Export Prices Across Firms and Destination: Manova and Zhang Revisited*

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Abstract

This paper revisits 4 stylized facts of export prices found in Manova and Zhang (2012). This exploratory paper replicates part of the analysis of Manova and Zhang (2012) for the Philippines. Finding, among other stylized facts, that firms vary prices over destinations and that higher revenues are correlated with higher export prices. The stylized fact that correlation between prices and revenue is more pronounce in richer destinations in Manova and Zhang (2012) is not found for this data. The analysis is extended with an section on the price dispersion within fourteen products over time adopting part of the framework used in Lach (2002). In this extension tentative evidence is found in favor of random pricing versus consistent pricing, this in the sense that firms do not consistently set high or low export prices over time when compared to local producers. Although prices that fall in the highest and lowest category have relatively lower mobility over time.

JEL Classification:
Keywords:

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Contents

List of Figures

List of Tables

1 Introduction

This chapter looks at empirical regularities that have been uncovered for exporter prices, revisiting a number of robust facts about the substantial and systematic variation in export prices found in Manova and Zhang (2012). The paper by Manova and Zhang (2012) find six stylized facts about firm export prices using a cross section of Chinese trade. Using a new Philippine trade dataset this paper will analyze the following four of the six empirical stylized facts obtained in Manova and Zhang (2012):[3]

Fact 1 "*Across firms selling a given product, exporters that charge higher prices earn greater revenues in each destination, have bigger worldwide sales, and enter more markets. These patterns are more pronounced for products with greater scope for quality differentiation and for richer destinations.*"

Fact 2 "*Across countries within a firm–product, firms set higher prices in richer, bigger, more distant, and less remote markets. The effects of size, distance, and remoteness are concentrated in rich destinations and among firms that vary prices more across markets.*"

Fact 3 "*Across countries within a firm–product, firms earn more revenues in markets where they set higher prices. This pattern is more pronounced for products with greater scope for quality differentiation and for richer destinations.*"

Fact 4 "*Across firms within a product, firms with more destinations offer a wider range of export prices. This pattern is more pronounced for products with greater scope for quality differentiation.*"

These facts raise the possibility that firms also vary product quality within and across markets. However Manova and Zhang (2012) only use a cross section to obtain their results. This chapter takes an extra step and tries to show how persistent price dispersion is over time. Do firms that charge high export prices for a product to a certain destination in a year also do so in the next or are the export prices more randomly set? It should be expected that if differences in export prices reflect quality that then these difference should be persistent over time. This analysis cannot be performed on all the products that the Philippines exports as certain condition have to hold in order to insure than statement about product price dispersion can be made. Therefore a selection of products is made on the basis of four conditions that the product have to meet in order to enhance within product price comparison. The products selected are relatively similar within its 7-digit product category, exported by many different firms, exported for a long time by the Philippines, and firms, on average, export this product over a relatively long period. This chapter takes 14 products that meet the 4 conditions and analyze price dispersion persistence using a similar approach as Lach (2002).

2 Data

Similar to Manova and Zhang (2012) this paper wants to make a distinction between manufacturing and intermediary firms. Therefore three main corrections are applied to the data before use. Firstly, firms that are not directly involved with the production of the product they export are dropped.[4] Secondly, firm–product–destination observations that in real terms have an export value worth less than $1000 are dropped from the sample. Lastly, product categories that cannot be linked directly to firms or domestic production are also deleted from the analysis.[5] After deletion 74.5% of the total 2004

[3]The two facts not analyzed in this paper are related to import prices. The author has the available data to analyze these empirical facts however it was chosen not to do so in order to limit the scope of this exploratory paper.

[4]Similar to Manova and Zhang (2012) firms that had in their name the following words Export, Import, Trader, Trading, Logistic, Shipping and Moving are deleted from the sample.

[5]Therefore all observations that are linked to PSCC division 93 (with the notable exception of PSCC items 93101 till 93102 which contains products built on consignment basis).

sample remains, which according to Manova and Zhang (2012) are manufacturing firms. There are 7,733 manufacturing firms identified that export 3,259 products to 222 destinations. This is notably less than the 96,522 firms and 6,908 products of the sample of Chinese exporter in the sample of Manova and Zhang (2012).

The Philippine data has the possibility to exploit both unit values and gross kilo prices. Unit values are used in the paper of Manova and Zhang (2012). The possibility to exploit both measures of export prices will be used in this paper in order to compare the results when using the different measures. From 2001 onwards units are reported in which the quantity is measured. Before 2001 a quantity is reported however the units in which it is measured is not recorded. Therefore unit values can be calculated for 2004, however for the price dispersion analysis gross kilo prices can only be used.[6]

Based on the availability of data for destination indicators (i.e GDP, GDP per capita, and remoteness) destinations are included in the analysis. In order to avoid loosing destinations data from a range of sources is used when the data is missing from the World Bank which is the primary source of data for the export destinations.[7] For the remoteness dummy destinations located close to (or neighboring countries) the respective destination are used as a proxy while for GDP and GDP per capita data from other sources are imputed. Although not perfect this is a better option than dropping destinations from the analysis for which the World Bank has no data. As doing so would lead to sample selection; as it are often poorer and smaller destinations for which data is missing.

Figure 1 shows that the most frequently occurring observations are firms that export to one destination and firms that export one product. The number of firms that export to a certain number of destinations decreases as the number of destinations exported to increases. The same trend can be seen for the number of products exported.

Figure 1: Firms, Markets and Products

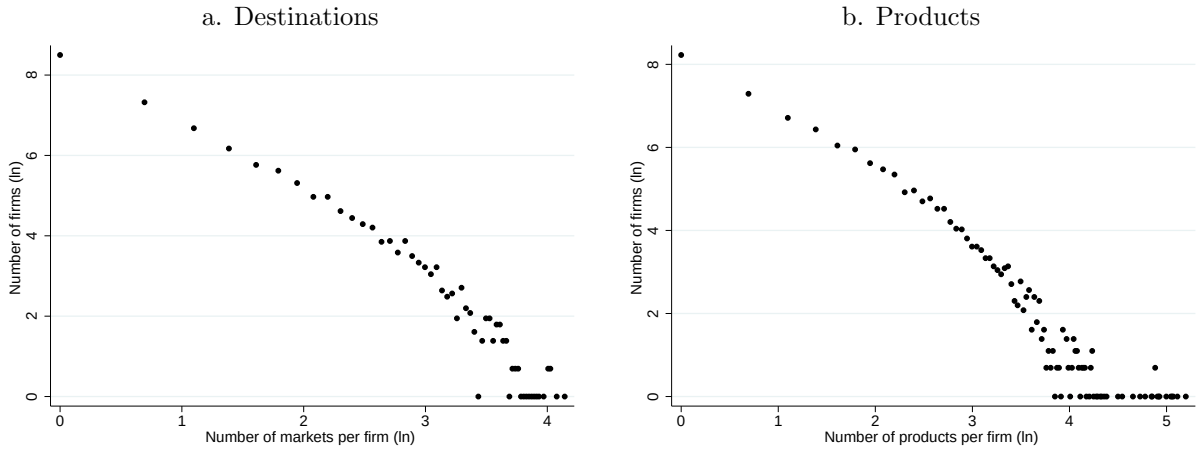


Figure 2 shows that when the total export value to a certain destination is larger it also increases in terms of number of firms that export to it and the number of distinct products exported to the destination. Therefore Japan and USA which are the most important export markets in terms of export value are also the destinations to which the greatest amount of firms export to and to which

