Technical Appendix to Intermediaries in International Trade: margins of trade and export flows

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1 Introduction

This technical appendix contains Tables and Figures that complement the results shown in the paper "Intermediaries in International Trade: margins of trade and export flows".

2 Direct and Indirect Exporters

To investigate the choice between direct and indirect exporting, the paper employs data from the Business Enterprise Survey (BEEPS), a joint initiative of the European Bank of Reconstruction and Development (EBRD) and of the World Bank Group. The database includes 36,956 firms from 99 countries and 16 industries in manufacturing. Table 1 reports the complete list of countries and the total number of observations over the period 2002-2005. To increase the comparability with respect to Italy, we select among the available countries two sub-samples. "High Income" countries, with GDP per capita[1] above the 75th percentile computed using the information for the 206 economies included in the World Bank database. "Europe" group including member states of the EU. Countries belonging to "High Income" and "Europe" groups are marked in Table 1 with * and ^{E}, respectively.

[1] GDP per capita, constant 2000 US$, downloaded from http://data.worldbank.org/indicator/NY.GDP.PCAP.KD.

3 Wholesale and Manufacturing Exporters

3.1 Trade and Firm data

Table 2 reports, for the entire period available (2000-2007), the total value of exports and the relative share of four broad categories of firms: manufacturers, wholesalers, retailers, and a residual group including firms in all the remaining sectors. As shown in the Table, an increasing share of exports is conducted by the 27 percent of exporters that are wholesalers, rising from 9.9 percent in 2000 to 11.3 percent of Italian exports in 2007.

While intermediaries account for just 11 percent of Italian exports, there is substantial variation across both countries and products, see Table 3. At the country level, intermediary export shares range from a low of zero to a high of 88 percent. At the bottom of the interquartile range are countries such as Belgium, Norway, France, New Zealand and China with intermediary export shares close to 9 percent; at the top of the interquartile range, we find Paraguay, Moldova, Malawi and Albania with wholesale export shares near 23 percent. While the overall share of intermediary exports is just under 11 percent in 2003, across destinations, unweighted intermediary export shares average 16.6 percent and are higher on average for non-EU countries. This indicates that wholesalers are relatively more important in smaller markets and in markets outside the EU.

The share of intermediaries across products also displays substantial variation, see the second panel of Table 3. Wholesalers account for 21 percent of the exports for the average product, pointing to the importance of intermediaries in products with lower total export values. While there exist both products which are sold abroad only through intermediaries, 1.8 percent of 5,125 products, and others where the share of wholesalers is zero, most products are exported both directly and indirectly.

Specialization is more common at the product-country level. Of the 244,614 product-country combinations with positive exports, 48.6 percent involve direct exports only and 10.4 percent are served exclusively by intermediaries.[2]

3.2 Firm characteristics

The results of this section complement and extend the analysis of the comparison between manufacturers and wholesalers along a number of dimensions including size, the number of destination countries and the number of products exported.

The top left panel of Figure 1 shows the distribution of employment for all wholesale and manufacturing firms. The employment distribution for wholesalers lies far to the left of that for manufacturers. Overall, intermediaries are much smaller in terms of number of employees. However, when we proxy size with total sales (top right panel) the difference between the two distributions

[2]For product-country pairs with a mix of direct and indirect exports the average indirect share is 25.3 percent.

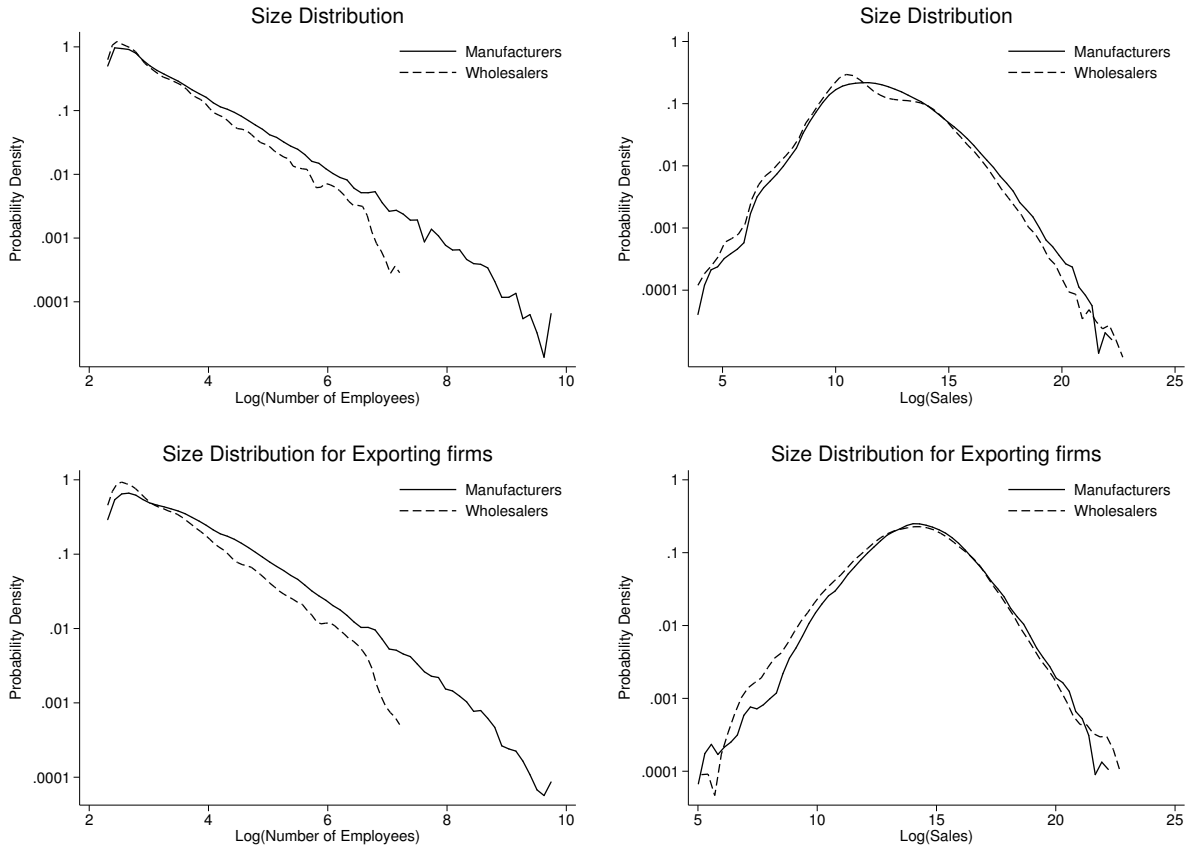

Figure 1: Empirical density of firm size in 2003 - All firms (**Top**) and Exporters (**Bottom**). Size is proxied by (log of) employment (Left) and (log of) sales (Right). Densities estimates are obtained using the Epanenchnikov kernel with the bandwidth set using the optimal routine described in Silverman (1986).

remains but is greatly reduced. The differences between the panels implies that the sales per employee ratio of wholesalers is much higher than that of manufacturers. The bottom panels of Figure 1 show the size distributions for wholesale and manufacturing exporters. The relative ranking of the two distributions is similar to that seen above.

3.3 Product and Geographic Diversity

This section provides additional evidence on the presence of intermediaries in markets and sectors. Figure 2 displays the relation between geographic and product diversification of the firm and its size, distinguishing between wholesalers and manufacturers. Size is represented both by employment and export value.

