{Maquila export ratio}_{ij,t-1} + \mu_j + \epsilon_{ij,t} \ ,$$

where i, j and t index exporters, industries, and years, respectively; $Y_{ij,t,t-1}$ can be (i) the change in the log of exports between two periods, (ii) the dummy

[22] Because declines in demand were largest in more vertically specialized sectors.

[23] Processing includes maquila exports as well as re-exports of temporary imports.

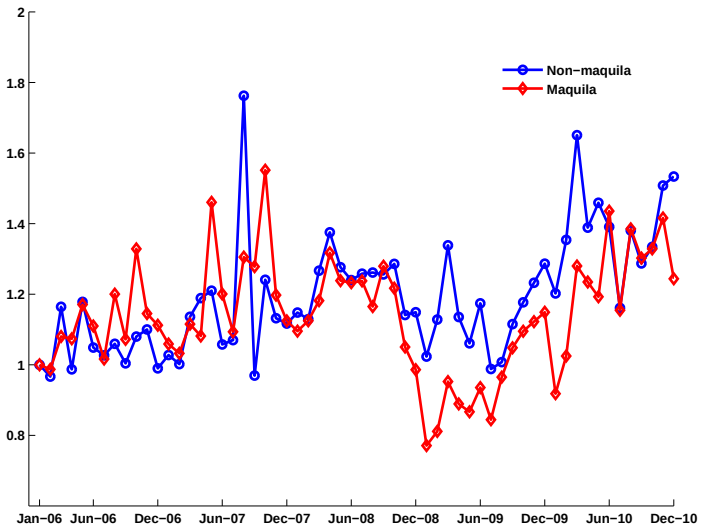

Figure 3: Growth of Maquilador and Non-maquiladora Exports (January 2006 = 1)

for exit of the exporter, or (iii) the dummy for an increase in the number of products exported. So, now, we have included interaction terms of each decile dummy with the maquiladora ratio. Maquiladora ratio is defined as the fraction of each firm's total exports classified as processed within a HS2 industry. The omitted category is again the tenth decile dummy. The coefficients on the interaction terms capture the extent to which maquiladora export dependent exporters in a given decile are performing differently as compared to all exporters in the tenth decile. The results for the three margins are shown in Tables 13, 14, and 15.

Table 13 shows that for most deciles the coefficients on the interaction of decile dummies and maquiladora ratio are positive but not statistically significant. The final row shows that top 10 percent exporters that have a higher maquila ratio are always statistically significantly less likely to exit in the pre-crisis periods and the recovery period. However, this advantage gets

eroded in the crisis period, suggesting that among the exporters in the top decile those with greater dependence on maquila exports suffered relatively more during the crisis. This effect of vertical supply chains is not seen in growth of exports, shown in Table 14. Lastly, with respect to net product addition, Table 15 does not reveal any discernable pattern differences between maquila and non-maquila exporters. Overall, tight integration into vertical supply chains did not become a relative disadvantage during the crisis period.

Table 6: Regression (Probit analysis) of Exit on Relative Size of Exporters: Durable versus Non-Durable

	(1)	(2)	(3)	(4)	(5)
Dependent Variable			Exit in the next period		
Initial Year	2004/05-	2005/06-	2006/07-	2007/08-	2008/09-
Final Year	2005/06	2006/07	2007/08	2008/09	2009/10
Type of Period	Normal	Normal	Normal	Crisis	Recovery
bottom10	0.70***	0.71***	0.73***	0.71***	0.72***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom20	0.68***	0.68***	0.69***	0.65***	0.67***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom30	0.62***	0.63***	0.64***	0.62***	0.61***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
bottom40	0.57***	0.57***	0.59***	0.55***	0.56***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
bottom50	0.53***	0.51***	0.50***	0.45***	0.50***
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)
bottom60	0.43***	0.42***	0.40***	0.37***	0.42***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
bottom70	0.33***	0.32***	0.33***	0.28***	0.30***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
bottom80	0.23***	0.20***	0.25***	0.22***	0.21***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
bottom90	0.11***	0.11***	0.12***	0.10***	0.07**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
durability*bottom10	0.04	0.01	0.02	0.04	0.08**
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
durability*bottom20	0.06*	0.05	0.06	0.14***	0.13***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
durability*bottom30	0.09**	0.07*	0.09**	0.07**	0.18***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
durability*bottom40	0.10**	0.06	0.08*	0.09**	0.13***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
durability*bottom50	0.06	0.09**	0.10**	0.14***	0.14***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
durability*bottom60	0.06*	0.04	0.11***	0.08**	0.13***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
durability*bottom70	0.07*	0.07*	0.05	0.10**	0.14***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
durability*bottom80	0.06	0.11***	0.02	0.07*	0.11***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
durability*bottom90	0.05	0.04	0.07	0.06	0.16***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)
N	28030	28092	27453	27971	28219

The table reports coefficients on decile dummies from exporter-industry-level probit analysis of the exit from U.S. market on these decile dummies, their interactions with the industry-level indicator of durability and industry fixed effects. The omitted category is the 10th decile, so the coefficients on the decile dummies reveal the relative performance of the exporters in the k-th compared to the top 10% exporters within industries, while the coefficients on the decile dummies interactions with durability index reveal how this relative performance is different in durable industries. Robust standard errors in parentheses. Significance: * 10 percent, ** 5 percent, *** 1 percent.

Table 7: Regressions of Export Volume Changes on Relative Size of Exporters: Durable versus Non-Durable

	(1)	(2)	(3)	(4)	(5)
Dependent Variable			$\Delta \log Exports$		
Initial Year	2004/05-	2005/06-	2006/07-	2007/08-	2008/09-
Final Year	2005/06	2006/07	2007/08	2008/09	2009/10
Type of Period	Normal	Normal	Normal	Crisis	Recovery
bottom10	1.54***	1.58***	1.58***	1.71***	1.58***
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
bottom20	0.95***	0.90***	0.95***	1.00***	1.03***
	(0.07)	(0.07)	(0.07)	(0.07)	(0.06)
bottom30	0.60***	0.46***	0.69***	0.51***	0.67***
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
bottom40	0.27***	0.38***	0.35***	0.34***	0.39***
	(0.06)	(0.05)	(0.06)	(0.06)	(0.05)
bottom50	0.11**	0.14***	0.17***	0.13**	0.13**
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
bottom60	-0.01	0.04	0.01	0.05	0.08
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
bottom70	-0.09**	0.03	-0.02	-0.01	-0.02
	(0.05)	(0.04)	(0.04)	(0.05)	(0.04)
bottom80	-0.07*	-0.03	-0.02	-0.02	0.03
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
bottom90	-0.10**	-0.07*	-0.06	-0.00	-0.00
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
durability*bottom10	0.24**	0.08	0.25**	0.24**	0.12
	(0.11)	(0.11)	(0.11)	(0.11)	(0.11)
durability*bottom20	0.33***	0.39***	0.24**	0.38***	0.19**
	(0.10)	(0.10)	(0.10)	(0.10)	(0.09)
durability*bottom30	0.28***	0.27***	0.02	0.34***	0.16*
	(0.09)	(0.08)	(0.09)	(0.09)	(0.09)
durability*bottom40	0.27***	0.01	0.15*	0.29***	-0.04
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
durability*bottom50	0.13*	0.07	0.00	0.11	0.08
	(0.08)	(0.07)	(0.07)	(0.07)	(0.07)
durability*bottom60	0.08	-0.13**	0.01	0.05	-0.06
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
durability*bottom70	0.09	-0.08	-0.08	-0.03	-0.11
	(0.07)	(0.06)	(0.06)	(0.07)	(0.07)
durability*bottom80	-0.08	-0.10*	-0.11*	-0.05	-0.17***
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
durability*bottom90	0.05	-0.05	-0.00	-0.04	-0.11*
	(0.06)	(0.05)	(0.06)	(0.06)	(0.06)
R^2	0.13	0.13	0.13	0.14	0.13
N	18160	18115	18201	18285	18339

The table reports coefficients on decile dummies from exporter-industry-level regressions of the changes in the log of exports on these decile dummies, their interactions with the industry-level indicator of durability and industry fixed effects. The omitted category is the 10th decile, so the coefficients on the decile dummies reveal the relative performance of the exporters in the k-th compared to the top 10% exporters within industries, while the coefficients on the decile dummies interactions with durability index reveal how this relative performance is different in durable industries. Robust standard errors in parentheses. Significance: * 10 percent, ** 5 percent, *** 1 percent.