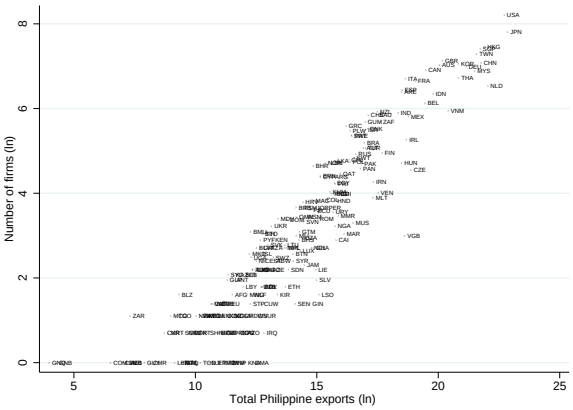
[6]There are 15 different units. We have Bale, barrel (bbl), cubic decimeters, gross kilos, grams, liter, meter, net kilos, number, troy ounce, pack, pair, roll, sets and square meters. However Number (39.2%), Net Kilos (36.4%) and Gross Kilos (21.6%) in decreasing order are the main units and account for 97.3% of the observations. Also for all observations we have gross kilo accounts.

[7]U.S censuses, C.I.A world factbook, INSEE and IMF. (e.g data on Taiwan is not available in the World Bank development indicators) The data consist mostly of constant GDP with a PPP correction. However in a few cases the PPP correction was not available and then constant GDP is used.

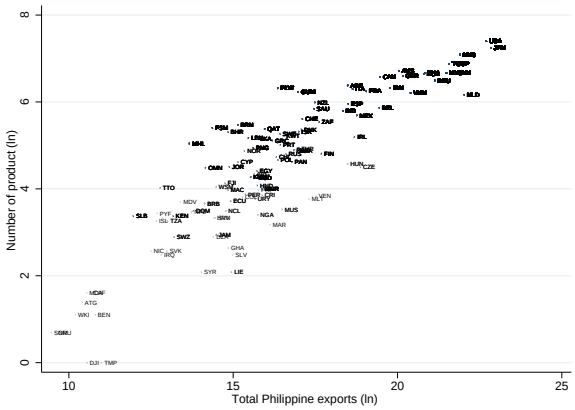
the greatest amount of distinct products are exported. However the relationship between the number of firms and total export value is more pronounced than that of number of products and total export value.

Figure 2: # Products and Firms versus total export value

a. # Firms



b. # Products



The Philippines exports primarily to relatively rich destinations. Table 1 shows that 80.3% of the export value and 79.3% of the observations are to countries that the World Bank defines as high income countries. Therefore our analysis applies mostly to rich destinations. Making a real distinction between rich and poor destinations for this sample is difficult as the sample is dominated by relatively rich export destinations.

Table 1: Destination by World Bank Income Classification

Classification	# obs	Percentage	Total Revenue	Percentage
High	63,723	79.4%	30,140,410,931	80.5 %
Upper Middle	6,816	8.5 %	2,498,835,816	6.7 %
Lower Middel	7,423	9.3%	3,995,082,513	10.7 %
Low	2,384	2.9 %	810,976,923	2.2%

Table 2 illustrates the substantial variation present in prices across Philippine exporters, products and export destinations. After removing the product fixed effects the average log price has a standard deviation of 0.88 for gross kilo prices. Unit values, however, have more variation as is indicated by the higher standard deviation of 0.99. Prices vary across Philippine exporters selling a given product to a destination as the average standard deviation of firm prices in a destination–product market is 0.66 (0.73) for gross kilo prices (unit values). There is also variation in gross kilo price (unit values) across trade partners within a given exporter; As the average standard deviation of log prices across destinations within the firm–product pair is 0.46 (0.48). The magnitude of variation is similar to that found in Manova and Zhang (2012) and slightly larger for unit values than gross kilo prices.

Table 2: The Variation In Export Prices Across Frims, Products, and Destinations

	# Obs	Average	St. Dev.	Min	5th Percentile	95th Percentile	Max
Variation in (log) prices across firms and destination within PSCC 7-digit products							
1a. firm-product-destination gross kilo prices (product F.E)	80,267	0.00	0.88	-7.96	-1.43	1.42	9.88
1b. firm-product-destination unit values (product F.E)	80,267	0.00	0.99	-9.27	-1.62	1.57	9.81
2a. St. dev. of gross kilo prices across firms and destinations within products (product F.E)	2,339	0.86	0.58	0.00	0.14	1.91	6.86
2b. St. dev. of unit values across firms and destinations within products (product F.E)	2,339	0.96	0.70	0.00	0.12	2.29	7.44
Variation in (log) prices across destination within firm– PSCC 7-digit products pairs							
3a. St. dev. of prices across destinations and within firm-products pairs (firm-product pair F.E)	11,577	0.46	0.43	0.00	0.02	1.28	5.39
3b. St. dev. of unit values across destinations and within firm-products pairs (firm-product pair F.E)	11,577	0.48	0.46	0.00	0.02	1.35	5.65
Variation in (log) prices across firms within destination– PSCC 7-digit products pairs							
4a. St. dev. of prices across firms and within destination-products pairs (firm-product pair F.E)	10,850	0.66	0.56	0.00	0.04	1.73	6.32
4b. St. dev. of unit values across firms and within destination-products pairs (firm-product pair F.E)	10,850	0.73	0.64	0.00	0.04	1.90	8.59

3 Empirics

Manova and Zhang (2012) calculate conditional correlations. The correlations estimated are conditional because the regressions also account for fixed effects. Therefore given the fixed effect the correlation between the respective variables is the coefficient β. Manova and Zhang (2012) stress that their regression coefficients cannot be interpreted as a causal effect as the firms' unit values and sales are both effected by unobserved firm characteristics and are the joint outcome of firms' profit maximization. This paper reproduces a couple of the regressions performed in Manova and Zhang (2012) with a few slight deviations in order to corroborate the stylized facts they found but then for the Philippines.

3.1 Export Prices across Firms

The regressions and tables are similar to that of Manova and Zhang (2012) in order to enhance comparison between results. In the first regression the correlation between export prices and worldwide export revenues across firms selling a given PSCC 7–digit product is considered. To explore this variation the following equation is used:

$$logPrice_{fp} = \alpha + \beta \cdot logRevenue_{fp} + \delta_p + \varepsilon_{fp} \tag{1}$$

The variables of interest are aggregated at the the firm product level. The average export product price of firm f for product p across all destinations d it exports to is calculated as follows: $Price_{fp} = \frac{\sum_d revenue_{fpd}}{\sum_d quantity_{fpd}}$. Where $revenue_{fpd}$ is the f.o.b export value and $quantity_{fpd}$ is the amount exported, measured in gross kilos or in unit values, by firm f of product p to destination d. Product fixed effects δ_p are added to the regression to control for differences between products that effect all firms equally. The errors are clustered by firm.