The evidence in Figure 2 suggests that the wholesalers' technology does not convey them an advantage in terms of geographic diversification, wholesalers export to fewer countries than do manufacturers at similar levels of employment and exports. On the contrary, when considering the

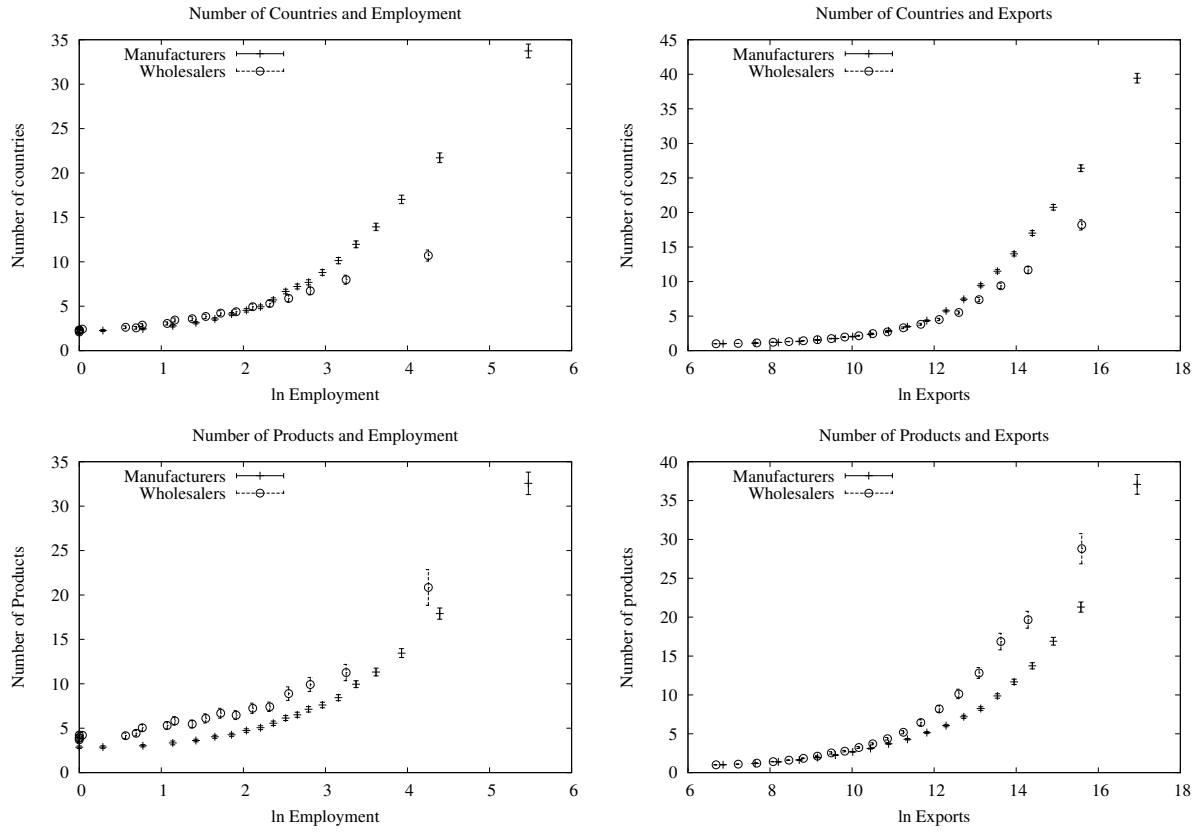

Figure 2: **Top** Number of countries and (left) employment and (right) exports, in 2003. **Bottom** Number of products and (left) employment and (right) exports, in 2003. Observations are placed in 20 equally-sized bins according to the variable on x-axis. Coordinates of dots display the average of x and y variables of the data in each bin (see text).

relation between firm size and product diversification (bottom panel), we find that, at every size class, wholesalers export more products than manufacturers.

3.4 Within Product-Country

The availability of product level data allows the comparison of wholesalers and manufacturing exporters within product-country destinations.[3] Using exports to Extra-EU destinations for 2003 and considering product-country pairs where both wholesalers and manufacturers are active, we estimate the following specification,

$$\ln Y_{fcp} = c + \alpha D_f^W + \beta \ln Sales + d_{pc} + \varepsilon_{fcp} \tag{1}$$

[3]We focus all the remaining empirical work on exports to Extra-EU destinations for several reasons. Most importantly, firm-level exports to the EU are not recorded for all exporters and these criteria have changed over time. Also, real exchange rate changes within the eurozone countries are driven entirely by changes in relative price levels.

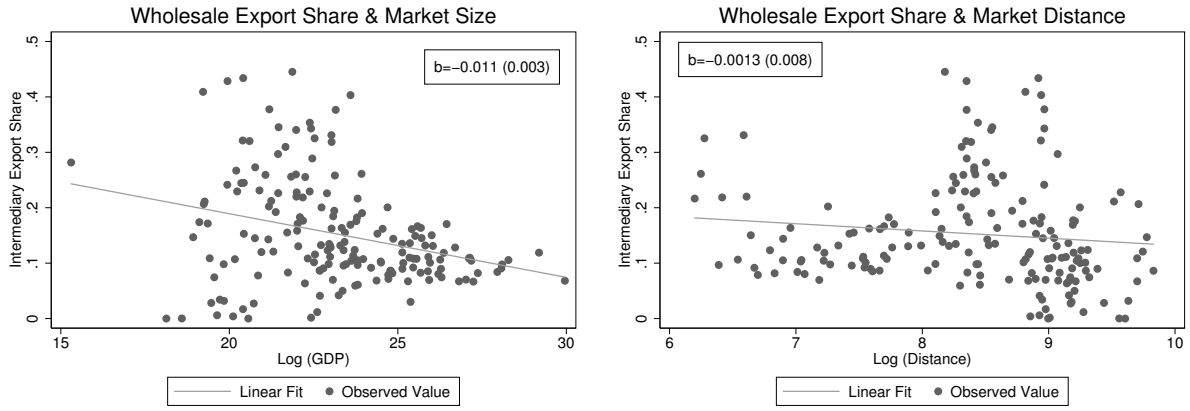

Figure 3: Wholesale export share and gravity variables, 2003. Figures report the relationship between wholesale export share and gravity variables: (Left) Real GDP; (Right) Geographic distance. Each panel reports the coefficient, b, of a country-level univariate regression for intermediary export share. Robust standard error is shown in parenthesis.

where $\ln Y_{fcp}$ denotes the logarithm of, respectively, the total value, quantity and unit value of the firm's exports in the country-product pair, D_f^W is the firm wholesaler dummy and d_{pc} denotes country-product fixed effects. The results in the first two columns of Table 4 show that wholesalers have a substantially lower total value of exports relative to direct exporters within product-country pairs. The difference in exports across firm types remains even after controlling for firm size, although the magnitude is reduced. Columns 3-6 report similar regressions for export quantities and unit values. The lower exports for wholesalers are driven entirely by lower export quantities; unit values are not statistically different for direct and intermediary exporters.

3.5 Intermediated export shares

We start by exploring the relationship between the intermediary export share by destination market and a set of relevant country variables (Figures 3-4). The correlation of intermediary export shares by country with market size and distance is displayed in the two panels of Figure 3. Wholesale export share is declining in log GDP, smaller markets have greater intermediary export shares, consistent with the idea that in smaller destination markets, fixed entry costs have to be spread over fewer units. In contrast, there is no statistically significant relationship between distance, a common proxy for variable trade costs, and the intermediary export share.