Table 8: Regression (Probit analysis) of Expansion of Number of Products on Relative Size of Exporters: Durable versus Non-Durable

	(1)	(2)	(3)	(4)	(5)
Dependent Variable	Increase in the number of products				
Initial Year	2004/05-	2005/06-	2006/07-	2007/08-	2008/09-
Final Year	2005/06	2006/07	2007/08	2008/09	2009/10
Type of Period	Normal	Normal	Normal	Crisis	Recovery
bottom10	-0.14***	-0.14***	-0.14***	-0.13***	-0.12***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom20	-0.13***	-0.13***	-0.13***	-0.12***	-0.11***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom30	-0.13***	-0.13***	-0.12***	-0.12***	-0.09***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom40	-0.12***	-0.11***	-0.11***	-0.10***	-0.09***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom50	-0.11***	-0.09***	-0.09***	-0.09***	-0.07***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom60	-0.08***	-0.09***	-0.09***	-0.07***	-0.06***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom70	-0.07***	-0.06***	-0.06***	-0.07***	-0.04***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom80	-0.04***	-0.05***	-0.04***	-0.03***	-0.05***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom90	-0.03***	-0.03***	-0.04***	-0.01	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
durability*bottom10	-0.01	0.00	-0.00	-0.02	-0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
durability*bottom20	0.01	-0.01	-0.02	-0.04***	-0.03
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
durability*bottom30	0.01	-0.01	-0.02	-0.02	-0.06***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)
durability*bottom40	0.01	-0.02	-0.02	-0.02	-0.03*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
durability*bottom50	0.01	-0.02	-0.03*	-0.02	-0.04***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)
durability*bottom60	-0.02	-0.01	-0.01	-0.02	-0.03**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)
durability*bottom70	-0.00	-0.02	-0.03*	-0.01	-0.04***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)
durability*bottom80	-0.03**	-0.03**	-0.01	-0.03**	-0.02
	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)
durability*bottom90	0.01	-0.01	0.00	-0.04***	-0.02
	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)
N	27896	28051	27393	27827	27972

The table reports coefficients on decile dummies from exporter-industry-level probit analysis of the expansion of the number of products on these decile dummies, their interactions with the industry-level indicator of durability and industry fixed effects. The omitted category is the 10th decile, so the coefficients on the decile dummies reveal the relative performance of the exporters in the k-th compared to the top 10% exporters within industries, while the coefficients on the decile dummies interactions with durability index reveal how this relative performance is different in durable industries. Robust standard errors in parentheses. Significance: * 10 percent, ** 5 percent, *** 1 percent.

Table 9: Regression (Probit analysis) of Exit on Relative Size of Exporters: Financial Dependence

	(1)	(2)	(3)	(4)	(5)
Dependent Variable			Exit in the next period		
Initial Year	2004/05-	2005/06-	2006/07-	2007/08-	2008/09-
Final Year	2005/06	2006/07	2007/08	2008/09	2009/10
Type of Period	Normal	Normal	Normal	Crisis	Recovery
bottom10	0.70***	0.71***	0.72***	0.71***	0.70***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom20	0.68***	0.68***	0.67***	0.65***	0.67***
	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
bottom30	0.61***	0.63***	0.62***	0.61***	0.60***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
bottom40	0.54***	0.56***	0.55***	0.55***	0.53***
	(0.02)	(0.02)	(0.03)	(0.02)	(0.03)
bottom50	0.51***	0.51***	0.46***	0.44***	0.45***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
bottom60	0.41***	0.40***	0.36***	0.35***	0.38***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
bottom70	0.31***	0.29***	0.28***	0.26***	0.27***
	(0.03)	(0.03)	(0.04)	(0.03)	(0.04)
bottom80	0.22***	0.18***	0.19***	0.21***	0.15***
	(0.04)	(0.03)	(0.04)	(0.03)	(0.04)
bottom90	0.12***	0.10***	0.11***	0.08**	0.06
	(0.04)	(0.04)	(0.04)	(0.03)	(0.04)
Fin Dep*bottom10	0.13*	0.01	0.19**	0.12	0.31***
	(0.08)	(0.07)	(0.08)	(0.08)	(0.09)
Fin Dep*bottom20	0.15*	0.12*	0.28***	0.29***	0.31***
	(0.08)	(0.07)	(0.08)	(0.08)	(0.09)
Fin Dep*bottom30	0.24***	0.15**	0.31***	0.20***	0.40***
	(0.08)	(0.07)	(0.08)	(0.08)	(0.09)
Fin Dep*bottom40	0.29***	0.14*	0.29***	0.19**	0.40***
	(0.08)	(0.07)	(0.08)	(0.07)	(0.09)
Fin Dep*bottom50	0.20**	0.16**	0.33***	0.29***	0.41***
	(0.08)	(0.07)	(0.08)	(0.08)	(0.09)
Fin Dep*bottom60	0.20**	0.15**	0.31***	0.21***	0.38***
	(0.08)	(0.07)	(0.08)	(0.08)	(0.09)
Fin Dep*bottom70	0.20**	0.19**	0.24***	0.23***	0.38***
	(0.08)	(0.07)	(0.08)	(0.08)	(0.09)
Fin Dep*bottom80	0.16*	0.23***	0.22**	0.16**	0.38***
	(0.08)	(0.08)	(0.09)	(0.08)	(0.09)
Fin Dep*bottom90	0.06	0.09	0.16*	0.14*	0.38***
	(0.09)	(0.08)	(0.09)	(0.08)	(0.10)
N	27801	27818	27147	27588	27845

The table reports coefficients on decile dummies from exporter-industry-level probit analysis of the exit from U.S. market on these decile dummies, their interactions with the industry-level indicator of financial dependence (Fin Dep) and industry fixed effects. The omitted category is the 10th decile, so the coefficients on the decile dummies reveal the relative performance of the exporters in the k-th compared to the top 10% exporters within industries, while the coefficients on the decile dummies interactions with financial dependence index reveal how this relative performance is different in more financially dependent industries. Robust standard errors in parentheses. Significance: * 10 percent, ** 5 percent, *** 1 percent.

Table 10: Regressions of Export Volume Changes on Relative Size of Exporters: Financial Dependence