The sign of β is the sign of the conditional correlation between export price and the revenues across firms within a product. In Table 3 it can be seen that, within a given product, firms that charge higher prices earn greater revenues. In columns (3) the interaction term between revenue and a dummy for differentiated products is added. This interaction terms shows that most of this effect is due to differentiated products which have a greater scope for quality upgrading than homogeneous products. The revenue coefficient which is still significant drops drastically in magnitude. Using unit values or gross kilo prices does not lead to very different results. Also in both cases exporting firms that charge lower prices export more in terms of quantity.

Table 3: Firms' Export Prices and Worldwide Export Revenues

	Variation across firms within products							
	Gross Kilo Prices				Unit Values			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
(log) Revenue	0.038***		0.011**	0.038***	0.042***		0.006	0.044***
(log) Gross Kilos		-0.114***						
(log) Quantity						-0.149***		
(log) Revenue x different. good			0.034***				0.044***	
(log) Revenue x Rich dest.				0.002				-0.001
Product FE	Y	Y	Y	Y	Y	Y		
R-squared	0.705	0.728	0.705	0.713	0.749	0.777	0.750	0.753
# observations	44,198	44,198	44,198	47,818	44,199	44,199	44,199	47,819
# firm clusters	7,733	7,733	7,733	7,733	7,733	7,733	7,733	7,733

Notes: *, ** and *** indicate significance at the 10%, 5% and 1% level.

In columns (4) an interaction term is added to the regression in order to distinguish between rich and poor destinations. Therefore the average export prices and export revenue for a firm–product level is aggregated separately for rich and poor destinations.[8] Where rich destination are defined as destinations that are richer than the median GDP per capita for destinations.[9] When the interaction term between revenue and and rich destinations ((log) Revenue x Rich dest.) is included in the regression nothing changes as the interaction term is insignificant. Therefore the correlation between export prices and revenue is not different for richer or poorer markets. The destination that are poorer than the median GDP per capita only account for 13.1% of the observations. Richer destinations therefore account for the gross of the sample. The same is true for differentiated products that account for 80.9% of the observations. Therefore exports are is concentrated in richer destinations and manufacturing exports are concentrated in differentiated products. This concentration is also present in Manova and Zhang (2012) as in their sample rich destinations and differentiated products account for 84.2% and 91.3% of the observations.

The previous analysis variation across exporters in the destinations they sell to is not taken into account. Therefore potentially large differences across destination that influence both the participation and pricing decisions of firms are ignored. The following specification is at the firm–product–destination level takes this into account:

$$logPrice_{fpd} = \alpha + \beta \cdot logRevenue_{fpd} + \delta_{pd} + \varepsilon_{fpd} \tag{2}$$

The variables of interest are aggregated at the the firm–product–destination level. The export product price of firm f for product p to destinations d is calculated as follows: $Price_{fpd} = \frac{revenue_{fpd}}{quantity_{fpd}}$. Given the fact that the data is at the firm–product–level this the most disaggregate specification of export prices that can be obtained from the data. The fixed effects, δ_{pd}, are at the product–destination level. They, therefore, take into account the product–destination variation that is common to all firms exporting product p to destination d. (e.g Transport costs, bilateral tariffs and demand conditions) Table 4 presents evidence that firms that charge higher prices earn greater revenue. This relationship is again stronger for differentiated products. Also firms that charge lower prices sell larger quantities. The coefficient of (log) Revenue increases by a magnitude of around four when the interaction of revenues with importer's GDP per capita is added. This paper finds that firms that earn large revenues in poorer markets charge higher prices. As the GDP per capita increases the positive correlation between revenue and price becomes weaker, due to the negative interaction effect between GDP per capita and revenue. Therefore unlike Manova and Zhang (2012) this paper finds that prices of products are lower for markets where the GDP per capita is higher. The interaction between revenue and high income classification of the World Bank (High income) in columns (5) also shows that prices are lower for high income destinations.

Manova and Zhang (2012) point out that constructing unit prices as a ratio of export revenue to quantities does not restrict the sign of correlation between the two. However they also show that the only pattern which can be ruled out by construction is the combination of a positive correlation between price and quantity and a negative correlation between price and revenue. Therefore the positive correlation is informative and does not arise by construction.

[8] Therefore the number of observations increases slightly.

[9] The median GDP per capita in the sample is equal to $\$8,976$

Table 4: Firms' Export Prices and Worldwide Export Revenues

	Variation In Export Prices Across Firms In A Destination										
	Gross Kilo Prices					Unit Values					
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)	
(log) Revenue	0.044***		0.028***	0.184***	0.060***	0.048***		0.027***	0.192***	0.067***	
(log) Gross Kilos		-0.122***									
(log) Quantity						-0.155***					
(log) Revenue x different. good			0.019**				0.024***				
(log) Revenue x (log) GDP per capita				-0.014***				-0.014***			
(log) Revenue x High Income					-0.019**					-0.023**	
Product–destination FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	
R-squared	0.829	0.843	0.829	0.829	0.829	0.845	0.862	0.845	0.845	0.845	80243
# observations	80,267	80,267	80,267	80,191	80,243	80,267	80,267	80,267	80,191		

Notes: *, ** and *** indicate significance at the 10%, 5% and 1% level.

3.2 Export Prices and Number of Destinations

This section the relationship between firms' export prices and number of export destinations in analyzed.

$$logPrice_{fp} = \alpha + \beta \cdot log\#Destination_{fp} + \delta_p + \varepsilon_{fp} \tag{3}$$

$$sd_{fp}(logPrice_{fpd}) = \alpha + \beta \cdot log\#Destination_{fp} + \delta_p + \varepsilon_{fp} \tag{4}$$

$Price_{fp}$ is the average export price of firm f for product p and $\#destination_{fpd}$ is the number of destinations that buy p from f. The measure of price dispersion ($sd_{fp}(logPrice_{fpd})$) is the standard deviation of the log export prices across destinations within each firm product pair. Product fixed effect are added to the regression to control for product–specific effects and the errors are clustered by firm. Table 5 shows that the number of destinations to which a firm exports a product is positively related to the export price. Adding the interaction term to the regression shows that this positive result is driven by differentiated products. In fact the coefficient of (log) # Destinations becomes negative indicating that for homogeneous products firms that export to more destinations charge lower export prices. As reported in Table 6, firms that export to more destinations also have greater variation of prices across destinations. This effect however is not stronger for differentiated products.