The plot at the left of Figure 4 displays the relationship between the percentage of export value that goes through intermediaries and the *Market Costs* variable. As found by Ahn et al. (2011) and **?**, this measure of market access costs is positively and significantly related to intermediary trade shares.

The right panel of Figure 4 plots the intermediaries export share against country *Governance*.

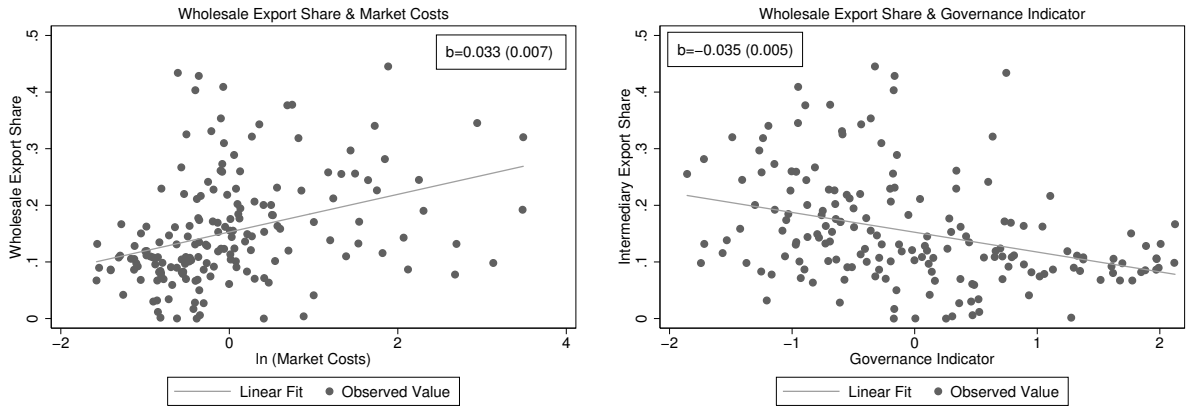

Figure 4: Wholesale export share and country-level fixed costs, 2003. Figures report the relationship between wholesale export share and the two proxies for fixed market entry costs: (Left) Market Size; (Right) Governance indicator. Each panel reports the coefficient, b, of a country-level univariate regression for intermediary export share. Robust standard error is shown in parenthesis.

As expected, the quality of country governance is negatively and significantly related to intermediaries export share. This evidence supports the idea that as country-level fixed costs increase, more firms use wholesalers for exporting.

We then investigate the link between the HS6 product characteristics and intermediary export shares. While the theoretical models remain largely silent on this aspect, product characteristics would be expected to play a role in explaining the type of firm handling the exports.[4]

Figure 5 (top left) shows a negative and significant relationship between intermediary export share and the measure of relation specificity. Note that, given the very large number of observations, data are binned in all plots of Figure 5, although the regression coefficients are based on all the data.

The plot at the bottom left of Figure 5 displays the relation between min(entry, exit) rate in a product and intermediary export share. The negative and significant slope suggests that easier export entry and exit is associated with a lower export share for wholesalers. Products that have higher sunk costs of entry (low rates of entry/exit) are more likely to be handled by intermediaries.

Finally we consider the incidence of tariffs on the presence of intermediaries in product-country pairs. The bottom right of Figure 5 shows the relation between product-country tariff and intermediary export share. There is a small, positive relation between product-country tariffs and intermediary share.

The overall message of these figures is consistent with the idea that there is a systematic

[4]While not discussed explicitly in his paper, **?** models the price of exports by intermediaries as a double mark-up over tariff-adjusted marginal cost. Increases in the demand elasticity reduce the mark-ups and narrow the difference between the export prices of intermediaries and those of direct exporters and increase the share of exports by intermediaries.

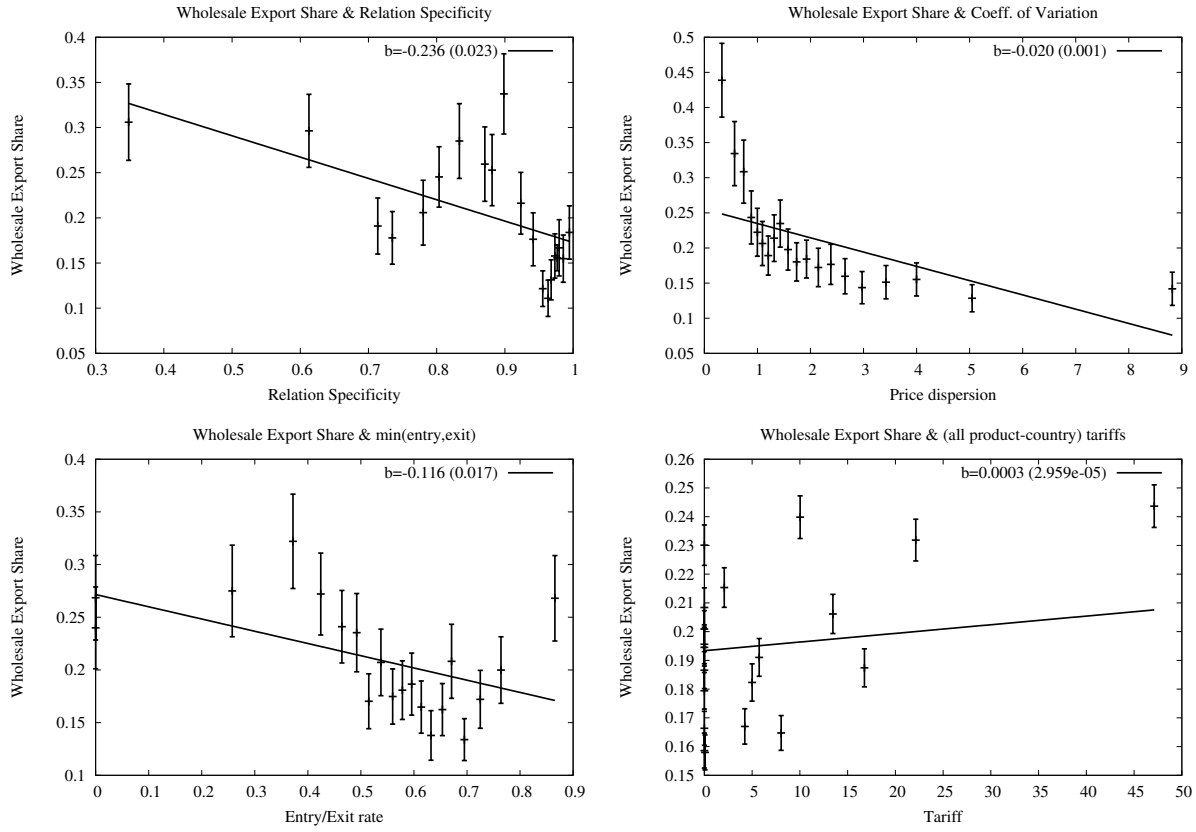

Figure 5: Wholesale export share and Product/Country-Product characteristics, 2003. Figures display the relationship between wholesale export share and the following characteristics: (Top Left) Relation Specificity; (Top Right) Coefficient of Variation of the unit values for each product; (Bottom Right) min(entry, exit) in the export market for a given product; (Bottom Left) Country-Product export tariffs. Observations are placed in 20 equally-sized bins. Coordinates of dots display the average of product (country-product) characteristic and intermediary export share. Each panel reports the coefficient, b, of a product-level univariate regression for intermediary export share. Robust standard error is shown in parenthesis.

relationship between the share of exports managed by wholesalers and both country and product characteristics. The results are in line with the theoretical prediction and the empirical evidence shown **?** who found that intermediary export share does not depend on geographical distance, increases in market fixed costs, decreases in the size of the foreign market, and decreses in product specificity and the productivity dispersion.