	(1)	(2)	(3)	(4)	(5)
Dependent Variable			$\Delta \log Exports$		
Initial Year	2004/05-	2005/06-	2006/07-	2007/08-	2008/09-
Final Year	2005/06	2006/07	2007/08	2008/09	2009/10
Type of Period	Normal	Normal	Normal	Crisis	Recovery
bottom10	1.74***	1.57***	1.65***	1.82***	1.70***
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
bottom20	1.01***	0.98***	0.98***	0.99***	1.18***
	(0.08)	(0.08)	(0.08)	(0.08)	(0.08)
bottom30	0.60***	0.52***	0.69***	0.56***	0.73***
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
bottom40	0.24***	0.28***	0.42***	0.40***	0.48***
	(0.07)	(0.06)	(0.07)	(0.06)	(0.07)
bottom50	0.19***	0.14**	0.20***	0.10*	0.22***
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
bottom60	0.01	0.02	0.04	0.05	0.12**
	(0.06)	(0.05)	(0.05)	(0.06)	(0.06)
bottom70	-0.06	0.06	-0.08	0.04	0.05
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
bottom80	-0.13**	0.01	0.02	0.03	0.08
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
bottom90	-0.13***	-0.07*	-0.09*	-0.01	0.04
	(0.05)	(0.04)	(0.05)	(0.05)	(0.05)
Fin Dep*bottom10	-0.07	0.12	0.24	0.03	-0.19
	(0.20)	(0.19)	(0.23)	(0.20)	(0.20)
Fin Dep*bottom20	0.40**	0.40**	0.36*	0.64***	-0.13
	(0.19)	(0.20)	(0.20)	(0.19)	(0.17)
Fin Dep*bottom30	0.47**	0.25	0.09	0.41**	0.04
	(0.19)	(0.17)	(0.17)	(0.17)	(0.17)
Fin Dep*bottom40	0.56***	0.28*	0.06	0.32**	-0.30**
	(0.17)	(0.15)	(0.16)	(0.16)	(0.15)
Fin Dep*bottom50	-0.02	0.08	-0.09	0.25*	-0.19
	(0.16)	(0.15)	(0.16)	(0.15)	(0.15)
Fin Dep*bottom60	0.09	-0.15	-0.07	0.06	-0.23*
	(0.15)	(0.13)	(0.14)	(0.14)	(0.14)
Fin Dep*bottom70	0.06	-0.24*	0.04	-0.23*	-0.41***
	(0.14)	(0.12)	(0.13)	(0.13)	(0.13)
Fin Dep*bottom80	0.02	-0.31***	-0.31**	-0.27**	-0.42***
	(0.13)	(0.11)	(0.13)	(0.13)	(0.13)
Fin Dep*bottom90	0.19	-0.05	0.10	-0.06	-0.31***
	(0.13)	(0.11)	(0.12)	(0.12)	(0.11)
R^2	0.13	0.12	0.13	0.14	0.12
N	17965	17881	17943	18006	18030

The table reports coefficients on decile dummies from exporter-industry-level regressions of the changes in the log of exports on these decile dummies, their interactions with the industry-level indicator of financial dependence (Fin Dep) and industry fixed effects. The omitted category is the 10th decile, so the coefficients on the decile dummies reveal the relative performance of the exporters in the k-th compared to the top 10% exporters within industries, while the coefficients on the decile dummies interactions with financial dependence index reveal how this relative performance is different in more financially dependent industries. Robust standard errors in parentheses. Significance: * 10 percent, ** 5 percent, *** 1 percent.

Table 11: Regression (Probit analysis) of Expansion of Number of Products on Relative Size of Exporters: Financial Dependence

	(1)	(2)	(3)	(4)	(5)
Dependent Variable			Increase in the number of products		
Initial Year	2004/05-	2005/06-	2006/07-	2007/08-	2008/09-
Final Year	2005/06	2006/07	2007/08	2008/09	2009/10
Type of Period	Normal	Normal	Normal	Crisis	Recovery
bottom10	-0.12***	-0.14***	-0.14***	-0.13***	-0.13***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom20	-0.13***	-0.12***	-0.13***	-0.13***	-0.11***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom30	-0.11***	-0.12***	-0.12***	-0.12***	-0.10***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom40	-0.11***	-0.11***	-0.10***	-0.11***	-0.08***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom50	-0.10***	-0.08***	-0.09***	-0.09***	-0.07***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom60	-0.07***	-0.08***	-0.09***	-0.06***	-0.06***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom70	-0.07***	-0.06***	-0.06***	-0.07***	-0.05***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom80	-0.04***	-0.03***	-0.03***	-0.03**	-0.05***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom90	-0.03**	-0.02	-0.03**	-0.01	-0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Fin Dep*bottom10	-0.10**	-0.01	-0.04	-0.03	-0.03
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Fin Dep*bottom20	-0.04	-0.10***	-0.09**	-0.04	-0.03
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Fin Dep*bottom30	-0.07**	-0.07*	-0.07*	-0.02	-0.09**
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
Fin Dep*bottom40	-0.03	-0.01	-0.09**	-0.04	-0.09**
	(0.04)	(0.04)	(0.04)	(0.04)	(0.03)
Fin Dep*bottom50	-0.07*	-0.08**	-0.07**	-0.04	-0.08**
	(0.04)	(0.04)	(0.04)	(0.03)	(0.03)
Fin Dep*bottom60	-0.06*	-0.07**	-0.05	-0.07**	-0.05
	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)
Fin Dep*bottom70	-0.01	-0.02	-0.05	-0.05	-0.05
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Fin Dep*bottom80	-0.04	-0.10***	-0.05	-0.06*	-0.04
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
Fin Dep*bottom90	0.02	-0.06*	-0.02	-0.07**	-0.02
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
N	27691	27777	27087	27444	27598

The table reports coefficients on decile dummies from exporter-industry-level probit analysis of the expansion of the number of products on these decile dummies, their interactions with the industry-level indicator of financial dependence (Fin Dep) and industry fixed effects. The omitted category is the 10th decile, so the coefficients on the decile dummies reveal the relative performance of the exporters in the k-th compared to the top 10% exporters within industries, while the coefficients on the decile dummies interactions with financial dependence index reveal how this relative performance is different in more financially dependent industries. Robust standard errors in parentheses. Significance: * 10 percent, ** 5 percent, *** 1 percent.

Table 12: Maquilador and Non-maquiladora Exports (US $)

Period	Non-maquiladora			Maquiladora			Maquiladora as
	Total	Mean	Median	Total	Mean	Median	Ratio of All Exports
2004-2005	19401639072	159604	17148	126738383628	771112	44581	0.87
2005-2006	23965069071	188368	18570	134221917019	817141	46950	0.85
2006-2007	26045946340	199296	18766	148365306461	906120	48189	0.85
2007-2008	29775158668	222400	19817	158205412298	954166	46740	0.84
2008-2009	28733849161	214619	19469	130532475328	811113	42479	0.82
2009-2010	30835930559	227743	19669	142860070212	867585	41123	0.82

Table 13: Regression (Probit analysis) of Exit on Relative Size of Exporters: Maquila versus Non-Maquila

	(1)	(2)	(3)	(4)	(5)
Dependent Variable			Exit in the next period		
Initial Year	2004/05-	2005/06-	2006/07-	2007/08-	2008/09-
Final Year	2005/06	2006/07	2007/08	2008/09	2009/10
Type of Period	Normal	Normal	Normal	Crisis	Recovery
bottom10	0.70***	0.70***	0.71***	0.70***	0.71***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom20	0.67***	0.67***	0.68***	0.67***	0.67***
	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
bottom30	0.63***	0.63***	0.63***	0.62***	0.63***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
bottom40	0.57***	0.56***	0.57***	0.56***	0.55***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
bottom50	0.51***	0.51***	0.49***	0.48***	0.50***
	(0.02)	(0.02)	(0.03)	(0.02)	(0.02)
bottom60	0.43***	0.41***	0.39***	0.38***	0.43***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
bottom70	0.31***	0.32***	0.28***	0.29***	0.33***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
bottom80	0.22***	0.21***	0.18***	0.21***	0.20***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
bottom90	0.11***	0.09***	0.11***	0.11***	0.09***
	(0.04)	(0.03)	(0.03)	(0.03)	(0.03)
maquilaratio*bottom10	0.02	0.00	0.08*	0.03	0.06
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
maquilaratio*bottom20	0.07*	0.05	0.06	0.05	0.08**
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
maquilaratio*bottom30	0.05	0.03	0.08**	0.03	0.05
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
maquilaratio*bottom40	0.03	0.04	0.09**	0.03	0.10**
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
maquilaratio*bottom50	0.08**	0.06	0.08*	0.03	0.07*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
maquilaratio*bottom60	0.03	0.03	0.09**	0.02	0.06
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
maquilaratio*bottom70	0.08**	0.04	0.09**	0.06	0.05
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
maquilaratio*bottom80	0.06	0.07*	0.11**	0.04	0.09**
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
maquilaratio*bottom90	0.04	0.05	0.07*	0.02	0.12***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
maquila export ratio	-0.10***	-0.10***	-0.14***	-0.08**	-0.16***
	(0.03)	(0.03)	(0.04)	(0.03)	(0.03)
N	28518	28574	27940	28418	28697

The table reports coefficients on decile dummies from exporter-industry-level probit analysis of the exit from U.S. market on these decile dummies, their interactions with firm-level dependence on Maquila-type exports (ratio of Maquila-type exports over total exports at the firm level) and industry fixed effects. The omitted category is the 10th decile, so the coefficients on the decile dummies reveal the relative performance of the exporters in the k-th compared to the top 10% exporters within industries, while the coefficients on the decile dummies interactions with the Maquila ratio reveal how this relative performance is different depending on the Maquila ratio. Robust standard errors in parentheses. Significance: * 10 percent, ** 5 percent, *** 1 percent.