Table 5: Firms' Export Prices and Number of Export Destinations

	Gross Kilo Prices		Unit Values	
	(1)	(2)	(1)	(2)
(log) # Destinations	0.031***	-0.032*	0.036***	-0.044**
(log) # Dest x different. good		0.076***		0.098***
Product FE	Y	Y	Y	Y
No. of Obs.	44198	44198	44199	44199
Firm clusters	7,733	7,733	7,733	7,733
R-squared	0.702	0.702	0.747	0.747

Notes: *, ** and *** indicate significance at the 10%, 5% and 1% level. Dependent variable is (log) average f.o.b export price, by firm and product.

Table 6: Firms' Variation in Export Prices and Number of Export Destinations

	Gross Kilo Prices		Unit Values	
	(1)	(2)	(1)	(2)
(log) # Destination	0.037***	0.035**	0.043***	0.044***
(log) # Dest. x different. good		0.002		-0.001
No. of Obs.	11577	11577	11577	11577
Firm clusters	3,383	3,383	3,383	3,383
R-squared	0.338	0.338	0.328	0.328

Notes: *, ** and *** indicate significance at the 10%, 5% and 1% level. Dependent variable is standard deviation of (log) f.o.b export price, by firm and product.

3.3 Export Prices across Destinations within Firms

The focus has been on the variation in export prices within product categories or destination–product categories. The variation of export prices across destinations within a firm–product pairs is analyzed

in this subsection. The difference with the previous regressions is that firm–product fixed effects (δ_{fp}) are added to the regression. This implies that product characteristics common to all firms and firm attributes are controlled for. This also implies that the effect of firms that only exports one product to a single destination is captured by the respective fixed effect. Therefore the coefficients of interest β are identified from the variation in prices across destinations within a given firm and product.

$$logPrice_{fpd} = \alpha + \beta \cdot logRevenue_{fpd} + \delta_{fp} + \varepsilon_{fpd} \tag{5}$$

Table 7 shows that firms that earn larger revenues from a given product in a destination in which it sets a higher price. In interaction term between revenue and differentiated products and revenue and GDP per capita are both insignificant. Therefore adding firm–product effects causes these interaction to become insignificant. The variable $Marketshare$ controls for the share of each firms' exports of a product to a destination and is added to control for local market power. The magnitude of the effect of revenue nor the significance changes when this variable is added to the regression. Indicating that the relation between higher prices and larger revenue cannot be solely attributed to market power. However it is of course not the market power of the Philippine firm with respect to other Philippine firms that matters per se, but the market power of the Philippine firm in respect to all exporters to that destination (i.e global market power). Therefore this variable is limited in explanatory power as it only reveals the concentration of the firm with respect to other Philippine exporters when these firms might not be the true competition, as possibly other exporters located outside the Philippines are. Although more local market power is related to higher prices, as can be seen with the significant effect for $Marketshare$.

The same regression is taken as before however destination specific variables are added as covariates. This to see how market features affect Philippine firms. The market feature are income ($GDPpc_d$), Size (GDP_d), distance to the Philippines ($distance_d$), average transport cost per kilo ($Trans_d$), and overall economic remoteness ($remote_d$). The variables for distance and average gross kilo transport costs cannot be added at the same time in the regression as they both are proxies for transport costs. In this regression firm–product fixed effects are added. Therefore the identification of the coefficients of the market features is purely from the variation in prices across destinations for a given firm and product. Table 8 shows that firms charge higher prices in destinations that are richer, less remote and have higher transport costs. However when most variables are added at the same time in a regression (see column (7)) only GDP per capita remains significant. The results for GDP per capita remain significant even after correcting for the market share of the firm (Column (8))

$$\begin{aligned} logPrice_{fpd} = \alpha + \beta \cdot logGDPpc_d + \gamma \cdot logGDP_d + \\ \lambda \cdot logdistance_d + \mu \cdot logremote_d + \delta_{fp} + \varepsilon_{fpd} \end{aligned} \tag{6}$$

Table 7: Firms' Export Prices and Worldwide Export Revenues

	Variation In Export Prices Across Firms In A Destination									
	Gross Kilo Prices					Unit Values				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)
(log) Revenue	0.044***		0.044***	0.048***	0.049***	0.041***		0.041***	0.050***	0.047***
(log) Gross Kilos		-0.058***								
(log) Quantity							-0.072***			
Market share			0.043***					0.055***		
(log) Revenue x different. good				-0.005					-0.011	
(log) Revenue x (log) GDP per capita					-0.000					-0.000
No. of Obs.	80,267	80,267	80,267	80,267	80,191	80,267	80,267	80,267	80,267	80,191
Dest–product clusters	25706	25706	25706	25706	25651	25706	25706	25706	25706	25651
R-squared	0.942	0.943	0.942	0.942	0.942	0.953	0.954	0.953	0.953	0.953

Notes: *, ** and *** indicate significance at the 10%, 5% and 1% level.

Table 8: Firms' Export Prices and Worldwide Export Revenues

	Variation In Export Prices Across Firms In A Destination							
	Gross Kilo Prices				Unit Values			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(log) GDP per capita	0.021***						0.018***	0.023***
(log) GDP		0.004					0.001	0.005*
(log) Distance			0.003					
(log) remoteness				-0.052**			-0.024	-0.017
(log) Transport costs					0.012**		0.006	0.005
Market share						0.052***		0.075***
No. of Obs.	80,191	80,191	80,256	80,028	80,267	80,267	79,967	79,967
Firm-product clusters	25,651	25,651	25,695	25,521	25,706	25,706	25,481	25,481
R-squared	0.941	0.941	0.941	0.941	0.941	0.941	0.941	0.941

Notes: *, ** and *** indicate significance at the 10%, 5% and 1% level.

Therefore this paper confirms the following facts:

Fact 1 Across firms selling a given product, exporting firms that charge higher prices earn greater revenues in each destination, enter more markets and have greater total sales. These patterns are also more pronounced for differentiated products however not for richer destinations. For firms that enter more markets this paper finds that for homogeneous products the price is lower while for differentiated products the price is higher.

Fact 2 Across countries within a firm–product, firms set higher prices in richer, more remote and with higher average gross kilo transport costs. Size and distance are not significant. When all variables are added in the same regression only GDP per capita remains significant. This paper does not find that the effect of size, distance and remoteness are concentrated in rich destinations.

Fact 3 Across countries within a firm–product, firms earn more revenues in markets where they set higher prices. However this paper does not find that these patterns are more pronounced for differentiated products and richer destinations.

Fact 4 Across firms within a product, firms with more destinations offer a wider range of prices. This patterns is not more pronounced for differentiated products.