4 Intermediaries and exogenous shocks

4.1 Product Adding and Dropping

Table 5 reports the results of the adding regression, distinguishing between single and multi-product firms. The results confirm the findings of Table 6 in the paper according to which wholesalers are

more likely to add a product than manufacturing firm. More interestingly, Table 5 also shows that the effect is more pronounced when comparing wholesalers and manufacturers that are single-product firms.

Table 6 complements the results of Table 6 of the paper for product dropping at firm level. The difference between intermediaries and manufacturers is bigger for single-product firms, thus displaying the same pattern as in firm level product adding.

4.2 Exchange rates and exports

This section complements the results of the paper documenting the different response of intermediaries and manufacturers to exogenous currency shocks.

We start by performing some robustness check for the regressions investigating the impact of exchange rate changes at the firm-country level. As in the paper, all the following regressions only include countries outside the EU. In the baseline model specification we regress the annual log change from 2000 to 2007 of firm total exports to country c and the annual changes of the two components on a dummy for wholesaler (D_{ft}^W), the change in the log of the real bilateral exchange rate of the Italian currency ($\Delta \ln RER_{ct}$) and their interaction, without any further controls

$$\Delta \ln Z_{fct} = c + \alpha D_{ft}^W + \beta \Delta \ln RER_{ct} + \gamma \Delta \ln RER_{ct} * D_{ft}^W + d_j + \varepsilon_{fct}. \quad (2)$$

The results of our baseline model are reported in Table 7. The first two columns of Table 7 present the results for export value, including country and year fixed effects (column 1) and country and firm fixed effects (column 2). The interaction of wholesaler type and the real exchange rate is positive and significant in both columns; firm exports fall less (3.7-8.4 percent) for intermediaries than for manufacturers when the Italian currency appreciates. Columns 3-6 show that, for wholesalers, the adjustment on the extensive margin of the number of products is greater, while the response of average exports is more muted.

Table 8 reports the results for the same model specifications but employs the wholesale price index, WPI, instead of the CPI.[5] Notice that using WPI, coefficients only change mildly, as compared to Table 7. It is indeed more appropriate to employ WPI rather than CPI, but this also causes a relevant decrease in the number of countries, from 150 with CPI to 65 with WPI. Further, as low-income countries are more likely not to report WPI and as intermediaries are relatively more important in those countries, this could also contribute to bias our results.

Table 9 reports the results of our baseline model where we use CPI on the same set of countries for which WPI is also available. Again results are much in line with the previous table.

[5]Data on exchange rates and consumer price index have been downloaded respectively from: http://data.worldbank.org/indicator/PA.NUS.FCRF and http://data.worldbank.org/indicator/FP.CPI.TOTL.ZG. WPI series has been taken from http://data.worldbank.org/indicator/FP.WPI.TOTL.

Table 10 reports the results of our baseline model specifications where the real exchange shock with each country is decomposed into broad euro movements and trade-partner currency (TPC) movements, as proposed also in **?**. This is relevant for understanding the possibility of firms to shift their exports towards those countries where the terms of trade have improved, or worsened to a lesser extent. Indeed, if a real exchange rate appreciation is caused by an appreciation of the Euro currency, it would be more difficult for Italian exporters to shift their exports to other countries than if the real exchange-rate appreciation is caused by the depreciation of the importer's currency (TPC). As we are only considering destinations outside the European Union it is possible to make such decomposition for all the 150 countries that report data on exchange rates and CPI.

The results in Table 10 show that firm's exports to a given country (columns 1 and 2) respond more to changes in TPC as compared to broad euro movements. This leaves open the possibility for firms to shift their exports to other countries.

Table 11 still investigates the different response of intermediaries and manufacturers to exogenous currency shocks, where we also control for the set of exporting countries of each firm. Indeed, if a firm has already sunk the entry costs for a given set of destination countries, it will be easier for it to respond to a currency appreciation in one country by shifting its exports to some of its other destinations. This was not controlled for by the firm fixed effects in our baseline specifications (results of Table 7) if the set of countries varies over time. Coefficients in Table 11 show that our results still hold also when controlling for the country-mix fixed effects, that is, firm's exports to a given destination decreases with currency appreciation, but less so for intermediaries.

We next verify the robustness of the results regarding the firm's response within a country-product pair to annual exchange rate movements. With respect to exchange rate pass-through a new stream of literature has started to investigate the existing links between pricing to market and firm-level characteristics. In particular, **?** find that high-performance firms react to a depreciation by increasing more their markup and less their export volume. These results are relevant for our work, too, as it could be that the different response in unit values for manufacturers and wholesalers is in fact driven by the lack of a specific control for productivity differences among firm.

Before adding such control, we verify that the results of **?** also hold for Italian firms. In order to do that, we link trade data to firm-level characteristics available through Micro.3 (**?**) which contains information on Italian firms above 20 employees. The link with Micro.3 allows us to measure firm-level productivity through the total factor productivity (TFP) calculated applying the semi-parametric estimation technique implemented by **?**. We focus on manufacturing firms only and we exploit the same methodology as in **?** in order to deal with the existence of multiproduct firms, and we consider three possible samples. The first contains single product/destination observations (*Single Product*), that is firms that export only one product to a given destination; the second sample keeps only the top product exported by the firm worldwide in value (*Main Product by*

value); and in the third the top product is defined as the one exported to the largest number of destinations (*Main Product by destination*). The estimation equation is

$$\ln Y_{fct} = c + \alpha \widetilde{TFP}_{ft-1} + \beta \ln RER_{ct} + \gamma \widetilde{TFP}_{ft-1} * \ln RER_{ct} + d_j + \varepsilon_{fct} \quad (3)$$

where Y_{fct} is the firm-level unit value or the export value of the single/main product and $\widetilde{TFP}_{ft-1}$ denotes the productivity of the firm normalized by the average industry productivity, all at year $t-1$. Results in Table 12 are coherent with the findings in **?**, in that more productive firms increase their prices more following a depreciation, whether their exports increase less.

Once that such heterogeneity in pricing to market has been verified also on Italian firms, we include the interacted TFP measure in our baseline model by estimating the following equation

$$\Delta \ln Y_{fpct} = c + \alpha D^W_{ft} + \beta \Delta \ln RER_{ct} + \gamma \Delta \ln RER_{ct} * D^W_{ft} + \delta \Delta \ln RER_{ct} * \widetilde{TFP}_{ft-1} + d_j + \varepsilon_{fpct} \quad (4)$$

where $\ln Y_{fpct}$ is the log of firm-level product-country export value, quantity or unit value.