Table 14: Regressions of Export Volume Changes on Relative Size of Exporters: Maquila versus Non-Maquila

	(1)	(2)	(3)	(4)	(5)
Dependent Variable			$\Delta \log Exports$		
Initial Year	2004/05-	2005/06-	2006/07-	2007/08-	2008/09-
Final Year	2005/06	2006/07	2007/08	2008/09	2009/10
Type of Period	Normal	Normal	Normal	Crisis	Recovery
bottom10	1.59***	1.60***	1.63***	1.84***	1.69***
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
bottom20	0.98***	1.08***	1.03***	1.09***	1.13***
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
bottom30	0.60***	0.58***	0.59***	0.60***	0.76***
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
bottom40	0.32***	0.39***	0.40***	0.42***	0.39***
	(0.06)	(0.05)	(0.05)	(0.05)	(0.05)
bottom50	0.12**	0.16***	0.10*	0.13***	0.19***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
bottom60	-0.01	-0.00	-0.05	-0.03	0.05
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
bottom70	-0.09*	-0.00	-0.12***	-0.07	-0.06
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
bottom80	-0.20***	-0.10**	-0.11**	-0.05	-0.02
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
bottom90	-0.11**	-0.08*	-0.07	-0.04	-0.02
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
maquilaratio*bottom10	0.24*	0.15	0.28**	-0.03	-0.04
	(0.13)	(0.12)	(0.13)	(0.12)	(0.13)
maquilaratio*bottom20	0.50***	0.21*	0.17	0.38***	0.08
	(0.12)	(0.12)	(0.11)	(0.12)	(0.11)
maquilaratio*bottom30	0.37***	0.17*	0.37***	0.31***	0.09
	(0.10)	(0.10)	(0.10)	(0.10)	(0.10)
maquilaratio*bottom40	0.21**	0.05	0.10	0.26***	0.11
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
maquilaratio*bottom50	0.11	0.10	0.20**	0.13	0.03
	(0.09)	(0.08)	(0.08)	(0.08)	(0.08)
maquilaratio*bottom60	0.08	-0.02	0.18**	0.26***	0.06
	(0.08)	(0.07)	(0.08)	(0.08)	(0.07)
maquilaratio*bottom70	0.09	0.01	0.14**	0.09	0.01
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
maquilaratio*bottom80	0.14**	0.07	0.07	0.01	-0.03
	(0.07)	(0.06)	(0.07)	(0.07)	(0.07)
maquilaratio*bottom90	0.07	0.01	0.03	0.03	-0.05
	(0.07)	(0.06)	(0.06)	(0.06)	(0.06)
maquila export ratio	-0.06	0.07*	-0.02	-0.01	0.12***
	(0.04)	(0.04)	(0.04)	(0.05)	(0.04)
R^2	0.13	0.13	0.13	0.14	0.12
N	18468	18424	18518	18576	18650

The table reports coefficients on decile dummies from exporter-industry-level regressions of the changes in the log of exports on these decile dummies, their interactions with firm-level dependence on Maquila-type exports (ratio of Maquila-type exports over total exports at the firm level) and industry fixed effects. The omitted category is the 10th decile, so the coefficients on the decile dummies reveal the relative performance of the exporters in the k-th compared to the top 10% exporters within industries, while the coefficients on the decile dummies interactions with the Maquila ratio reveal how this relative performance is different depending on the Maquila ratio. Robust standard errors in parentheses. Significance: * 10 percent, ** 5 percent, *** 1 percent.

Table 15: Regression (Probit analysis) of Expansion of Number of Products on Relative Size of Exporters: Maquila versus Non-Maquila

	(1)	(2)	(3)	(4)	(5)
Dependent Variable			Increase in the number of products		
Initial Year	2004/05-	2005/06-	2006/07-	2007/08-	2008/09-
Final Year	2005/06	2006/07	2007/08	2008/09	2009/10
Type of Period	Normal	Normal	Normal	Crisis	Recovery
bottom10	-0.14***	-0.14***	-0.14***	-0.13***	-0.12***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom20	-0.14***	-0.13***	-0.13***	-0.13***	-0.10***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom30	-0.13***	-0.13***	-0.12***	-0.12***	-0.10***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom40	-0.12***	-0.11***	-0.11***	-0.11***	-0.09***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom50	-0.11***	-0.09***	-0.11***	-0.09***	-0.08***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom60	-0.09***	-0.09***	-0.09***	-0.08***	-0.07***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom70	-0.07***	-0.06***	-0.06***	-0.08***	-0.04***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom80	-0.06***	-0.05***	-0.04***	-0.04***	-0.03***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom90	-0.03***	-0.02*	-0.02	-0.03***	-0.01
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
maquilaratio*bottom10	-0.01	0.02	-0.01	-0.03	-0.03*
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
maquilaratio*bottom20	0.04*	0.01	0.00	0.02	-0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
maquilaratio*bottom30	0.01	0.01	-0.00	0.00	-0.01
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
maquilaratio*bottom40	0.05***	-0.01	-0.01	0.01	0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
maquilaratio*bottom50	-0.01	-0.00	0.03	-0.00	0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
maquilaratio*bottom60	0.00	-0.00	0.00	0.02	0.00
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
maquilaratio*bottom70	0.01	0.00	-0.03	0.02	-0.05***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
maquilaratio*bottom80	-0.00	-0.02	-0.01	-0.01	-0.04**
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
maquilaratio*bottom90	0.01	-0.02	-0.02	0.00	-0.02
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
maquila export ratio	-0.00	0.02	0.03*	0.01	0.04***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
R^2					
N	28384	28533	27880	28274	28450

The table reports coefficients on decile dummies from exporter-industry-level probit analysis of the expansion of the number of products on these decile dummies, their interactions with firm-level dependence on Maquila-type exports (ratio of Maquila-type exports over total exports at the firm level) and industry fixed effects. The omitted category is the 10th decile, so the coefficients on the decile dummies reveal the relative performance of the exporters in the k-th compared to the top 10% exporters within industries, while the coefficients on the decile dummies interactions with the Maquila ratio reveal how this relative performance is different depending on the Maquila ratio. Robust standard errors in parentheses. Significance: * 10 percent, ** 5 percent, *** 1 percent.

6 Conclusions

There exists a large body of literature on the causes of the trade collapse of 2008-09, and it focuses on explaining the aggregate decline in trade. On the other hand, the current workhorse models of trade feature a rich micro structure which allows us to analyze not only aggregate trade but also the behavior of individual firms. In this paper, we focus on the firm/firm-product level implications of the models during the crisis period and compare them with pre and post-crisis periods.

We find that the pattern of pre-crisis as well as post-crisis correlation of firm size with firm exit, growth in exports and net product addition is consistent with the workhorse models of trade that feature firm-level heterogeneity in productivity. However, comparison of the behavior of margins of adjustment - firm exit, product addition, and sub-intensive margin - for firms of different sizes during the crisis period with that in the pre-crisis and post-crisis period reveals that small exporters were not affected much by the crisis and it was only the large exporters who bore the brunt of the crisis.

This finding is not consistent with models' predictions when an aggregate (demand or credit) shock is the source of trade collapse. In these models there would be reallocation of resources and market shares from the smaller less productive firms to larger more productive firms during the trade crisis, resulting in relatively poor performance of smaller firms.

Moving away from the aggregate shock framework, we incorporate heterogeneity across industries along dimensions highlighted in the literature - durability of goods, financial dependence, and vertical supply chains. However, this does not alter or explain our findings. In fact, we find that larger firms saw a greater percentage increase in exit rates in industries that were

characterized as durable or financially dependent during the recovery period.[24]

One way to explain this surprising finding that small exporters did not suffer more during the crisis relative to big exporters is to incorporate another dimension of heterogeneity at the level of firms. For example, Holmes and Stevens (2012) develop an alternative theory in which industries are made up of large firms producing standardized goods and small firms making custom or speciality goods. The crisis could have affected the standardized goods more than custom goods, and hence affected larger firms more than smaller firms. Another example would be where within industries larger firms are more connected to international financial market and thus more affected by the credit crunch resulting from the financial crisis.

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[24]This is also aapplicable to industries classified as differentiated according to the Rauch index (Rauch (1999)). We also find that the u-shaped relationship of export growth with size is largely due to the relative performance of firms in differentiated industries. See Appendix A.3 for details.

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A Appendix A

NOT FOR PUBLICATION

A.1 Basic Data Features

We start by presenting some basic features of the data. Table A.1 shows the mean/median exports and mean/median products per exporter for every period. The gap between mean exports and median exports points to skewness in export sales. This skewness is also evident in the number of products per exporter. Exports were rising briskly in periods before the crisis, and then in the crisis period mean exports declined by about 24 percent while median exports declined by 32 percent. Exports did not recover fully by 2010. The effect of the crisis on products per exporter was not so drastic.

Next, we examine the average exports, average number of products exported and average exports per exporter per product by size in Table A.2, where size of an exporter is proxied by its total exports. In any period exporters are segmented by size decliles, 1 being the smallest 10 percent while 10 being the largest 10 percent. The numbers reveal a couple of interesting facts. First, the distribution of exports sales is highly skewed. The mean exports in the ninth decile are 15 percent of the mean exports in the top decile. Second, the average number of products exported per exporter rises with size, and also shows a high degree of skewness. The average number of products exported by exporters in the top decile are more than twice than that exported by those in the ninth decile. Third, average exports per exporter per product also increases with size, implying that exporters with larger sales also have larger sales per product. The skewness observed in average exports and average number of products per exporter is also evident in average exports per exporter per product.

Lastly, we look at the importance of multi-product exporters in Mexican exports. The top panel of Table A.3 shows the fraction of exporters who export a certain number of products. During the entire sample period - 2004 to 2010 - about 40 percent of exporters export only one product, 14 percent export two products. Thus about 54 percent of Mexican exporters sell one or two products. But, about 30 percent of Mexican exporters sell five or more products. This is consistent with the findings of Bernard, Redding and Schott (2010) for US exporters. Looking at the bottom panel of Table A.3, it is evident that multi-product firms account for the bulk of Mexican exports, especially those who export more than 30 products. Exporters selling 5 or more products account for about 93 percent of Mexican exports. This is, again, in line with Bernard, Redding and Schott (2010).

Table A.1: Summary Statistics on Exports and Products

Period	Mean Export	Median Export	Products per exporter Mean	Median
2004-2005	12900000	164221	6	2
2005-2006	14800000	200486	6	2
2006-2007	18600000	296302	7	3
2007-2008	20100000	316257	7	3
2008-2009	15300000	213820	6	2
2009-2010	15700000	177928	6	2

A.2 Robustness Check for Margins of Adjustment by Size

The main specification in (4.1),(4.2), and (4.3) (henceforth, benchmark specification) focuses on the relative position of a firm in the size ranking within an industry. This is taken as a proxy for the productivity of the firm within the industry. However, the performance of the firm within an industry could also be affected by its total size or its relative position in the size ranking of firms across all industries. This would capture the effect of overall productivity of the firm on its performance in an industry. Another dimension that may be

Table A.2: Summary Statistics on Exports and Products by Size

Average Exports						
Decile	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010
1	3509	3582	3751	3931	3920	3711
2	9135	9581	11223	11754	10713	10323
3	21605	23275	29008	32796	26126	25084
4	48083	54030	73409	81310	60826	55028
5	110465	131128	192839	205286	141973	120850
6	273696	331220	489259	509572	346486	293061
7	685986	853552	1228342	1325456	908435	793466
8	1964794	2416300	3496666	3683505	2642824	2261190
9	7073742	8536578	11400000	12100000	9296784	8357435
10	119000000	135000000	170000000	183000000	139000000	146000000
Average Number of Products per Exporter						
Decile	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010
1	1	1	1	1	1	1
2	1	1	1	1	1	1
3	2	2	2	2	2	2
4	2	2	2	2	2	2
5	3	3	3	3	3	3
6	3	4	4	4	4	3
7	5	5	6	6	5	5
8	6	7	8	8	8	7
9	10	11	12	12	11	10
10	26	27	30	31	29	26
Average Exports per Exporter per Product						
Decile	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010
1	3355	3431	3590	3757	3737	3550
2	6926	7351	8016	8656	7932	7693
3	13383	13557	16586	17677	15465	14803
4	23967	25755	32103	34374	27170	26310
5	41892	48758	57520	64122	49858	47914
6	78209	89800	114030	113522	94013	86824
7	152292	177493	205273	220555	183695	167726
8	321367	354104	417193	436851	351814	336630
9	729943	801542	979834	992990	842885	846177
10	4621201	4972341	5610659	5832645	4854471	5548635

important in the context of multi-product firms is how diversified a firm is. It has been found in the literature that the bigger firms tend to export more products, something that we document for our data as well in Table A.3. This would tend to make bigger firms to be more diversified as compared to smaller firms. The extent of diversification could also affect the relative performance of a firm within an industry.

Table A.3: Importance of Multi-Product Exporters

Percentage of Exporters						
Products Exported	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010
1	41.31	40.61	36.77	35.83	40.03	41.70
2	14.98	13.92	13.08	13.79	14.57	14.96
3	8.83	8.74	8.58	8.39	8.36	8.68
4	5.78	5.77	6.17	6.09	5.50	5.71
5	4.31	4.39	4.75	5.04	4.52	4.45
6	3.45	3.30	3.62	3.57	3.38	3.24
7	2.54	2.75	2.94	3.01	2.72	2.38
8	2.29	2.26	2.64	2.75	2.42	2.45
9	1.93	2.05	2.19	2.43	2.05	1.72
10	1.61	1.72	2.04	1.80	1.36	1.37
11-20	7.44	8.37	9.92	9.91	8.63	7.55
21-30	2.62	2.80	3.35	3.14	2.92	2.52
> 30	2.91	3.32	3.95	4.23	3.53	3.27
Percentage of Total Value of Exports						
Products Exported	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010
1	1.16	1.29	0.85	0.75	1.30	1.85
2	1.88	1.20	0.84	1.23	1.61	2.01
3	1.99	1.34	0.94	1.39	2.11	4.24
4	2.09	1.30	1.36	1.11	1.74	1.69
5	1.46	1.55	1.31	1.09	2.19	2.52
6	1.63	1.32	1.43	1.68	1.35	1.19
7	1.64	1.84	1.42	1.55	1.68	2.16
8	1.53	1.45	1.74	1.36	2.27	1.99
9	2.02	1.90	1.67	1.61	1.38	1.68
10	1.48	1.35	1.78	2.04	2.38	1.67
11-20	13.60	13.62	12.73	14.85	14.63	13.13
21-30	11.97	12.18	14.12	10.48	11.18	11.50
> 30	57.55	59.67	59.79	60.84	56.18	54.36

In order to address these concerns, we test the robustness of the results by using an alternative specification. We augment our benchmark specification with the log of total exports of firm i in year $t-1$ and the number of HS chapters (first two digits of the HS product code) in which firm i exports in year $t-1$ as explanatory variables on the right hand side. The number of HS chapters captures how diversified a firm is across industries.

For each of the three outcome variables - firm exit, export growth, and

net product addition - we estimate the following specification

$$Z_{ij,t,t-1} = \beta_0 + \sum_{1}^{9} \beta_k k_{th}\ Decile_{ij,t-1} + \delta \ln X_{i,t-1} + \gamma\ Number\ \ HS2_{i,t-1} + \mu_j + \epsilon_{ij,t} \quad , \tag{A.1}$$

where $Z_{ij,t,t-1} \in \{E_{ij,t,t-1}, \ln X_{ij,t} - \ln X_{ij,t-1}, P_{ij,t,t-1}\}$, $\ln X_{i,t-1}$ is the log of exports of firm i in year $t-1$, and $Number\ \ HS2_{i,t-1}$ is the number of HS chapters in which firm i exported in year $t-1$.

The results are shown in Tables A.4, A.5, and A.6 for exit, export growth, and product addition respectively.

For all three outcome variables, we find that performance of small firms relative to the big firms is qualitatively the same as seen in the benchmark specification. Furthermore, the finding from the benchmark specification that this relative performance of small firms does not change significantly during the crisis period also survives in the robust specification. Therefore, in discussing the results of the robust specification for each of the outcome variables separately we will focus on the effects of total firm size and diversification, and how they affect the importance of size deciles within industry in explaining the outcome variables.

Starting with exit probability, in Table A.4, we find that both, total firm exports and diversification are negatively correlated with exit probability, and are statistically significant, for all time periods. This shows that not only are larger firms less likely to exit from an industry, the more diversified they are the lower is their exit probability. Furthermore, the coefficient of the diversificaton measure is stable across time periods, even during the crisis. On the other hand, relative to the other time periods during the crisis the coefficient on firm size is a bit smaller. As compared to the benchmark specification, coefficients

for the decile dummies are smaller signaling that a firm's being larger and more diversified reduces its probability of exit in an industry irrespective of its size within the industry.

Coming to export growth, Table A.5 shows that diversification has a positive but insignificant affect on export growth in the pre-crisis periods. But, during the crisis and post-crisis periods diversification has a negative and significant correlation with export growth. This may be suggestive of firms restructuring around their core competency in response to the crisis. Total firm size affects export growth positively in all time periods, and this effect is statistically significant. During the crisis period the effect of total firm size on export growth is significantly smaller. As compared to the bechmark specification, the coefficients of the decile dummies are larger for firms that are in the bottom 5 deciles. This reflects that for these relatively smaller firms the size ranking within an industry is more important than that for larger firms. For the larger firms total firm size has statistically significant explanatory power in addition to their industry size ranking. Importantly, as in the benchmark specification, the poor export growth of 7th, 8th and 9th deciles relative to the top 10 percent firms still exists, though most of the coefficients are statitistically insignificant.

Finally, the robustness results for net product addition, in Table A.6, show that product addition is positively correlated with diversification in a statistically significant manner. The correlation coefficients with total firm size are also positive and significant. While the coefficient of diversification remains unchanged across periods, that of total firm size declines a little during the crisis and post-crisis periods. The magnitude of the coefficients of size deciles is smaller as compared to the benchmark specification.

To sum up, the robustness check does not invalidate our results from

the benchmark specifications. Even after incorporating total firm size and a diversification measure, we find that smaller firms do not perform worse than larger firms during the crisis. However, the robustness checks show that both, total firm size and diversification, have significant explanatory power with respect to exit, export growth and product addition.[25]

A.3 Differentiated versus non-Differentiated Goods

A relatively unexplored area in the trade crisis literature is importance of product differentiation or quality differences in determining firm level performance. Gopinath, Itskhoki and Neiman (2011) find that that differentiated manufactures exhibited marked stability in their trade prices while non-differentiated manufactures experienced a sharp reduction in their prices. Levchenko, Lewis and Tesar (2011) examine the hypothesis that increased search for cheaper products induced a disproportionate decline of exports of higher-quality products, but do not find evidence supporting it.

Since we do not have firm-level indicators of product differentiation, we explore the importance of product differentiation channel by modifying the Rauch index of differentiation (see Rauch (1999)) in order to use it at the HS 2 level of industry classification.[26] We regard 'traded in organized market' and 'reference priced' as non-differentiated goods. If all the products corre-

[25] We have also tried including deciles of total firm size in place of log of total firm size, and the results from the benchmark specification survive. Interestingly, for export growth we find that the deciles of total firm size have statistically significant coefficients only for periods - 2004/05 to 2005/06 and 2005/06 to 2006/07. And, during these periods the coefficients carry a negative sign.

[26] If size is correlated with quality, using information on prices and distinguishing between differentiated and non-differentiated sectors may reveal the importance of this channel. See Verhoogen (2008) and Kugler and Verhoogen (2012).

Table A.4: Robustness Check: Regression (Probit analysis) of Exit on Relative Size of Exporters

	(1)	(2)	(3)	(4)	(5)
Dependent Variable			Exit in the next period		
Initial Year	2004/05-	2005/06-	2006/07-	2007/08-	2008/09-
Final Year	2005/06	2006/07	2007/08	2008/09	2009/10
Type of Period	Normal	Normal	Normal	Crisis	Recovery
bottom10	0.672***	0.670***	0.702***	0.692***	0.705***
	(0.010)	(0.010)	(0.010)	(0.009)	(0.009)
bottom20	0.650***	0.640***	0.668***	0.657***	0.668***
	(0.011)	(0.011)	(0.012)	(0.010)	(0.011)
bottom30	0.603***	0.592***	0.621***	0.610***	0.626***
	(0.013)	(0.013)	(0.014)	(0.012)	(0.012)
bottom40	0.545***	0.513***	0.562***	0.546***	0.560***
	(0.015)	(0.016)	(0.016)	(0.015)	(0.015)
bottom50	0.494***	0.471***	0.485***	0.469***	0.503***
	(0.017)	(0.017)	(0.018)	(0.017)	(0.017)
bottom60	0.397***	0.366***	0.391***	0.370***	0.429***
	(0.019)	(0.019)	(0.020)	(0.019)	(0.019)
bottom70	0.304***	0.285***	0.295***	0.295***	0.333***
	(0.020)	(0.020)	(0.022)	(0.020)	(0.020)
bottom80	0.216***	0.201***	0.204***	0.218***	0.228***
	(0.021)	(0.021)	(0.023)	(0.021)	(0.022)
bottom90	0.106***	0.089***	0.126***	0.109***	0.137***
	(0.022)	(0.022)	(0.023)	(0.021)	(0.022)
Log Firm Exports	-0.019***	-0.025***	-0.020***	-0.012***	-0.018***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Number of HS chapters	-0.007***	-0.005***	-0.006***	-0.006***	-0.004***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
N	28518	28574	27940	28418	28697

The table reports coefficients on decile dummies from exporter-industry-level probit analysis of the exit from U.S. market on these decile dummies, industry fixed effects, total firm exports, and number of HS 2 industries in which a firm exports. The omitted category is the 10th decile, so each coefficient reveals the relative performance of the exporters in the k-th compared to the top 10% exporters within industries. Robust standard errors in parentheses. Significance: * 10 percent, ** 5 percent, *** 1 percent.

sponding to a given HS 2 code are differentiated then our measure is 1. On the other hand if none of the products corresponding to a given HS 2 are differentiated then our measure is zero. If some products in a HS 2 industry are differentiated and others are non-differentiated, we compute the differentation index to be number of differentiated products divided by the total number of products. Thus, by construction this variable takes values between 0 and 1.

Table A.5: Robustness Check: Regressions of Export Volume Changes on Relative Size of Exporters

	(1)	(2)	(3)	(4)	(5)
Dependent Variable			$\Delta \log Exports$		
Initial Year	2004/05-	2005/06-	2006/07-	2007/08-	2008/09-
Final Year	2005/06	2006/07	2007/08	2008/09	2009/10
Type of Period	Normal	Normal	Normal	Crisis	Recovery
bottom10	1.780***	1.730***	1.771***	1.854***	1.685***
	(0.058)	(0.055)	(0.059)	(0.056)	(0.057)
bottom20	1.236***	1.221***	1.143***	1.200***	1.160***
	(0.051)	(0.053)	(0.052)	(0.051)	(0.050)
bottom30	0.825***	0.715***	0.759***	0.706***	0.785***
	(0.048)	(0.045)	(0.046)	(0.046)	(0.046)
bottom40	0.499***	0.484***	0.486***	0.511***	0.414***
	(0.044)	(0.041)	(0.042)	(0.041)	(0.041)
bottom50	0.262***	0.259***	0.215***	0.192***	0.200***
	(0.040)	(0.039)	(0.039)	(0.038)	(0.039)
bottom60	0.107***	0.055	0.062*	0.082**	0.072**
	(0.037)	(0.035)	(0.035)	(0.036)	(0.035)
bottom70	0.028	0.055*	-0.026	-0.021	-0.059*
	(0.035)	(0.032)	(0.033)	(0.034)	(0.034)
bottom80	-0.070**	-0.024	-0.048	-0.045	-0.040
	(0.033)	(0.030)	(0.032)	(0.032)	(0.031)
bottom90	-0.035	-0.046*	-0.031	-0.021	-0.052*
	(0.031)	(0.027)	(0.029)	(0.030)	(0.029)
Log Firm Exports	0.023***	0.029***	0.016***	0.009*	0.018***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Number of HS Chapters	0.001	0.001	0.000	-0.004***	-0.005***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
R^2	0.126	0.128	0.126	0.136	0.123
N	18468	18424	18518	18576	18650

The table reports coefficients on decile dummies from exporter-industry-level regressions of the changes in the log of exports on these decile dummies, industry fixed effects, total firm exports, and number of HS 2 industries in which a firm exports. The omitted category is the 10th decile, so each coefficient reveals the relative performance of the exporters in the k-th compared to the top 10% exporters within industries, conditional on survival. Robust standard errors in parentheses. Significance: * 10 percent, ** 5 percent, *** 1 percent.

The specification we employ is given by

(A.2)

$$Y_{ij,t,t-1} = \beta_0 + \sum_{1}^{9} \beta_k k_{th} Decile_{ij,t-1} + \sum_{1}^{9} \beta_k k_{th} Decile_{ij,t-1} * \text{Differentiated}_{j,t-1} + \mu_j + \epsilon_{ij,t} \ ,$$

where the only difference in notation as compared with (A.2), (5.2) and (5.3) is the variable 'Differentiated' which captures the index of differentiation of an

Table A.6: Regression (Probit analysis) of Expansion of Number of Products on Relative Size of Exporters

	(1)	(2)	(3)	(4)	(5)
Dependent Variable	Increase in the number of products				
Initial Year	2004/05-	2005/06-	2006/07-	2007/08-	2008/09-
Final Year	2005/06	2006/07	2007/08	2008/09	2009/10
Type of Period	Normal	Normal	Normal	Crisis	Recovery
bottom10	-0.106***	-0.106***	-0.118***	-0.117***	-0.110***
	(0.006)	(0.005)	(0.005)	(0.005)	(0.005)
bottom20	-0.101***	-0.099***	-0.113***	-0.111***	-0.095***
	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)
bottom30	-0.097***	-0.095***	-0.097***	-0.105***	-0.090***
	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)
bottom40	-0.086***	-0.076***	-0.091***	-0.092***	-0.077***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
bottom50	-0.083***	-0.064***	-0.075***	-0.075***	-0.066***
	(0.006)	(0.007)	(0.007)	(0.006)	(0.006)
bottom60	-0.060***	-0.059***	-0.068***	-0.060***	-0.054***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
bottom70	-0.040***	-0.035***	-0.050***	-0.061***	-0.046***
	(0.008)	(0.007)	(0.007)	(0.006)	(0.007)
bottom80	-0.034***	-0.034***	-0.024***	-0.032***	-0.042***
	(0.008)	(0.007)	(0.008)	(0.007)	(0.007)
bottom90	-0.009	-0.016**	-0.016**	-0.024***	-0.014*
	(0.008)	(0.008)	(0.008)	(0.007)	(0.008)
Log Firm Exports	0.010***	0.013***	0.011***	0.007***	0.008***
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Number of HS Chapters	0.002***	0.002***	0.002***	0.002***	0.001*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
N	28384	28533	27880	28274	28450

The table reports coefficients on decile dummies from exporter-industry-level probit analysis of the expansion of the number of products on these decile dummies, industry fixed effects, total firm exports, and number of HS 2 industries in which a firm exports. The omitted category is the 10th decile, so each coefficient reveals the relative performance of the exporters in the k-th compared to the top 10% exporters within industries. Robust standard errors in parentheses. Significance: * 10 percent, ** 5 percent, *** 1 percent.

industry.

For firm exit, in Table A.7, the interactions of the differentiation index with size deciles have positive coefficients. This means that in differentitated industries firms have higher exit rates compared to the top firms in the industries. However, this pattern becomes systematically weaker during the crisis period, and then becomes stronger during the recovery period. Again,

as we saw in the case of durables and financial dependence, the contribution of differentiation to overall exit probability of firms in bigger size deciles seems to be prortionally higher. Coming to export growth, Table A.8, we can see that the u-shaped pattern of export growth across size deciles observed in the benchmark specification is coming from differentiated industries. This pattern did not change in the crisis period. Lastly, with respect to product addition (Table A.9), there is no difference between differentiated and non differentiated industries in terms of product addition both in the pre-crisis and crisis periods. However, the performance of non top 10 percent exporters relative to top 10 percent exporters became worse in the recovery period in differentiated industries.

Overall, the u-shaped pattern in export growth observed in the benchmark specification is due to firms in differentiated industries. Also, smaller firms as compared to the top 10 percent firms exhibit smaller probabilities of exit and lower probabilities of variety expansion during the crisis and post-crisis periods.

Table A.7: Regression (Probit analysis) of Exit on Relative Size of Exporters: Differentiated versus non-Differentiated

	(1)	(2)	(3)	(4)	(5)
Dependent Variable			Exit in the next period		
Initial Year	2004/05-	2005/06-	2006/07-	2007/08-	2008/09-
Final Year	2005/06	2006/07	2007/08	2008/09	2009/10
Type of Period	Normal	Normal	Normal	Crisis	Recovery
bottom10	0.69***	0.70***	0.72***	0.70***	0.71***
	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
bottom20	0.67***	0.65***	0.67***	0.67***	0.66***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
bottom30	0.61***	0.61***	0.62***	0.61***	0.62***
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)
bottom40	0.54***	0.53***	0.56***	0.57***	0.53***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
bottom50	0.48***	0.48***	0.48***	0.46***	0.47***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
bottom60	0.40***	0.38***	0.37***	0.38***	0.39***
	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)
bottom70	0.26***	0.26***	0.28***	0.28***	0.28***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
bottom80	0.21***	0.16***	0.20***	0.20***	0.17***
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
bottom90	0.15***	0.09**	0.11**	0.11***	0.07*
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)
differentiated*bottom10	0.11**	0.09*	0.10*	0.05	0.15***
	(0.05)	(0.05)	(0.06)	(0.05)	(0.06)
differentiated*bottom20	0.10*	0.16***	0.14**	0.05	0.17***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
differentiated*bottom30	0.13**	0.13**	0.14**	0.10**	0.16***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
differentiated*bottom40	0.17***	0.15***	0.14***	0.04	0.19***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
differentiated*bottom50	0.18***	0.14***	0.14**	0.10*	0.19***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
differentiated*bottom60	0.11**	0.13**	0.15***	0.06	0.18***
	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)
differentiated*bottom70	0.18***	0.17***	0.12**	0.10*	0.19***
	(0.06)	(0.05)	(0.06)	(0.05)	(0.06)
differentiated*bottom80	0.10*	0.17***	0.10*	0.08	0.18***
	(0.06)	(0.05)	(0.06)	(0.06)	(0.06)
differentiated*bottom90	-0.01	0.07	0.09	0.04	0.17***
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
N	28518	28574	27940	28418	28697

The table reports coefficients on decile dummies from exporter-industry-level probit analysis of the exit from U.S. market on these decile dummies, their interactions with the industry-level differentiation index and industry fixed effects. The omitted category is the 10th decile, so the coefficients on the decile dummies reveal the relative performance of the exporters in the k-th compared to the top 10% exporters within industries, while the coefficients on the decile dummies interactions with the industry-level differentiation index reveal how this relative performance is different depending on whether the industry is characterized as differentiated. Robust standard errors in parentheses. Significance: * 10 percent, ** 5 percent, *** 1 percent.

Table A.8: Regressions of Export Volume Changes on Relative Size of Exporters

	(1)	(2)	(3)	(4)	(5)
Dependent Variable			$\Delta \log Exports$		
Initial Year	2004/05-	2005/06-	2006/07-	2007/08-	2008/09-
Final Year	2005/06	2006/07	2007/08	2008/09	2009/10
Type of Period	Normal	Normal	Normal	Crisis	Recovery
bottom10	1.64***	1.54***	1.73***	1.77***	1.59***
	(0.11)	(0.10)	(0.10)	(0.10)	(0.10)
bottom20	0.91***	0.97***	1.01***	1.26***	1.07***
	(0.09)	(0.10)	(0.09)	(0.10)	(0.08)
bottom30	0.77***	0.55***	0.65***	0.67***	0.77***
	(0.09)	(0.08)	(0.08)	(0.09)	(0.08)
bottom40	0.47***	0.24***	0.28***	0.52***	0.35***
	(0.08)	(0.07)	(0.07)	(0.07)	(0.07)
bottom50	0.24***	0.13**	0.12*	0.15**	0.23***
	(0.07)	(0.07)	(0.07)	(0.07)	(0.07)
bottom60	0.09	-0.00	0.01	0.01	0.05
	(0.07)	(0.06)	(0.06)	(0.07)	(0.06)
bottom70	0.08	0.05	-0.11*	0.08	0.04
	(0.06)	(0.06)	(0.06)	(0.06)	(0.06)
bottom80	-0.01	0.01	-0.05	0.05	0.04
	(0.06)	(0.05)	(0.05)	(0.06)	(0.06)
bottom90	0.01	-0.05	-0.04	0.05	0.02
	(0.06)	(0.05)	(0.05)	(0.06)	(0.05)
differentiated*bottom10	0.07	0.14	-0.04	0.12	0.09
	(0.17)	(0.16)	(0.17)	(0.17)	(0.16)
differentiated*bottom20	0.42***	0.26*	0.14	-0.15	0.08
	(0.14)	(0.15)	(0.15)	(0.15)	(0.14)
differentiated*bottom30	-0.05	0.11	0.09	0.04	-0.06
	(0.13)	(0.12)	(0.12)	(0.14)	(0.13)
differentiated*bottom40	-0.10	0.25**	0.30***	-0.04	0.06
	(0.12)	(0.11)	(0.11)	(0.11)	(0.11)
differentiated*bottom50	-0.10	0.07	0.09	0.06	-0.12
	(0.11)	(0.10)	(0.11)	(0.11)	(0.11)
differentiated*bottom60	-0.09	-0.05	0.01	0.11	-0.02
	(0.10)	(0.09)	(0.10)	(0.10)	(0.10)
differentiated*bottom70	-0.20**	-0.13	0.08	-0.20**	-0.22**
	(0.09)	(0.09)	(0.09)	(0.10)	(0.10)
differentiated*bottom80	-0.19**	-0.18**	-0.06	-0.18*	-0.17*
	(0.09)	(0.09)	(0.09)	(0.09)	(0.09)
differentiated*bottom90	-0.13	-0.06	-0.03	-0.13	-0.16*
	(0.09)	(0.08)	(0.08)	(0.09)	(0.08)
R^2	0.12	0.13	0.13	0.14	0.12
N	18468	18424	18518	18576	18650

The table reports coefficients on decile dummies from exporter-industry-level regressions of the changes in the log of exports on these decile dummies, their interactions with the industry-level differentiation index and industry fixed effects. The omitted category is the 10th decile, so the coefficients on the decile dummies reveal the relative performance of the exporters in the k-th compared to the top 10% exporters within industries, while the coefficients on the decile dummies interactions with the industry-level differentiation index reveal how this relative performance is different depending on whether the industry is characterized as differentiated. Robust standard errors in parentheses. Significance: * 10 percent, ** 5 percent, *** 1 percent.

Table A.9: Regression (Probit analysis) of Expansion of Number of Products on Relative Size of Exporters: Differentiated versus non-Differentiated

	(1)	(2)	(3)	(4)	(5)
Dependent Variable	Increase in the number of products				
Initial Year	2004/05-	2005/06-	2006/07-	2007/08-	2008/09-
Final Year	2005/06	2006/07	2007/08	2008/09	2009/10
Type of Period	Normal	Normal	Normal	Crisis	Recovery
bottom10	-0.14***	-0.14***	-0.14***	-0.12***	-0.12***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom20	-0.13***	-0.13***	-0.14***	-0.11***	-0.09***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom30	-0.13***	-0.13***	-0.13***	-0.11***	-0.09***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom40	-0.10***	-0.10***	-0.13***	-0.10***	-0.08***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom50	-0.11***	-0.08***	-0.11***	-0.08***	-0.07***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom60	-0.07***	-0.09***	-0.09***	-0.07***	-0.06***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom70	-0.07***	-0.05***	-0.08***	-0.07***	-0.04***
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom80	-0.05***	-0.04***	-0.05***	-0.04***	-0.02
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
bottom90	-0.02	-0.03**	-0.02	-0.01	0.01
	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
differentiated*bottom10	0.02	0.01	-0.02	-0.06**	-0.05*
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
differentiated*bottom20	0.00	-0.01	0.01	-0.09***	-0.10***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
differentiated*bottom30	0.02	-0.01	0.01	-0.04	-0.08***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
differentiated*bottom40	-0.05*	-0.04	0.03	-0.03	-0.05*
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
differentiated*bottom50	-0.01	-0.04	0.03	-0.06**	-0.05**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
differentiated*bottom60	-0.05*	0.00	-0.02	-0.03	-0.04
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
differentiated*bottom70	0.01	-0.03	0.01	-0.01	-0.06**
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
differentiated*bottom80	-0.01	-0.05*	-0.00	-0.01	-0.08***
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)
differentiated*bottom90	-0.00	-0.01	-0.03	-0.06**	-0.06**
	(0.03)	(0.03)	(0.03)	(0.02)	(0.02)
N	28384	28533	27880	28274	28450

The table reports coefficients on decile dummies from exporter-industry-level probit analysis of the expansion of the number of products on these decile dummies, their interactions with the industry-level differentiation index and industry fixed effects. The omitted category is the 10th decile, so the coefficients on the decile dummies reveal the relative performance of the exporters in the k-th compared to the top 10% exporters within industries, while the coefficients on the decile dummies interactions with the industry-level differentiation index reveal how this relative performance is different depending on whether the industry is characterized as differentiated. Robust standard errors in parentheses. Significance: * 10 percent, ** 5 percent, *** 1 percent.