Therefore the relation between prices and revenues is confirmed in this analysis. However the destination specific effect results are less pronounced than in the paper of Manova and Zhang (2012). There seems to be evidence that prices are higher in richer countries however there is also evidence that the prices are higher in poorer destinations. (See Table 4) The results on the other destination indicators are mostly insignificant. Even though destination factors seem to have no, smaller effects or possibly a non linear effect on the prices set by firms these same factors have strong significant correlations with the transport costs of firms. This is, however, out of the scope of the paper but in appendix some results of transport costs with destination factors are shown. (See Table A.1)

4 Existence and Persistence of price dispersion

This part of the paper addresses the matter of persistence of export price dispersion overtime. Do exporters that charge a high price for their product to a certain destination do so consistently? Or are the prices set by exporters more random leading to changes in the export prices set by firms from year to year. The importance of this question relates to the estimation of quality over time for which export prices are often used. If prices are not consistently set then the perceived quality of these exporters will also be random; this in the sense that the prices will indicate different levels of quality when going from one year to the next.[10]

Not all products in the sample can be analyzed in terms of price dispersion over time. A selection of products is made on the basis of a number of indicators in order to insure that reliable statements about the existence and persistence of a price distribution can be made. Firstly the products should have a relatively large amount of firms exporting the product from year to year. Secondly variation in the firms that export the respective product over time should be limited. If the sample of firms changes every year then the persistence of the price dispersion will be hard to analyze; as a firm can go from a high to low price exporter due to a change in the sample of exporting firms without the firm ever changing its price. A changing sample does not have to be problematic as it is also a reflection of the firms price position versus its current local competitors. However the change in sample over time should preferably be limited. Statements about the persistence of the dispersion for

[10]The persistence of price dispersion can also be analyzed with a firm exporting the same products to different destinations. Do products exported to the same destination have prices dispersions that are consistent over time?

firm–product–destination observations that last 1 year cannot be made. Therefore spells that only last 1 year are excluded from the analysis. Thirdly the products within a product category analyzed need to be relatively similar. Otherwise price dispersions could occur due to the fact that different products are compared. The lower the level of analysis the more likely it is that similar products are compared. Given the fact that the analysis is at the 7–digit level products within a category are by definition relatively similar. However product categories that are relatively broad even at the 7–digit level need to be excluded as a potential candidate from this analysis, as a certain degree of homogeneity needs to be insured. Fourthly the products need to be exported for a relatively long, uninterrupted time period in the sample, the longer the better.

The analysis is at the firm–product–destination level. This due to the fact that a firm can differentiate the price of the product across destinations and has the added benefit that the product can be corrected for market specific effects. A firm that exports his products to different markets can set different prices at different markets. This also implies that the more products a firm exports the more influential its observations will be. If the firm–product level would be taken then the prices would be aggregated. This would be problematic as price changes of a firm can then be due tp changes in the composition of the destinations it exports to. A firm–product–destination level analysis is therefore more comprehensive. Table 9 shows the list of products selected and some summary statistics.[11] The selected products consist out of the following four categories: Furniture, Clothing, Simple manufacturing products and Electronics. All products are exported over the entire sample (22 years) with the exception of Electrical wiring harness for motor vehicles which is only exported from 1995 onwards.

Before excluding 1 year observations the products are exported every year by at least 12 different firms (Electronic Micro–assemblies) and firms, on average, export a product to a destination 2–3 years before stopping. (See Appendix B.1)[12] When observations that only last 1 year are deleted from the sample then the summary statistics change. The average number of exporting firms per year drops while the number of destinations exported to increases. (See Table 9 and Appendix B.1)) Indicating that the firms in the sample are probably larger. The minimum number of firms which export in a respective year is equal to 7 and is obtained for Electronic Micro assemblies in 1991. These 7 firms account for 29 observations and in 1992 the number of firms increases to 14 and the number of observation to 44 thereby insuring comparability. More importantly, however, the average number of years a firm–product–destination observation is in the sample increases from 3.1 to 5.6 years. Therefore the persistence of price dispersions becomes more comparable as observations remain longer in the sample and therefore the sample changes less overtime. One year observations have a higher tendency to have notably high or low gross kilo prices as the CV drops when 1 year observations are discarded. (See Table 10 and Appendix C.1)

The variation within product categories is considerable. (See Table 10) For semi–conductor devices 50% (90%) of the export prices in the middle of the distribution are 330% (3,810%) of each other. For trousers the variation within the product group is considerably less. But even for trousers 50% (90%) of export prices in the middle of the distribution are 80% (530%) from each other. It are, however, mainly simple manufacturing products (e.g Imitation Jewelery and Other articles for Christmas festivities) and electronic products that have a lot of variation within the product group. Indicating large differences in gross kilo export prices. The variation in prices are, of course, not solely a reflection of real price differences. In fact, destination and time specific effects such as tariffs, market conditions, distance, the business cycle, and transport costs are still present within these observations.

[11] The selected products have the following name and PSCC 7-digit category: Furniture of Rattan (8217903), Seats of Rattan/Cane (8211302), Seats, n.e.s, of Wood (8211802), Oth. Metal Furniture, n.e.s (8213909), Oth. Wooden Furniture, n.e.s (8215909), Trousers, breeches, etc, women's/girls', of cotton, not knitted/crocheted (8426002), Jerseys, pullovers, cardigans, waistcoats and similar articles , synthetic fibers , knitted/crocheted (8453003), Oth. Articles for Christmas festivities excluding lighting fittings and bulbs (8944500), Imitation Jewelery, of other non-precious materials, n.e.s (8972909), Oth. Basketwork from plaiting material goods (8997119), coconut (copra) oil, crude (4223100), Electrical Wiring Harness for motor vehicles (7731301), (other) Electronic (integrated circuits and) Micro–assemblies (7764900), Semi–Conductor Devices, manufactured from material on consignment basis (9310221)

[12] Firm–product-destination observations that only last one year make up at least 16.5% of the sample (Semi–Conductor Devices) to a maximum of 39.0% of the sample (Seats, n.e.s, of Wood).

Table 9: List of Products Excluding Observations Lasting Only One Period

Product	No. of Firms Mean (Min, Max)	No. of Destinations Mean (Min, Max)	Years in sample Mean (Std)	No. of observations
Furniture of Rattan	232.1 (84, 326)	2.9 (1, 33)	6.2 (5.0)	14,919
Seats of Rattan	116.2 (53, 156)	2.9 (1, 30)	6.0 (5.0)	7,342
Seats n.e.s of Wood	117.8 (44, 180)	2.0 (1, 57)	5.4 (4.3)	5,082
Oth Metal Furniture	139.2 (30, 227)	2.1 (1, 33)	5.4 (4.0)	6,448
Oth Wooden Furniture	274.9 (72, 406)	2.3 (1, 36)	5.5 (4.6)	14,005
Trousers for Women of Cotton	112.9 (48, 220)	1.6 (1, 11)	5.0 (3.6)	4,026
Jerseys of synthetic fibers	99.1 (43, 137)	2.2 (1, 30)	5.5 (4.5)	4,701
Oth Articles for Christmas	291.6 (134, 460	2.8 (1, 29)	5.7 (4.5)	17,699
Imititation Jewelery	180.7 (96, 260)	3.3 (1, 33)	5.5 (4.5)	12,997
Oth Basket work from plaiting	264.0 (75, 382)	2.3 (1, 32)	5.6 (4.4)	13,433
Crude Coconut Oil	25.9 (13, 53)	2.7 (1, 14)	5.7 (5.0)	1,529
Electrical Wiring Harness	34.6 (20, 47)	2.5 (1, 15)	5.2 (4.5)	1,586
Electronic Micro assemblies	48.1 (7, 85)	4.9 (1.0, 43.0)	5.7 (4.4)	5,144
Semi Conductor Devices	45.4 (27, 80)	9.1 (1.0, 52.0)	6.6 (5.7)	9,089