Since the link with the Micro.3 dataset reduces the number of observations, we first replicate our baseline model to the restricted sample to check whether the selection of relatively bigger firms has changed the main results. Columns 1-3 of Table 13 confirm the previous findings according to which wholesalers drop their unit values more as the currency rises, pass-through is lower, and quantities fall less. The inclusion of the TFP variable interacted with the RER, column 3-6 of Table 13, does not alter our findings.

4.3 Aggregate Exports

Table 14 reports the results of aggregate exports per destinations using Wholesale Price Index, WPI, instead of the Consumer Price Index, CPI, as in Table 10 of the paper. Although WPI is available for a much smaller set of countries than CPI, 65 vs 150 countries, the results do not change considerably and they confirm the importance of the mode of export in shaping the aggregate responses to changes in the real exchange rate.

Table 15 is another robustness check of the results presented in table 10 of the paper, that relate our findings on the elasticity of bilateral exports to exchange rate shocks to some of the recent findings in the exchange rate pass-through literature (**???**). In this respect we include further controls in the regression to verify that the share of indirect exports is not picking up the effect of variables that had been omitted. To this purpose we include among regressors real GDP and *Money*, which includes the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government. This definition is frequently called M2.[6] Regression results

[6]This variable, which corresponds to lines 34 and 35 in the International Monetary Fund's (IMF) International

show that real GDP is - as expected - positively related to bilateral exports, but this fact does alter the main findings of Table 10 in the paper, that is "countries with wholesale export shares above the mean or median have elasticities that are insignificantly different from zero." The variable *Money* is not significant in any of the specification of Table 15.

As a final robustness check to the analysis of exchange rates and intermediary exports we analyze the relation between the standard deviation of yearly real exchange rate changes and intermediary export shares. It could indeed happen that as we found that intermediaries have a higher shares in those countries and products with higher fixed costs, by the same token, intermediaries also report higher share in destinations where real exchange rates shocks are expected to occur more frequently. As shown in Figure 6, this is not case, the coefficient is negative and not significant.

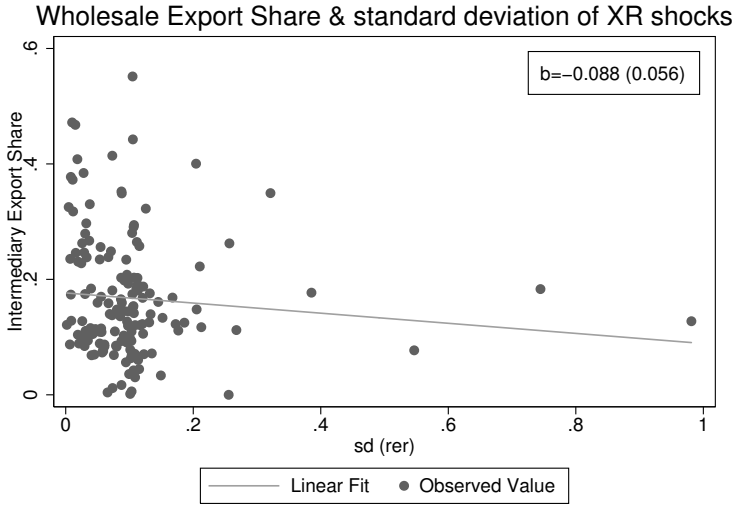

Figure 6: Wholesale export share and standard deviation of real exchange rates shocks between 2000 and 2003. The figure reports the coefficient, b, of a country-level univariate regression for intermediary export share. Robust standard error is shown in parenthesis.

Financial Statistics (IFS), can be accessed and downloaded at:
http://data.worldbank.org/indicator/FM.LBL.MQMY.ZG.

Table 1: Number of observations in BEEPS: standardized dataset 2002-05

Country	Domestic Only (1)	Indirect & Mixed Exporter (2)	Direct Exporter (3)	Country	Domestic Only (1)	Indirect & Mixed Exporter (2)	Direct Exporter (3)
Albania	26	2	23	Latvia^{E}	13	5	13
Algeria	370	4	12	Lebanon	28	20	42
Angola	213	1	1	Lesotho	12	2	14
Argentina*	341	52	320	Lithuania^{E}	81	28	66
Armenia	148	23	36	Madagascar	149	14	63
Bangladesh	555	60	360	Malawi	108	12	31
Belarus	18	5	15	Malaysia	316	123	404
Benin	109	10	18	Mali	52	2	11
Bolivia	245	41	57	Mauritania	60	11	8
Bosnia Herzegovina	21	3	20	Mauritius	46	13	82
Botswana	88	6	18	Mexico	896	46	112
Brazil	1090	124	361	Moldova	144	6	76
Bulgaria^{E}	104	33	85	Mongolia	122	19	26
Burkinafaso	25	2	8	Morocco	332	54	451
Burundi	97	3	2	Namibia	69	12	21
Cambodia	1	9	17	Nicaragua	609	91	90
Cameroon	34	10	27	Niger	8	2	5
Capeverde	24	0	1	Oman*	42	2	21
Chile	822	105	397	Pakistan	731	31	136
China	1374	318	423	Panama	186	20	37
Colombia	427	97	95	Paraguay	261	35	57
CostaRica	205	27	66	Peru	180	55	117
Croatia^{E}	24	6	29	Philippines	387	76	184
Czech^{E}	37	11	29	Poland^{E}	334	30	120
Dom.Republic	105	4	14	Portugal*^{E}	55	17	43
Ecuador	508	46	161	Romania^{E}	241	35	68
Egypt	726	53	173	Russia	71	7	18
ElSalvador	508	117	289	Rwanda	46	2	11
Eritrea	33	0	4	Senegal	66	4	51
Estonia^{E}	17	3	19	Slovakia^{E}	6	5	19
Ethiopia	338	6	22	Slovenia*^{E}	9	11	33
Gambia	27	4	2	SouthAfrica	217	78	262
Georgia	14	0	15	SouthKorea*	104	21	74
Germany*^{E}	109	10	90	Spain*^{E}	63	5	43
Greece*^{E}	49	4	31	SriLanka	118	139	144
Guatemala	459	78	212	Swaziland	41	4	24
Guinea	108	16	11	Syria	100	23	44
Guyana	100	8	45	Tajikistan	132	3	16
Honduras	461	62	148	Tanzania	337	21	45
Hungary^{E}	138	18	130	Thailand	532	160	693
India	2718	200	576	Turkey	363	229	382
Indonesia	378	43	246	Uganda	339	23	37
Ireland*^{E}	73	12	78	Ukraine	101	12	31
Jamaica	24	6	17	Uruguay	173	54	94
Jordan	162	18	158	Uzbekistan	128	3	29
Kazakhstan	218	8	27	Venezuela	235	15	8
Kenya	69	26	70	Vietnam	582	181	374
Kyrgyzstan	102	12	36	WestBankGaza	200	7	118
Laos	143	22	77	Zambia	50	2	24
				Total	23,478	3,507	9,971
				High Income*	845	134	733
				Europe^{E}	1,353	233	896

Note: Table reports observations only for firms in the manufacturing sectors. High Income* includes those countries above the 75th percentile of income level according to the World Bank. Mixed exporters are those that export both directly and indirectly.