Table 10: Sample Statistics when One Year Durations are Excluded

	$\frac{Mean}{(StD)}$	CV	$\frac{75\%\ quantile}{25\%\ quantile}$	$\frac{95\%\ quantile}{5\%\ quantile}$	$\frac{99\%\ quantile}{1\%\ quantile}$
Furniture of Rattan	6.4(5.0)	0.8	2.4	8.8	22.6
Seats of Rattan/Cane	6.5(5.0)	0.8	2.4	9.0	20.2
Seats n.e.s of Wood	6.0(6.6)	1.1	2.7	9.8	25.4
Oth Metal Furniture	5.6(4.9)	0.9	2.5	8.0	19.4
Oth Wooden Furniture	6.0(8.8)	1.5	2.6	10.1	28.6
Trousers for Women of Cotton	19.0(11.2)	0.6	1.8	6.3	17.6
Jerseys of synthetic fibers	19.9(12.3)	0.6	2.1	7.0	17.6
Oth Articles for Christmas	19.3(26.5)	1.4	3.5	21.9	79.0
Imititation Jewellery	55.8(92.8)	1.7	3.3	23.6	113.5
Oth Basketwork from plaiting	6.9(6.1)	0.9	2.9	12.6	34.4
Crude Coconut Oil	1.5(1.5)	1.1	2.2	11.9	27.1
Electrical Wiring Harness	37.6(133.7)	3.6	2.9	18.9	101.4
Electronic Microassemblies	599.0(1038.1)	1.7	3.9	32.6	178.6
Semi–Conductor Devices	701.7(1621.7)	2.3	4.3	39.3	161.5

Notes: Prices not in log and differences to 2005 (CPI). Estimates are on the pooled data, that is, over years and firm–product–destination observations.

4.1 Heterogeneity–Controlled Estimates

Even though similar products are being sold by the respective firms, as the products fall within the same 7–digit product category, they nonetheless differ in terms of, for example, quality and export destination. The variation in measurable and immeasurable product characteristics across and within firms can render the same product as a differentiated product. Characteristics unrelated to real price differences should be isolated and removed from the price in order to capture the real differences in prices of the exported goods. Therefore price differences due to quality differences are allowed, however price difference due to tariffs or other destination differences need to be excluded. Unfortunately isolating factors that are unrelated to real prices is difficult. As products exported to richer destination might be of higher quality and therefore have higher prices. Then controlling for destination by adding destination fixed effects will cause the variation to be destination specific. Therefore the position of the firms versus other exporters to, for example, the USA will be picked up. However the fact that relatively high prices are charged for products exported to the USA versus other destinations will be partly, if not completely, missed. Adding a time trend also seems harmless however if prices increase over time then this will also be missed when a time trend is added. Therefore which factors to include to control for characteristics unrelated to real price changes is a choice. Arguments to include or exclude time and destination fixed effects or other possible effects can be found. However time and destination fixed effects seem the most prominent two factors to control for. Therefore the prices are only controlled for these two fixed effects only. The fact that variation decreases greatly can be seen as sign that prices are more comparable than without excluding these effects. (See Table 11) No claim is made that these are the only variables that should be controlled for. However the two factors controlled for seem the most obvious and refrain from adding more variables.

Before comparison of price differences are made variation over time and destinations is isolated and removed from the price variable. Therefore destination (time) effects that are common for all firms exporting product p to (at) destination (time) d (t) are controlled for by included destination fixed (time) effects. The following empirical model is estimated:

$$logPrice_{fpdt} = \alpha + \delta_{pd} + \delta_{pt} + \varepsilon_{fpdt} \tag{7}$$

For each product destination fixed effects (δ_{pd}) and time–varying fixed effects (δ_{pt}) are estimated. The residual variation is the variable of interest as the residual price $\hat{\varepsilon}_{fpdt}$ can be interpreted as the

price of product p after controlling for destination and time fixed effects. These residual prices are more comparable. Table 11 shows that the variation in prices drops drastically when time and destination fixed effects are controlled for. For example the interquartile range for trousers is 50.2% and for Semi–conductor devices 138%. The lower variation within product can be interpreted as evidence that prices are more comparable after removing the fixed effects.

Table 11: Price Dispersion Measures Excluding Observations Lasting Only One Year

	Yearly Averages					
		Quartiles		Differences in Quartiles		
Product	Std	25%	75%	75%-25%	95%-5%	99%-1%
Furniture of Rattan	0.592	-0.397	0.381	0.778	1.890	2.743
Seats of Rattan/Cane	0.550	-0.386	0.356	0.742	1.776	2.610
Seats n.e.s of Wood	0.604	-0.415	0.390	0.805	1.906	2.828
Oth. Metal Furniture	0.560	-0.389	0.369	0.758	1.794	2.523
Oth. Wooden Furniture	0.644	-0.452	0.428	0.881	2.047	2.976
Trousers for Women of Cotton	0.469	-0.236	0.277	0.512	1.527	2.452
Jerseys of synthetic fibers	0.492	-0.309	0.327	0.636	1.582	2.410
Oth. Articles for Christmas	0.824	-0.509	0.518	1.027	2.725	3.963
Imititation Jewellery	0.890	-0.528	0.520	1.047	2.946	4.472
Oth. Basketwork from plaiting	0.716	-0.478	0.468	0.946	2.357	3.387
Crude Coconut Oil	0.343	-0.234	0.228	0.461	1.055	1.604
Electrical Wiring Harness	0.845	-0.482	0.430	0.912	2.833	4.225
Electronic Microassemblies	1.076	-0.670	0.723	1.393	3.453	5.323
Semi–Conductor Devices	1.015	-0.684	0.705	1.389	3.291	4.547

Notes: (i) Price dispersion based on $\hat{\varepsilon}_{fpdt}$ (ii) The values are averages over number of the years the product is in the sample; which in most cases is 22 years.

In order to analyze the evolution of prices over time the distribution of residual prices F_t at year t is cut up into 4 categories. A price classification which contains of four categories, consist of three thresholds. ($\mathbf{T_1}$, $\mathbf{T_2}$ and $\mathbf{T_3}$). The values of the thresholds are $\mathbf{T_1} = F_t(q_{t1}) = 0.25$, $\mathbf{T_2} = F_t(q_{t1}) = 0.50$ and $\mathbf{T_3} = F_t(q_{t3}) = 0.75$. Therefore prices that are lower or equal to the 25^{th} quantile in year t belong to the lowest price category; prices that are higher the 25^{th} quantile and lower the 50^{th} quantile in year t belong to the lower-middle price category; prices that are higher the 50^{th} quantile and lower the 75^{th} quantile in year t belong to the upper-middle price category; prices that are higher than the 75^{th} quantile in year t belong to the highest price category. Table 12 shows the one–step transition matrix for price categories over time. It can be seen that the lowest and highest prices have the lowest transition rates. The one–step transition rates for the lowest (highest) price category range from 0.48 (0.53)–0.67 (0.62). However this still implies that from year to year prices change form category quite frequently. Although the most changes happen to the categories that are closest. For example for the product jerseys prices classified in the lowest (highest) category remain in the lowest or lower middle price category the next year in 82% (81%) of the cases. Implying some consistency in terms of pricing at least for the two highest categories. While prices that are in the two middle categories have a greater tendency to shift over time. In fact in the majority of cases observations priced in one of these two categories have a greater chance of moving up or down a category than remaining withing the same category. It might be the case that observations charging prices in the middle categories might the most to gain with dropping and increasing their prices. However observations within these categories have two boundaries making it more like for price within the category to switch. However the transition rates do give preliminary evidence that price of observations are likely to change category over time. The estimated transition probabilities are based on a couple of strong assumptions (i.e the order of the Markov process and the chosen cutoff points and time horizon) Therefore these results should be interpreted with caution.

Table 12: One –Step Transition Matrix (One–year Horizon) Excluding Observations Lasting Only One Period

Crude Coconut Oil						Seats of Rattan					
#		q_{25}	q_{50}	q_{75}	∞	#		q_{25}	q_{50}	q_{75}	∞
193	q_{25}	0.68	0.19	0.10	0.03	1026	q_{25}	0.56	0.26	0.10	0.08
233	q_{50}	0.26	0.48	0.19	0.07	1119	q_{50}	0.22	0.42	0.25	0.10
244	q_{75}	0.08	0.26	0.41	0.25	1130	q_{75}	0.10	0.23	0.45	0.23
223	∞	0.03	0.10	0.30	0.57	1023	∞	0.08	0.12	0.25	0.55
Furniture of Rattan						Seats, n.e.s, of wood					
#		q_{25}	q_{50}	q_{75}	∞	#		q_{25}	q_{50}	q_{75}	∞
2146	q_{25}	0.56	0.27	0.11	0.06	727	q_{25}	0.65	0.22	0.09	0.04
2289	q_{50}	0.23	0.42	0.22	0.13	707	q_{50}	0.22	0.45	0.22	0.11
2339	q_{75}	0.11	0.22	0.44	0.23	676	q_{75}	0.08	0.25	0.44	0.23
2187	∞	0.07	0.12	0.24	0.57	615	∞	0.04	0.09	0.27	0.60
Oth. Metal Furniture						Oth. Wooden Furniture					
#		q_{25}	q_{50}	q_{75}	∞	#		q_{25}	q_{50}	q_{75}	∞
905	q_{25}	0.49	0.28	0.15	0.08	1959	q_{25}	0.58	0.25	0.11	0.07
946	q_{50}	0.26	0.38	0.23	0.13	1948	q_{50}	0.23	0.41	0.24	0.12
956	q_{75}	0.12	0.25	0.38	0.24	2080	q_{75}	0.12	0.21	0.41	0.26
862	∞	0.07	0.12	0.27	0.54	1954	∞	0.06	0.13	0.27	0.54
Jerseys						Oth. articles for Christmas festivities					
#		q_{25}	q_{50}	q_{75}	∞	#		q_{25}	q_{50}	q_{75}	∞
629	q_{25}	0.57	0.25	0.11	0.06	2524	q_{25}	0.54	0.25	0.13	0.08
689	q_{50}	0.25	0.37	0.27	0.11	2755	q_{50}	0.24	0.41	0.25	0.11
735	q_{75}	0.10	0.25	0.39	0.26	2629	q_{75}	0.12	0.25	0.41	0.22
682	∞	0.06	0.13	0.26	0.55	2462	∞	0.07	0.12	0.23	0.58
Basketwork						Electronic Mirco–assemblies					
#		q_{25}	q_{50}	q_{75}	∞	#		q_{25}	q_{50}	q_{75}	∞
2010	q_{25}	0.63	0.24	0.09	0.04	766	q_{25}	0.55	0.25	0.11	0.08
2079	q_{50}	0.24	0.44	0.23	0.09	813	q_{50}	0.23	0.41	0.25	0.11
1949	q_{75}	0.10	0.26	0.41	0.23	797	q_{75}	0.10	0.25	0.41	0.24
1755	∞	0.06	0.11	0.29	0.55	750	∞	0.08	0.12	0.26	0.54
Trousers						Imitation Jewellery					
#		q_{25}	q_{50}	q_{75}	∞	#		q_{25}	q_{50}	q_{75}	∞
490	q_{25}	0.48	0.27	0.14	0.11	1940	q_{25}	0.55	0.25	0.13	0.07
584	q_{50}	0.24	0.39	0.26	0.11	2102	q_{50}	0.25	0.38	0.26	0.11
645	q_{75}	0.10	0.25	0.42	0.23	2084	q_{75}	0.12	0.27	0.40	0.21
609	∞	0.08	0.14	0.25	0.53	1936	∞	0.06	0.13	0.22	0.59
Electrical Wiring Harness						Semi–Conductor Devices					
#		q_{25}	q_{50}	q_{75}	∞	#		q_{25}	q_{50}	q_{75}	∞
252	q_{25}	0.61	0.19	0.10	0.10	1606	q_{25}	0.67	0.22	0.07	0.03
268	q_{50}	0.17	0.54	0.24	0.05	1703	q_{50}	0.22	0.46	0.24	0.08
274	q_{75}	0.11	0.23	0.43	0.23	1702	q_{75}	0.08	0.23	0.45	0.25
227	∞	0.09	0.12	0.23	0.56	1610	∞	0.04	0.08	0.26	0.62

Notes: Based on the residual prices $\hat{\epsilon}$. Column # gives the number of price quotations in the initial quartile when firms–product–destination observations that only exists only 1 period are dropped. Therefore only firms–product–destination observations enter when it has data on two consecutive periods. The averages are total averages over all years.

5 Conclusion

This paper confirms most of the stylized facts found in Manova and Zhang (2012) for the Philippines. Finding that prices and revenues are correlated, however the effects of income and to the lesser extent differentiated products on this correlation are less pronounced. The majority of the evidence point in the direction that this correlation is more pronounced for differentiated products. The results are mixed when income is interacted with revenue as some regressions indicate that firms set higher prices in destinations that are poorer and in other specifications the effect of the income interaction term is insignificant. This can possibly be attributed to sample differences as Philippine exports are concentrated around relatively rich destinations. However the fact that these sample differences are also present in the Chinese trade data makes this less likely. The most robust finding for the correlation of destination factors and export price is found for GDP per capita (income). The evidence shows that higher prices are set in destinations with higher income. Remoteness has the expected negative sign however is not always significant. The effect of distance is always insignificant while average transport costs are significant and are positively related to price.[13] The results also show that firms that export to more destinations set higher prices and also have greater variation in prices of products over destinations. The first effect, however, is only present in differentiated products. This paper also finds that using unit values or gross kilo prices does not lead to large differences in results.