Table 2: Exports and Number of exporting firms: share by type of firms, 2000-2007

Year	Total Exports (billion)	Manuf	Whol	Retail	Others
			Share (%)		
2000	246.79	85.09	9.85	0.74	4.32
2001	258.99	86.49	9.88	0.86	2.76
2002	260.75	84.75	10.93	0.83	3.49
2003	254.91	85.52	10.71	0.86	2.91
2004	274.38	85.65	10.5	0.82	3.04
2005	286.56	85.5	10.75	0.85	2.9
2006	319.01	84.95	11.32	0.85	2.88
2007	350.57	85	11.27	0.84	2.88
Year	Exporters (N. of firms)	Manuf	Whol	Retail	Others
			Share (%)		
2000	137347	57.3	26.43	7.67	8.6
2001	141520	56.46	27.01	7.95	8.58
2002	145473	55.64	27.06	8.14	9.16
2003	143421	55.57	27.41	7.72	9.3
2004	139598	55.34	27.61	7.46	9.59
2005	133473	54.96	27.48	7.3	10.26
2006	139360	53.7	28.07	7.31	10.92
2007	128472	54.77	27.91	6.88	10.44

Note: Table reports the share of exports and the share of exporters by type of firms (Manufacturers, Wholesalers, Retailers and Others).

Table 3: Descriptive statistics of Wholesale export share at Country, Product and Country-product level, 2003

		Obs	Zeros	Ones	Mean	Median
Country	All sample	228	8	0	.166	.133
	Intra-EU	14	0	0	.118	.109
	Extra-EU	214	8	0	.170	.137
Product	All Sample	5125	226	95	.211	.098
	Intra-EU	5009	579	156	.204	.056
	Extra-EU	5011	332	129	.220	.116
Country-Prod	All Sample	244614	118891	25506	.208	.001
	Intra-EU	51274	17717	3559	.187	.014
	Extra-EU	193340	101174	21907	.213	0

Table 4: Firm's exports, quantity and unit value by product and country by different type of firms, 2003 - Extra-EU

	ln Exports$_{fcp}$	ln Exports$_{fcp}$	ln Quantity$_{fcp}$	ln Quantity$_{fcp}$	ln UV$_{fcp}$	ln UV$_{fcp}$
	(1)	(2)	(3)	(4)	(5)	(6)
D_f^W	-0.307***	-0.113***	-0.314***	-0.115***	0.007	0.002
	(0.011)	(0.010)	(0.015)	(0.015)	(0.010)	(0.010)
ln Sales$_f$		0.196***		0.201***		-0.005
		(0.003)		(0.005)		(0.004)
Country-Product FE	Yes	Yes	Yes	Yes	Yes	Yes
Clustering	Firm	Firm	Firm	Firm	Firm	Firm
Adj R-squared	0.15	0.19	0.42	0.44	0.63	0.63
Observations	1190313	1190313	1190313	1190313	1190313	1190313
Countries	184	184	184	184	184	184
HS6 Products	4042	4042	4042	4042	4042	4042
Firms	105649	105649	105649	105649	105649	105649

Note: Table reports results of regressions at the firm product country level, using data on exports, quantity and unit value for 2003 and Extra-EU destinations only. D_f^W is a dummy for wholesaler; Sales is firm's total sales. Only product-country pairs in which both wholesalers and manufacturers are both active are included. Robust standard errors clustered at firm level are reported in parenthesis below the coefficients. Asterisks denote significance levels (***: p<1%; **: p<5%; *: p<10%).

Table 5: Adding regression (2000&2003) by different type of firms, Extra-EU

	SPF Add$_{ft}$	MPF Add$_{ft}$	SPF Add$_{ft}$	MPF Add$_{ft}$	MPF Add$_{ft}$
	(1)	(2)	(3)	(4)	(5)
D_{ft}^W	0.072***	0.010**	0.071***	0.017***	0.022***
	(0.008)	(0.004)	(0.009)	(0.005)	(0.004)
ln Sales$_{ft}$			0.009***	0.026***	0.012***
			(0.003)	(0.002)	(0.002)
ln Products$_{ft}$					0.085***
					(0.005)
Year FE	Yes	Yes	Yes	Yes	Yes
Industry-Mix FE	Yes	Yes	Yes	Yes	Yes
Clustering Industry-Mix	Yes	Yes	Yes	Yes	Yes
Adj R-squared	0.110	0.002	0.111	0.003	0.003
Observations	31175	135906	31175	135906	135906
Firms	28304	90041	28304	90041	90041
Industry-mix	88	32382	88	32382	32382

Note: Table reports OLS regression results of a dummy variable indicating a firm adding a product between t and $t+1$. D_{ft}^W is a dummy for wholesaler; Sales$_{ft}$ is firm's total sales; and Products$_{ft}$ is the number of products exported by each firm. SPF and MPF are, respectively, single and multi product firms. All variables are computed at time t. The regression sample is surviving exporting firms. Industry-mix FE allows to control for firms with the same mix of industries at the HS2 level. Robust standard errors in parentheses are adjusted for clustering by industry-mix. Asterisks denote significance levels (***: p<1%; **: p<5%; *: p<10%).

Table 6: Dropping regression (2000&2003) by different type of firms, Extra-EU

	SPF Drop_{ft} (1)	MPF Drop_{ft} (2)	SPF Drop_{ft} (3)	MPF Drop_{ft} (4)	MPF Drop_{ft} (5)
D_{ft}^{W}	0.084***	0.022***	0.086***	0.021***	0.025***
	(0.010)	(0.006)	(0.009)	(0.005)	(0.006)
ln Sales_{ft}			-0.009***	-0.006***	-0.021***
			(0.003)	(0.002)	(0.002)
ln Products_{ft}					0.085***
					(0.009)
Year FE	Yes	Yes	Yes	Yes	Yes
Industry-Mix FE	Yes	Yes	Yes	Yes	Yes
Clustering Industry-Mix	Yes	Yes	Yes	Yes	Yes
Adj R-squared	0.080	-0.050	0.081	-0.049	-0.022
Observations	31175	135906	31175	135906	135906
Firms	28304	90041	28304	90041	90041
Industry-mix	89	30283	89	30283	30283

Note: Table reports OLS regression results of a dummy variable indicating a firm dropping a product between t and $t+1$. D_{ft}^{W} is a dummy for wholesaler; Sales_{ft} is firm's total sales; and Products_{ft} is the number of products exported by each firm. SPF and MPF are, respectively, single and multi product firms. All variables are computed at time t. The regression sample is surviving exporting firms. Industry-mix FE allows to control for firms with the same mix of industries at the HS2 level. Robust standard errors in parentheses are adjusted for clustering by industry-mix. Asterisks denote significance levels (***: p<1%; **: p<5%; *: p<10%).

Table 7: Exchange rates and firm-country exports (1 and 2), number of products (3 and 4), average exports (5 and 6) over time, by different type of firms, Extra-EU (baseline specification)

	Annual Differences					
	ln X_{fct} (1)	ln X_{fct} (2)	ln Prod_{fct} (3)	ln Prod_{fct} (4)	ln $\text{Avg } X_{fct}$ (5)	ln $\text{Avg } X_{fct}$ (6)
D_{ft}^{W}	-0.015***		-0.001		-0.014***	
	(0.004)		(0.002)		(0.003)	
ln Real Ex Rate_{ct}	-0.519***	-0.461***	-0.186***	-0.086**	-0.333***	-0.375***
	(0.150)	(0.121)	(0.047)	(0.037)	(0.107)	(0.089)
$*D_{ft}^{W}$	0.042*	0.017*	-0.046**	-0.046*	0.087**	0.064*
	(0.026)	(0.011)	(0.023)	(0.028)	(0.039)	(0.038)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	No	Yes	No	Yes	No
Firm FE	No	Yes	No	Yes	No	Yes
Clustering	Country-Year	Country-Year	Country-Year	Country-Year	Country-Year	Country-Year
Adj R-squared	0.004	0.005	0.004	0.001	0.003	0.001
Observations	2487054	2487054	2487054	2487054	2487054	2487054
Countries	150	150	150	150	150	150
Firms	137311	137311	137311	137311	137311	137311

Note: Table reports results of regressions at the firm country level, using data on exports, number of products and average exports between 2000 and 2007. The dependent and independent variables are defined as annual differences. D_{ft}^{W} is a dummy for wholesaler and $*D_{ft}^{W}$ is the interacted dummy. Robust standard errors clustered at country-year level are reported in parenthesis below the coefficients. Asterisks denote significance levels (***: p<1%; **: p<5%; *: p<10%).

Table 8: Exchange rates and firm-country exports (1 and 2), number of products (3 and 4), average exports (5 and 6) over time, by different type of firms, Extra-EU, using WPI

	Annual Differences					
	ln X_{fct}	ln X_{fct}	ln $Prod_{fct}$	ln $Prod_{fct}$	ln Avg X_{fct}	ln Avg X_{fct}
	(1)	(2)	(3)	(4)	(5)	(6)
D_{ft}^W	-0.014***		0.001		-0.014***	
	(0.004)		(0.003)		(0.003)	
ln Real Ex $Rate_{ct}$	-0.511**	-0.469***	-0.180***	-0.103**	-0.331**	-0.366***
	(0.211)	(0.175)	(0.065)	(0.052)	(0.149)	(0.130)
$*D_{ft}^W$	0.046*	0.008	-0.049*	-0.059**	0.096*	0.066*
	(0.027)	(0.062)	(0.028)	(0.031)	(0.051)	(0.038)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	No	Yes	No	Yes	No
Firm FE	No	Yes	No	Yes	No	Yes
Clustering	Country-Year	Country-Year	Country-Year	Country-Year	Country-Year	Country-Year
Adj R-squared	0.003	0.006	0.003	0.009	0.003	0.003
Observations	2204329	2204329	2204329	2204329	2204329	2204329
Countries	65	65	65	65	65	65
Firms	131348	131348	131348	131348	131348	131348

Note: Table reports results of regressions at the firm country level, using data on exports, number of products and average exports between 2000 and 2007. The dependent and independent variables are defined as annual differences. D_{ft}^W is a dummy for wholesaler and $*D_{ft}^W$ is the interacted dummy. Robust standard errors clustered at country-year level are reported in parenthesis below the coefficients. Asterisks denote significance levels (***: p<1%; **: p<5%; *: p<10%).

Table 9: Exchange rates and firm-country exports (1 and 2), number of products (3 and 4), average exports (5 and 6) over time, by different type of firms, Extra-EU, using CPI with the same set of countries as in WPI

	Annual Differences					
	ln X_{fct}	ln X_{fct}	ln $Prod_{fct}$	ln $Prod_{fct}$	ln Avg X_{fct}	ln Avg X_{fct}
	(1)	(2)	(3)	(4)	(5)	(6)
D_{ft}^W	-0.014***		0.001		-0.014***	
	(0.004)		(0.003)		(0.003)	
ln Real Ex $Rate_{ct}$	-0.553***	-0.485***	-0.192***	-0.083**	-0.361***	-0.402***
	(0.180)	(0.145)	(0.065)	(0.043)	(0.130)	(0.108)
$*D_{ft}^W$	0.025	0.019	-0.045*	-0.031	0.070*	0.050*
	(0.049)	(0.053)	(0.026)	(0.028)	(0.038)	(0.023)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	No	Yes	No	Yes	No
Firm FE	No	Yes	No	Yes	No	Yes
Clustering	Country-Year	Country-Year	Country-Year	Country-Year	Country-Year	Country-Year
Adj R-squared	0.004	0.007	0.003	0.001	0.003	0.002
Observations	2204329	2204329	2204329	2204329	2204329	2204329
Countries	65	65	65	65	65	65
Firms	131348	131348	131348	131348	131348	131348

Note: Table reports results of regressions at the firm country level, using data on exports, number of products and average exports between 2000 and 2007. The dependent and independent variables are defined as annual differences. D_{ft}^W is a dummy for wholesaler and $*D_{ft}^W$ is the interacted dummy. Robust standard errors clustered at country-year level are reported in parenthesis below the coefficients. Asterisks denote significance levels (***: p<1%; **: p<5%; *: p<10%).

Table 10: Exchange rates and firm-country exports (1 and 2), number of products (3 and 4), average exports (5 and 6) over time, by different type of firms, Extra-EU, decomposing RER

	Annual Differences		
	ln X_{fct}	ln$Prod_{fct}$	ln Avg X_{fct}
	(1)	(2)	(3)
ln TPC_{ct}	-0.548***	-0.195**	-0.353***
	(0.154)	(0.053)	(0.110)
$*D_{ft}^{W}$	0.005	-0.054*	0.059
	(0.074)	(0.032)	(0.049)
ln EUR_{ct}	-0.229**	0.208***	-0.437***
	(0.097)	(0.052)	(0.072)
$*D_{ft}^{W}$	0.073	-0.012	0.084*
	(0.071)	(0.047)	(0.046)
Country FE	Yes	Yes	Yes
Year FE	No	No	No
Firm FE	Yes	Yes	Yes
Clustering	Country-Year	Country-Year	Country-Year
Adj R-squared	0.007	0.007	0.002
Observations	2487054	2487054	2487054
Countries	150	150	150
Firms	137311	137311 1	137311

Note: Table reports results of regressions at the firm country level, using data on exports, number of products and average exports between 2000 and 2007. The dependent and independent variables are defined as annual differences. D_{ft}^{W} is a dummy for wholesaler and $*D_{ft}^{W}$ is the interacted dummy. Robust standard errors clustered at country-year level are reported in parenthesis below the coefficients. Asterisks denote significance levels (***: p<1%; **: p<5%; *: p<10%).

Table 11: Exchange rates and firm-country exports (1 and 2), number of products (3 and 4), average exports (5 and 6) over time, by different type of firms, Extra-EU, with country-mix FE

	Annual Differences		
	ln X_{fct}	ln $Prod_{fct}$	ln Avg X_{fct}
	(1)	(2)	(3)
D_{ft}^{W}	0.005	0.004	0.001
	(0.006)	(0.004)	(0.005)
ln RER_{ct}	-0.552***	-0.200***	-0.351***
	(0.149)	(0.047)	(0.106)
$*D_{ft}^{W}$	0.090*	-0.019*	0.109**
	(0.048)	(0.008)	(0.051)
Country-Mix FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Clustering	Country-Year	Country-Year	Country-Year
Adj R-squared	0.041	0.042	0.031
Observations	2487054	2487054	2487054
Countries	150	150	150
Firms	137311	137311	137311

Note: Table reports results of regressions at the firm country level, using data on exports, number of products and average exports between 2000 and 2007. The dependent and independent variables are defined as annual differences. D_{ft}^{W} is a dummy for wholesaler and $*D_{ft}^{W}$ is the interacted dummy. Robust standard errors clustered at country-year level are reported in parenthesis below the coefficients. Asterisks denote significance levels (***: p<1%; **: p<5%; *: p<10%).

Table 12: Baseline results. Dependent variable is (ln) Unit Value and (ln) Export

Sample	Single Prod	Main Prod (by value)	Main Prod (by destin.)	Single Prod	Main Prod (by value)	Main Prod (by destin.)
	Ln Unit Value	Ln Unit Value	Ln Unit Value	ln Exports	ln Exports	ln Exports
$\widetilde{TFP}_{t-1}$	0.027***	0.030***	0.031***	0.053***	0.072***	0.066***
	(0.007)	(0.004)	(0.005)	(0.018)	(0.012)	(0.011)
ln RER	-0.015	-0.043***	-0.034**	-0.408***	-0.522***	-0.454***
	(0.010)	(0.013)	(0.015)	(0.098)	(0.117)	(0.114)
$\widetilde{TFP}_{t-1}$ * ln RER	-0.005**	-0.003	-0.003*	0.004*	0.002	0.005**
	(0.002)	(0.002)	(0.001)	(0.002)	(0.003)	(0.002)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm-Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Cluster Country-Year	Yes	Yes	Yes	Yes	Yes	Yes
Observations	308748	662220	776367	308748	662220	776367
Adj R-squared	0.951	0.959	0.938	0.724	0.753	0.716

Note: Table reports results of regressions at the firm product country level, using data on exports, quantity and unit value between 2000 and 2006. We merged the trade data sample with Micro.3 containing firm level variables to compute TFP. We keep single product, main product by value and main product by destination observation and we run the regression as in **?**.

Table 13: Exchange rates and firm's exports, quantity and unit value by product and country over time, by different type of firms, Extra-EU, with TFP interacted

	Annual Differences					
	ln X_{fcpt}	ln$Quantity_{fcpt}$	ln $UnitValue_{fcpt}$	ln X_{fcpt}	ln$Quantity_{fcpt}$	ln $UnitValue_{fcpt}$
	(1)	(2)	(3)	(4)	(5)	(6)
ln Real Ex $Rate_{ct}$	-0.398***	-0.365***	-0.032**	-0.619***	-0.756***	0.138
	(0.121)	(0.130)	(0.014)	(0.176)	(0.181)	(0.088)
$*D^W_{ft}$	0.028*	0.091**	-0.063**	0.026*	0.087*	-0.060**
	(0.017)	(0.043)	(0.029)	(0.015)	(0.049)	(0.029)
$*\ln\widetilde{TFP}_{ft-1}$				0.046	0.081**	-0.035**
				(0.033)	(0.038)	(0.013)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Firm-Product FE	Yes	Yes	Yes	Yes	Yes	Yes
Clustering Country-Year	Yes	Yes	Yes	Yes	Yes	Yes
Adj R-squared	0.007	0.003	0.036	0.007	0.003	0.036
R-squared	0.147	0.143	0.171	0.146	0.142	0.170
Observations	2081711	2081711	2081711	2081711	2081711	2081711
Countries	150	150	150	150	150	150
Firms	29787	29787	29787	29787	29787	29787
HS6 Products	5014	5014	5014	5014	5014	5014

Note: Table reports results of regressions at the firm product country level, using data on exports, quantity and unit value between 2000 and 2006. The dependent and independent variables are defined as annual differences. D^W_{ft} is a dummy for wholesaler, $*D^W_{ft}$ is the interacted dummy, and $*TFP_{ft}$ is the TFP variable interacted with RER. Robust standard errors clustered at country-year level are reported in parenthesis below the coefficients. Asterisks denote significance levels (***: p<1%; **: p<5%; *: p<10%).

Table 14: Exchange rates and country exports, Extra-EU with WPI

Annual Differences				
(Above)	ln X_{ct} Median	ln X_{ct} Median	ln X_{ct} Mean	ln X_{ct} Mean
	(1)	(2)	(3)	(4)
D_c^W	0.026		0.017	
	(0.022)		(0.020)	
ln Real Exchange $Rate_{ct}$	-0.756***	-0.666**	-0.715**	-0.617*
	(0.170)	(0.329)	(0.279)	(0.356)
$*D_c^W$	0.775***	0.798**	0.679**	0.700*
	(0.205)	(0.343)	(0.345)	(0.375)
Year FE	Yes	Yes	Yes	Yes
Country FE	No	Yes	No	Yes
Observations	436	436	436	436
Adj R-squared	0.102	0.072	0.092	0.065
R-squared	0.121	0.225	0.111	0.219
Countries	65	65	65	65

Note: Table reports results of regressions at the country-year level, using data on exports between 2000 and 2007. The dependent and independent variables are defined as annual differences. D_c^W is a dummy that takes value 1 if the intermediary export share to country c is above the median (mean) value of intermediary export share across countries $*D_c^W$ is the interacted dummy. Robust standard errors are reported in parenthesis below the coefficients. Asterisks denote significance levels (***: p<1%; **: p<5%; *: p< 10%).

Table 15: Exchange rates and country exports, Extra-EU, including other variables

	Annual Differences							
	ln X_{ct}	ln X_{ct}	ln X_{ct}	ln X_{ct}	ln X_{ct}	ln X_{ct}	ln X_{ct}	ln X_{ct}
(Above)	Median	Median	Mean	Mean	Median	Median	Mean	Mean
D_c^W	-0.008		-0.010		-0.012		-0.013	
	(0.032)		(0.030)		(0.033)		(0.031)	
ln Real Exchange Rate$_{ct}$	-0.460*	-0.430**	-0.431**	-0.405*	-0.467*	-0.439*	-0.436**	-0.413*
	(0.251)	(0.224)	(0.209)	(0.233)	(0.251)	(0.235)	(0.211)	(0.247)
$*D_c^W$	0.509**	0.494**	0.460**	0.452*	0.555**	0.532**	0.500**	0.484*
	(0.266)	(0.252)	(0.235)	(0.271)	(0.280)	(0.271)	(0.239)	(0.278)
ln Real GDP$_{ct}$	1.155***	1.101*	1.170***	1.123*	1.090***	1.074*	1.110***	1.099*
	(0.363)	(0.632)	(0.383)	(0.630)	(0.370)	(0.701)	(0.387)	(0.700)
Money$_{ct}$					0.066	0.045	0.061	0.038
					(0.088)	(0.095)	(0.070)	(0.094)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	No	Yes	No	Yes	No	Yes	No	Yes
Observations	1032	1032	1032	1032	1000	1000	1000	1000
Adj R-squared	0.012	-0.116	0.012	-0.117	0.012	-0.118	0.011	-0.119
R-squared	0.022	0.055	0.022	0.055	0.022	0.055	0.021	0.054
Countries	150	150	150	150	146	146	146	146

Note: Table reports results of regressions at the country-year level, using data on exports between 2000 and 2010. The dependent and independent variables are defined as annual differences. D_c^W is a dummy that takes value 1 if the intermediary export share to country c is above the median (mean) value of intermediary export share across countries $*D_c^W$ is the interacted dummy. $Money_{ct}$ is a variable that comprises the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government (http://data.worldbank.org/indicator/FM.LBL.MQMY.ZG). Robust standard errors are reported in parenthesis below the coefficients. Asterisks denote significance levels (***: p<1%; **: p<5%; *: p< 10%).

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