Price dispersion within 7–digit product categories is large. This price dispersion is persistent, however, there is a lot of mobility of prices set by firms to a destination within a product category. This in the sense that products with a relatively high export price might have a relatively low export price the next year and visa versa. Indicating export price mobility over time. The highest and lowest prices have the lowest mobility while the prices in the two middle categorizes have the highest mobility over time. This might be due to the choice of product as the focus has been on products that are exported by many firms every year. Taking products that are smaller in terms of firms and more specific in definition might alter the results. The results are therefore preliminary and further, more thorough, research is needed before conclusions can be drawn on within price mobility. The tentative results, however, do point to a lot of price mobility within products over time.

[13] Transport cost however are influenced by destination specific effects being, for example, higher for destinations that are further away.

References

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A Transport Cost preliminary regressions

$$logTrans_{fpd} = \alpha + \beta \cdot logRevenue_{fpd} + \delta_{fp} + \varepsilon_{fpd} \tag{8}$$

Table A.1: Firms' Transport costs

	Variation In Transport costs Across Firms In A Destination				
	(1)	(2)	(3)	(4)	(5)
(log) Revenue	-0.076***				
(log) Gross Kilos		-0.098***			
(log) GDP per capita			0.053***		
(log) GDP				0.044***	
(log) Distance					0.363***
Firm–Product FE	Y	Y	Y	Y	Y
No. of Obs.	79,967	79,967	79,891	79,891	79,956
Firm clusters	7715.000	7715.000	7715.000	7715.000	7715.000
R–squared	0.859	0.862	0.856	0.857	0.867

Notes: *, ** and *** indicate significance at the 10%, 5% and 1% level.

B List of Products Without Excluding One Year Observations

Table B.1: List of Products

Product	No. of Firms Mean (Min, Max)	No. of Destinations Mean (Min, Max)	Years in sample Mean (Std)	No. of observations
Furniture of Rattan	304.2 (108, 435)	2.9 (1, 35)	3.4 (4.2)	19,110
Seats of Rattan/Cane	159.3 (66, 221)	2.7 (1, 39)	3.3 (4.1)	9,586
Seats, n.e.s, of Wood	174.9 (66, 279)	1.9 (1, 61)	2.9 (3.5)	7,485
Oth. Metal Furniture	194.0 (49, 316)	2.1 (1, 37)	3.0 (3.5)	8,958
Oth. Wooden Furniture	392.2 (123, 612)	2.2 (1, 37)	2.9 (3.6)	19,393
Trousers for Women/Girls of Cotton	139.7 (69, 269)	1.7 (1, 15)	3.4 (3.4)	5,327
Jerseys of synthetic fibers	130.2 (62, 201)	2.2 (1, 33)	3.3 (3.8)	6,265
Oth. Articles for Christmas	397.8 (183, 673)	2.6 (1, 32)	3.2 (3.8)	22,950
Imitation Jewelery	253.1 (140, 422)	3.0 (1, 37)	2.9 (3.6)	16,509
Oth. Basketwork from plaiting	354.4 (98, 536)	2.3 (1, 32)	3.3 (3.8)	17,707
Crude Coconut Oil	32.6 (16, 66)	2.7 (1, 14)	3.4 (4.2)	1,905
Electrical Wiring Harness	60.5 (33, 81)	2.1 (1, 16)	2.2 (2.9)	2,274
Electronic Micro–assemblies	67.4 (12, 123)	4.3 (1, 46)	3.0 (3.6)	6,362
Semi–Conductor Devices	64.4 (35, 115)	7.3 (1, 57)	3.1 (4.2)	10,395

Notes:

C Sample Statistics Without Excluding One Year Observations

Table C.1: Sample Statistics

	$Mean$ (StD)	CV	$\frac{75\%\ quantile}{25\%\ quantile}$	$\frac{95\%\ quantile}{5\%\ quantile}$	$\frac{99\%\ quantile}{1\%\ quantile}$
Furniture of Rattan	6.5(8.3)	1.3	2.4	9.5	26.0
Seats of Rattan	6.6(5.5)	0.8	2.4	9.7	24.2
Seats of Wood	6.2(6.6)	1.1	2.6	10.3	28.1
Oth Metal Furniture	5.8(6.9)	1.2	2.5	8.8	23.3
Oth Wooden Furniture	6.1(8.5)	1.4	2.7	10.9	33.1
Trousers for Women of Cotton	19.0(12.2)	0.6	1.9	6.4	18.6
Jerseys of synthetic fibers	20.2(12.9)	0.6	2.1	7.3	20.0
Oth Articles for Christmas	20.1(34.0)	1.7	3.6	23.8	91.2
Imititation Jewellery	60.3(259.2)	4.3	3.5	27.0	136.2
Oth Basketwork from plaiting	7.2(6.8)	0.9	2.9	13.5	37.9
Virgin Coconut Oil	1.6(1.8)	1.1	2.4	12.9	30.0
Electrical Wiring Harness	42.2(138.9)	3.3	3.1	24.1	166.9
Electronic Microassemblies	594.8(1004.9)	1.7	4.0	35.8	202.1
Semi–Conductor Devices	729.3(1600.1)	2.2	4.5	41.3	184.3

Notes: **Prices not in log and differences to 2005 (CPI). Eatimates are on the pooled data, that is, over years and firm–product–destination observations.**

D Price Dispersion Measures Without Excluding One Year Observations

Table D.1: Price Dispersion Measures

	Yearly Averages					
		Quartiles		Differences in Quartiles		
Product	Std	25%	75%	75%-25%	95%-5%	99%-1%
Furniture of Rattan	0.615	-0.413	0.393	0.807	1.960	2.900
Seats of Rattan	0.576	-0.399	0.372	0.772	1.853	2.721
Seats of Wood	0.628	-0.436	0.402	0.837	1.996	2.996
Oth Metal Furniture	0.609	-0.412	0.376	0.789	1.953	2.860
Oth Wooden Furniture	0.677	-0.463	0.434	0.897	2.128	3.225
Trousers for Women of Cotton	0.494	-0.243	0.298	0.541	1.598	2.592
Jerseys of synthetic fibers	0.518	-0.317	0.332	0.649	1.681	2.563
Oth Articles for Christmas	0.860	-0.527	0.537	1.064	2.855	4.216
Imititation Jewellery	0.933	-0.555	0.543	1.098	3.091	4.683
Oth Basketwork from plaiting	0.740	-0.490	0.486	0.976	2.432	3.484
Virgin Coconut Oil	0.371	-0.253	0.256	0.509	1.142	1.688
Electrical Wiring Harness	0.922	-0.515	0.468	0.983	3.048	4.675
Electronic Microassemblies	1.094	-0.674	0.734	1.408	3.500	5.323
Semi–Conductor Devices	1.038	-0.707	0.718	1.425	3.355	4.685

Notes: