

Export Destinations and Input Prices

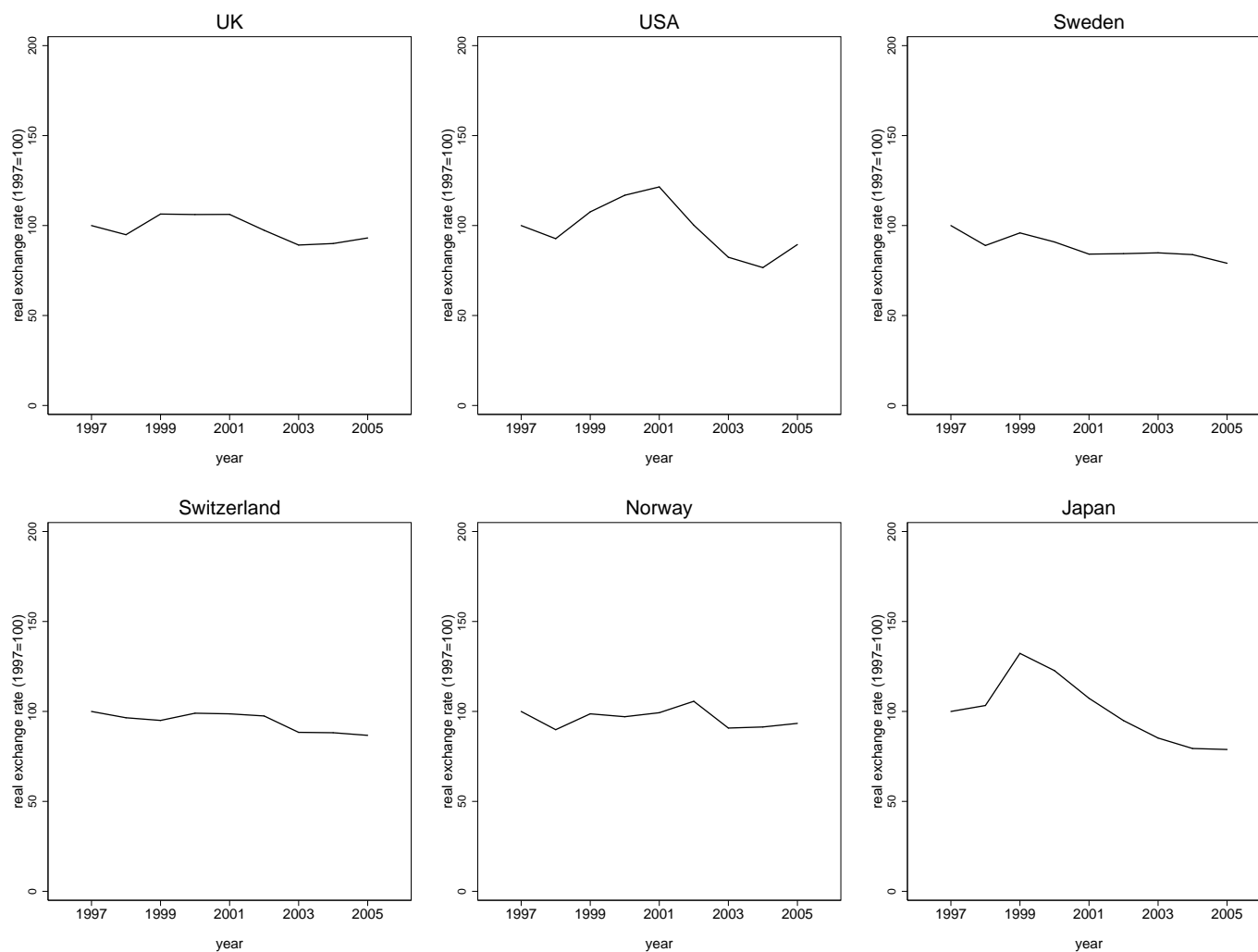
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APPENDIX A

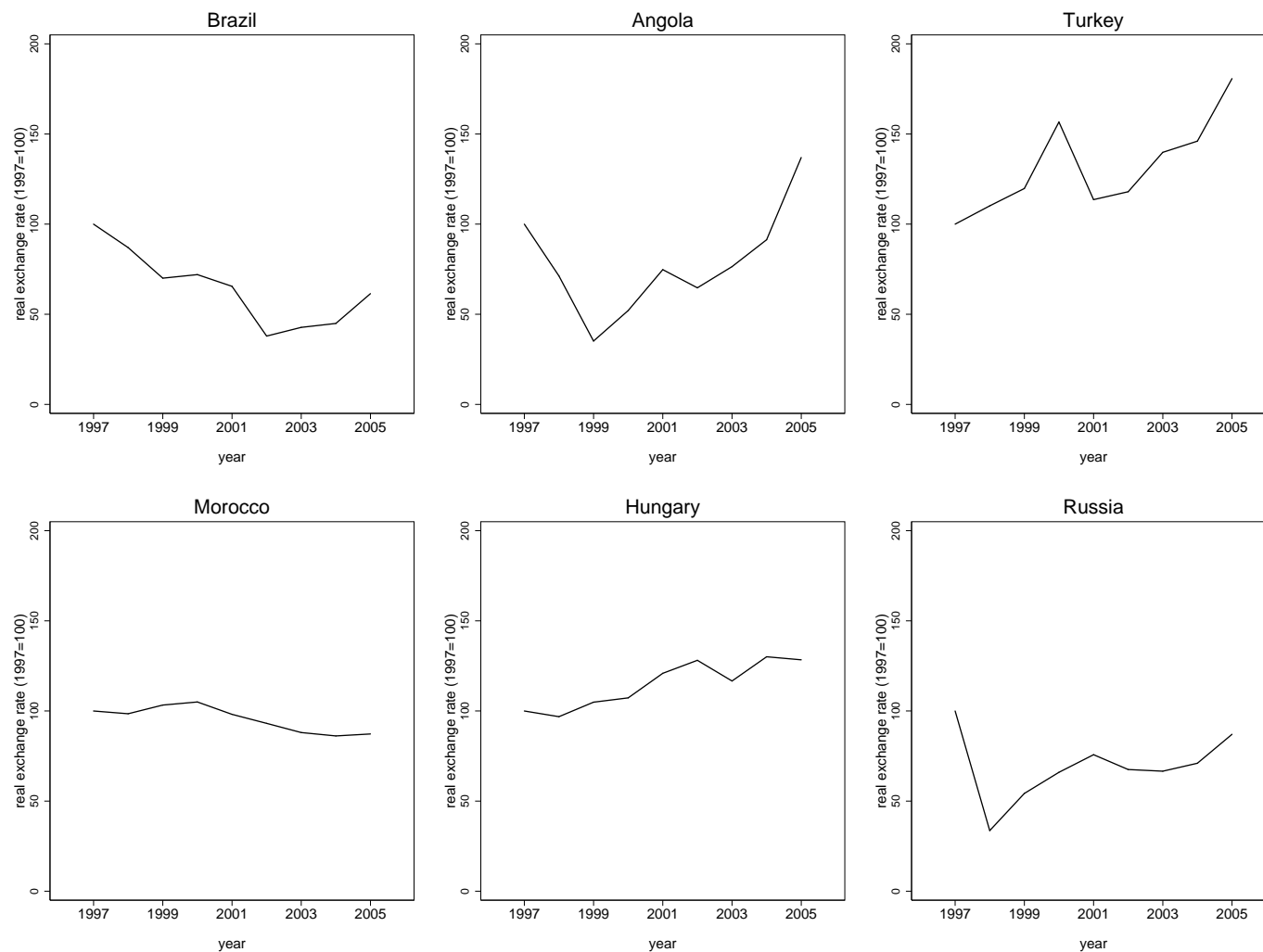
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Figure A1. Real Exchange Rate, Selected Richer Export Destinations



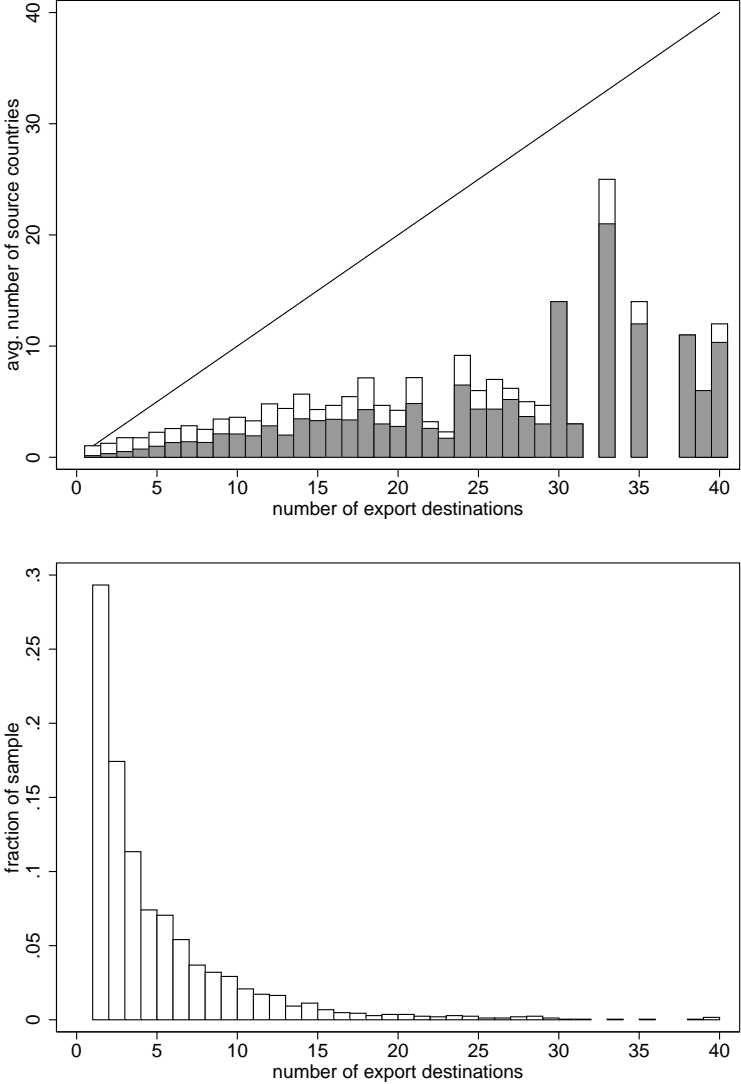
Notes: Real exchange rate calculated as $\frac{\epsilon_{hkt}}{CPI_{kt}/CPI_{kt}}$, where ϵ_{hkt} is the nominal exchange rate (defined as units of home (h) currency per unit of currency in destination k). (Refer to equation (19).) Given this definition, an increase reflects a real appreciation in the destination relative to Portugal. Real exchange rate normalized to 100 in 1997.

Figure A2. Real Exchange Rate, Selected Poorer Export Destinations



Notes: Real exchange rate calculated as $\frac{\epsilon_{hkt}}{CPI_{kt}/CPI_{kt}}$, where ϵ_{hkt} is the nominal exchange rate (defined as units of home (h) currency per unit of currency in destination k). (Refer to equation (19).) Given this definition, an increase reflects a real appreciation in the destination relative to Portugal. Real exchange rate normalized to 100 in 1997.

Figure A3. Differences Between Initial Sets of Export Destinations and Source Countries



Notes: The top panel illustrates the average number of source countries (hollow bars) and average number of source countries that are also destinations (gray bars), for each number of destinations. The line is a 45-degree line. The bottom panel is a histogram of the number of export destinations. Sample is firms in the baseline estimation sample in 1997 with positive exports to one or more of top 100 non-Euro-zone destinations. Number of export destinations refers to non-Euro-zone destinations and is top-coded at 40; fewer than .1% of firms are above the top-code.

Table A1. Summary statistics, exports and imports, 1997

	export share			import share		
	export rank	all exports	estimation sample	import rank	all imports	estimation sample
Germany	1	0.217	0.211	2	0.208	0.210
Spain	2	0.145	0.150	1	0.219	0.226
France	3	0.144	0.151	3	0.116	0.121
United Kingdom	4	0.125	0.130	4	0.070	0.073
Netherlands	5	0.055	0.054	6	0.038	0.040
Belgium-Luxemburg	6	0.052	0.052	8	0.029	0.029
United States	7	0.044	0.038	9	0.029	0.025
Italy	8	0.039	0.039	5	0.061	0.063
Sweden	9	0.020	0.019	13	0.009	0.007
Denmark	10	0.017	0.018	17	0.008	0.007
Austria	11	0.013	0.013	15	0.008	0.008
Switzerland	12	0.011	0.011	16	0.008	0.008
<i>Brazil</i>	13	0.009	0.009	10	0.026	0.026
Norway	14	0.008	0.008	11	0.012	0.012
Japan	15	0.007	0.005	7	0.034	0.029
Finland	16	0.007	0.007	18	0.007	0.007
<i>Angola</i>	17	0.006	0.007	34	0.002	0.000
Greece	18	0.005	0.005	41	0.001	0.002
Singapore	19	0.005	0.002	28	0.003	0.001
Israel	20	0.005	0.005	43	0.001	0.001
<i>Turkey</i>	21	0.005	0.005	22	0.003	0.003
Ireland	22	0.004	0.004	20	0.004	0.004
Australia	23	0.004	0.004	83	0.000	0.000
Canada	24	0.004	0.004	31	0.003	0.003
<i>Morocco</i>	25	0.004	0.004	29	0.003	0.003
<i>Hungary</i>	26	0.003	0.003	94	0.000	0.000
<i>Russia</i>	27	0.003	0.004	14	0.008	0.009
<i>South Africa</i>	28	0.003	0.003	21	0.004	0.004
<i>Chile</i>	29	0.002	0.003	66	0.001	0.001
Hong Kong	30	0.002	0.002	65	0.001	0.001
<i>Poland</i>	31	0.002	0.002	52	0.001	0.001
<i>Cape Verde</i>	32	0.002	0.002	64	0.001	0.001
<i>China</i>	33	0.002	0.002	26	0.003	0.003
<i>Saudi Arabia</i>	34	0.002	0.001	91	0.000	0.000
<i>Argentina</i>	35	0.002	0.002	60	0.001	0.001
<i>Tunisia</i>	36	0.001	0.001	38	0.002	0.002
Korea	37	0.001	0.001	12	0.011	0.001
<i>Czech Republic</i>	38	0.001	0.001	56	0.001	0.001
<i>Algeria</i>	39	0.001	0.001	88	0.000	0.000
<i>Mexico</i>	40	0.001	0.001	68	0.001	0.001
<i>Mozambique</i>	41	0.001	0.001	50	0.001	0.001
<i>Thailand</i>	42	0.001	0.001	37	0.002	0.002
<i>Guinea-Bissau</i>	43	0.001	0.001	117	0.000	0.000
<i>Panama</i>	44	0.001	0.000	110	0.000	0.000
<i>Venezuela</i>	45	0.001	0.001	77	0.000	0.000
<i>India</i>	46	0.001	0.001	19	0.005	0.006
<i>Egypt</i>	47	0.001	0.001	44	0.001	0.001
Cyprus	48	0.001	0.001	120	0.000	0.000
New Zealand	49	0.001	0.001	78	0.000	0.000
<i>Slovak Republic</i>	50	0.001	0.001	105	0.000	0.000
Total (bil. euros)		16.05	14.86		11.89	11.03

Notes: Table reports export shares by destination for all exporters (Column 2) and our estimation sample (Column 3) and import share by source country for all importers (Column 5) and our estimation sample (Column 6). Final row reports total exports for all destinations and total imports from all sources. Countries poorer than Portugal (in 1996 GDP/capita) appear in italics. Export and import ranks based on all exports and all imports, respectively (i.e. not the estimation sample). Petroleum exports and imports excluded. Euro-zone countries included.

Table A2. Summary statistics, baseline estimation sample, 1997-2005

	1997	1998	1999	2000	2001	2002	2003	2004	2005
sales	5.57 (0.51)	5.45 (0.44)	5.18 (0.45)	4.97 (0.46)	5.04 (0.50)	7.36 (0.67)	6.91 (0.61)	9.86 (0.79)	9.35 (0.70)
number of output categories	4.51 (0.07)	4.52 (0.07)	4.51 (0.06)	4.53 (0.06)	4.47 (0.06)	5.93 (0.17)	6.04 (0.17)	3.89 (0.09)	3.82 (0.09)
export share of sales	0.21 (0.00)	0.21 (0.00)	0.21 (0.00)	0.20 (0.00)	0.19 (0.00)	0.14 (0.01)	0.14 (0.01)	0.24 (0.01)	0.24 (0.01)
share of exports to richer countries	0.79 (0.01)	0.80 (0.01)	0.81 (0.01)	0.80 (0.01)	0.79 (0.01)	0.76 (0.01)	0.75 (0.01)	0.79 (0.01)	0.78 (0.01)
number of destination countries	7.71 (0.15)	7.53 (0.14)	7.53 (0.14)	7.53 (0.14)	7.50 (0.15)	7.32 (0.33)	7.15 (0.30)	8.85 (0.27)	8.94 (0.27)
number of export categories	10.03 (0.28)	9.89 (0.26)	9.88 (0.26)	9.86 (0.25)	10.02 (0.27)	9.76 (0.72)	9.39 (0.61)	13.04 (0.56)	13.77 (0.59)
avg. income of destination	11.62 (0.05)	11.63 (0.05)	11.60 (0.05)	11.48 (0.05)	11.41 (0.04)	10.73 (0.07)	10.69 (0.06)	11.46 (0.07)	11.36 (0.07)
purchases	3.24 (0.43)	3.09 (0.35)	2.91 (0.36)	2.87 (0.43)	2.92 (0.42)	4.19 (0.37)	3.70 (0.32)	5.49 (0.55)	5.12 (0.47)
number of input categories	7.70 (0.08)	8.12 (0.08)	8.44 (0.08)	8.78 (0.08)	8.90 (0.08)	7.05 (0.14)	7.18 (0.14)	7.75 (0.15)	7.87 (0.15)
import share of purchases	0.20 (0.00)	0.20 (0.00)	0.20 (0.00)	0.20 (0.00)	0.19 (0.00)	0.18 (0.01)	0.18 (0.01)	0.28 (0.01)	0.27 (0.01)
share of imports from richer countries	0.90 (0.00)	0.89 (0.00)	0.90 (0.00)	0.90 (0.00)	0.88 (0.00)	0.87 (0.01)	0.88 (0.01)	0.87 (0.01)	0.87 (0.01)
number of source countries	5.63 (0.08)	5.65 (0.08)	5.65 (0.08)	5.58 (0.08)	5.56 (0.08)	5.34 (0.18)	5.21 (0.17)	6.78 (0.14)	6.83 (0.14)
number of import categories	21.74 (0.65)	21.70 (0.64)	21.94 (0.61)	22.00 (0.59)	21.61 (0.59)	20.06 (1.19)	20.60 (1.51)	29.41 (1.28)	31.04 (1.33)
average income of source	10.87 (0.03)	10.88 (0.03)	10.89 (0.03)	10.81 (0.03)	10.68 (0.03)	10.55 (0.06)	10.51 (0.05)	11.17 (0.06)	11.07 (0.06)
fraction exporter	0.49	0.49	0.49	0.47	0.45	0.45	0.46	0.59	0.60
fraction importer	0.50	0.52	0.51	0.49	0.48	0.45	0.45	0.60	0.59
N (firms)	6585	6873	7194	7713	7994	2046	2160	2455	2639

Notes: Table reports averages across firms, weighting firms equally. Average income of sales destination and purchase sources include the home market as possible destination or source, as described in Section 4 of the text. Sales and purchases are in millions of 2000 Euros, avg. incomes of destination and source in thousands of 2000 Euros.

Table A3. Destination characteristics and export prices in cross section, 1997

	dep. var.: firm-product log export price			
	(1)	(2)	(3)	(4)
richer than Portugal	0.09*** (0.03)	0.11*** (0.03)		
log GDP/cap.			0.03** (0.01)	0.03*** (0.01)
log GDP	0.01 (0.00)	0.00 (0.00)	0.01 (0.01)	-0.00 (0.01)
European Union	0.06** (0.03)	0.03 (0.02)	0.07*** (0.03)	0.04 (0.03)
landlocked	-0.02 (0.04)	0.03 (0.05)	-0.05 (0.04)	0.01 (0.06)
log distance	0.05*** (0.01)	0.04*** (0.01)	0.06*** (0.01)	0.04*** (0.01)
product effects	Y	N	Y	N
firm-product effects	N	Y	N	Y
R2	0.73	0.94	0.73	0.94
N	35438	35438	35438	35438

Notes: Sample is all firm-product-destination observations in 1997 for firms in baseline estimation sample, excluding Euro-zone destinations and petroleum exports. Results when including Euro-zone destinations are similar (see Appendix Table 3). “Richer than Portugal” defined using 1996 GDP/capita, consistent with our use of 1996 values elsewhere; log GDP/cap. variable is from 1997. Price data have been winsorized as described in Section 3. Robust standard errors, clustered by destination, in parentheses. *10% level, **5% level, ***1% level.

Table A4. Source-country characteristics and import prices in cross section, 1997

	dep. var.: firm-product log import price			
	(1)	(2)	(3)	(4)
richer than Portugal	0.58*** (0.11)	0.33*** (0.10)		
log GDP/cap.			0.23*** (0.03)	0.13*** (0.03)
log GDP	0.08*** (0.02)	0.03 (0.02)	0.06*** (0.02)	0.02 (0.02)
European Union	-0.34*** (0.12)	-0.16 (0.13)	-0.30*** (0.08)	-0.15 (0.10)
landlocked	0.20*** (0.06)	0.02 (0.07)	0.14*** (0.04)	-0.00 (0.06)
log distance	0.02 (0.05)	0.07 (0.06)	-0.01 (0.03)	0.06 (0.05)
product effects	Y	N	Y	N
firm-product effects	N	Y	N	Y
R2	0.68	0.94	0.68	0.94
N	99365	99365	99365	99365

Notes: Sample is all firm-product-source observations in 1997 for firms in baseline estimation sample. Euro-zone origins included, petroleum imports excluded. “Richer than Portugal” defined using 1996 GDP/capita, consistent with our use of 1996 values elsewhere; log GDP/cap. variable is from 1997. Robust standard errors, clustered by source country, in parentheses. *10% level, **5% level, ***1% level.

Table A5. Destination income and firm average input prices, LIML estimates

	dep. var.: firm-average log real input price					
	(1)	(2)	(3)	(4)	(5)	(6)
log avg. destination gdp/cap	0.99*** (0.33)	1.16*** (0.43)	1.18*** (0.44)	1.15*** (0.44)	1.16** (0.51)	0.96** (0.48)
export share of sales		-0.56*** (0.22)	-0.57** (0.23)	-0.56** (0.23)	-0.58 (0.71)	-0.47 (0.68)
log avg. destination distance			-0.00 (0.00)	-0.00 (0.00)	0.00 (0.02)	0.25** (0.12)
log sales				0.02** (0.01)	0.02** (0.01)	-0.01 (0.02)
initial source interactions	Y	Y	Y	Y	Y	Y
firm effects	Y	Y	Y	Y	Y	Y
year effects	Y	Y	Y	Y	Y	Y
N	45659	45659	45659	45659	45659	45659
Kleibergen-Paap LM statistic (under-identification)	264.22	250.03	249.61	248.92	192.30	232.20
Kleibergen-Paap LM p-value	0.00	0.00	0.00	0.00	0.00	0.00
Kleibergen-Paap Wald rk F-stat (weak insts.)	3.11	2.67	2.67	2.65	2.09	2.32
Anderson-Rubin Wald test F-stat	2.20	2.19	2.19	2.17	2.18	2.18
Anderson-Rubin Wald test p-value	0.00	0.00	0.00	0.00	0.00	0.00

Notes: Instruments are interactions of indicators for positive exports to destination in 1997 and log real-exchange rate for Portugal's top 100 non-Euro-zone export destinations. Initial source interactions, included directly as covariates, are defined analogously to the instruments, using indicators for initial imports. Columns 1 to 4 treat only log avg. destination GDP/cap as endogenous; Column 5 adds export share of sales, and Column 6 adds log avg. destination distance to endogenous set. Destination gdp/cap measured in 1996. Petroleum exports and imports excluded. Robust standard errors in parentheses. *10% level, **5% level, ***1% level.

Table A6. IV estimates, input prices, excluding richest destinations from instrument set

	dep. var.: firm-average log real input price				
	excluding from instrument set the richest				
	5 dest.	10 dest.	15 dest.	20 dest.	25 dest.
	(1)	(2)	(3)	(4)	(5)
log avg. destination gdp/cap	0.65** (0.26)	0.77*** (0.27)	0.69** (0.27)	0.69*** (0.26)	0.58** (0.29)
export share of sales	-0.29 (0.31)	-0.13 (0.32)	-0.01 (0.33)	-0.15 (0.33)	-0.14 (0.34)
log avg. destination distance	0.06** (0.03)	0.07*** (0.03)	0.06** (0.03)	0.05** (0.03)	0.05* (0.03)
log sales	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)
initial source interactions	Y	Y	Y	Y	Y
firm effects	Y	Y	Y	Y	Y
year effects	Y	Y	Y	Y	Y
N	45659	45659	45659	45659	45659
Kleibergen-Paap LM statistic (under-identification)	239.67	161.92	162.20	148.72	139.61
Kleibergen-Paap LM p-value	0.00	0.00	0.00	0.00	0.00
Kleibergen-Paap Wald rk F-stat (weak insts.)	2.51	1.96	2.04	1.92	2.00
Anderson-Rubin Wald test F-stat	2.28	2.34	2.37	2.24	2.16
Anderson-Rubin Wald test p-value	0.00	0.00	0.00	0.00	0.00

Notes: Specifications are similar to Table 6 Column 6, but excluding subsets of the richest destinations from instrument set. Column 1 excludes the 5 richest non-Euro-zone countries, leaving the other 95 destinations in the instrument set, and similarly for the other columns. First-stage results in Appendix Tables B5-B9. Robust standard errors in parentheses. *10% level, **5% level, ***1% level.

Table A7. IV estimates, input prices, excluding poorest destinations from instrument set

	dep. var.: firm-average log real input price				
	excluding from instrument set the poorest				
	5 dest.	10 dest.	15 dest.	20 dest.	25 dest.
	(1)	(2)	(3)	(4)	(5)
log avg. destination gdp/cap	0.69** (0.27)	0.66** (0.27)	0.67** (0.27)	0.63** (0.27)	0.54* (0.28)
export share of sales	-0.25 (0.32)	-0.26 (0.33)	-0.23 (0.34)	-0.18 (0.34)	-0.12 (0.35)
log avg. destination distance	0.06** (0.03)	0.05* (0.03)	0.06* (0.03)	0.06* (0.03)	0.05* (0.03)
log sales	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01 (0.01)	0.01* (0.01)
initial source interactions	Y	Y	Y	Y	Y
firm effects	Y	Y	Y	Y	Y
year effects	Y	Y	Y	Y	Y
N	45659	45659	45659	45659	45659
Kleibergen-Paap LM statistic (under-identification)	224.77	212.81	208.93	204.56	202.84
Kleibergen-Paap LM p-value	0.00	0.00	0.00	0.00	0.00
Kleibergen-Paap Wald rk F-stat (weak insts.)	2.41	2.41	2.50	2.64	2.80
Anderson-Rubin Wald test F-stat	2.20	2.26	2.30	2.35	2.43
Anderson-Rubin Wald test p-value	0.00	0.00	0.00	0.00	0.00

Notes: Specifications are similar to Table 6 Column 6, but excluding subsets of the poorest destinations from instrument set. Column 1 excludes the 5 poorest non-Euro-zone countries, leaving the other 95 destinations in the instrument set, and similarly for the other columns. First-stage results in Appendix Tables B10-B14. Robust standard errors in parentheses. *10% level, **5% level, ***1% level.

Table A8. IV estimates, input prices, excluding initial source interactions

	dep. var.: firm-average log real input price					
	(1)	(2)	(3)	(4)	(5)	(6)
log avg. destination gdp/cap	0.56*** (0.20)	0.68*** (0.24)	0.69*** (0.25)	0.67*** (0.25)	0.69*** (0.25)	0.65*** (0.25)
export share of sales		-0.32*** (0.12)	-0.32** (0.13)	-0.31** (0.13)	-0.39 (0.30)	-0.35 (0.30)
log avg. destination distance			-0.00 (0.00)	-0.00 (0.00)	0.00 (0.01)	0.05** (0.02)
log sales				0.02*** (0.01)	0.02*** (0.01)	0.01* (0.01)
initial source interactions	N	N	N	N	N	N
firm effects	Y	Y	Y	Y	Y	Y
year effects	Y	Y	Y	Y	Y	Y
N	45659	45659	45659	45659	45659	45659
Kleibergen-Paap LM statistic (under-identification)	285.04	282.77	282.69	281.82	218.57	269.43
Kleibergen-Paap LM p-value	0.00	0.00	0.00	0.00	0.00	0.00
Kleibergen-Paap Wald rk F-stat (weak insts.)	3.30	3.07	3.08	3.06	2.50	2.62
Anderson-Rubin Wald test F-stat	2.36	2.35	2.35	2.33	2.33	2.33
Anderson-Rubin Wald test p-value	0.00	0.00	0.00	0.00	0.00	0.00

Notes: Table is similar to Table 6 but excludes the initial source interactions (interactions of indicators for positive imports from origin in 1997 and log real-exchange rate). First-stage results in Appendix Table B15. Robust standard errors in parentheses. *10% level, **5% level, ***1% level.

Table A9. Destination income and firm average input prices, two-step feasible EGMM estimates

	dep. var.: firm-average log real input price					
	(1)	(2)	(3)	(4)	(5)	(6)
log avg. destination gdp/cap	0.41** (0.17)	0.43** (0.21)	0.44** (0.21)	0.42** (0.21)	0.41* (0.21)	0.42* (0.22)
export share of sales		-0.20* (0.11)	-0.19* (0.11)	-0.18 (0.11)	-0.13 (0.26)	-0.14 (0.27)
log avg. destination distance			-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.01)	0.04 (0.02)
log sales				0.02*** (0.01)	0.02*** (0.01)	0.02** (0.01)
initial source interactions	Y	Y	Y	Y	Y	Y
firm effects	Y	Y	Y	Y	Y	Y
year effects	Y	Y	Y	Y	Y	Y
N	45659	45659	45659	45659	45659	45659
Kleibergen-Paap LM statistic (under-identification)	264.22	250.03	249.61	248.92	192.30	232.20
Kleibergen-Paap LM p-value	0.00	0.00	0.00	0.00	0.00	0.00
Kleibergen-Paap Wald rk F-stat (weak insts.)	3.11	2.67	2.67	2.65	2.09	2.32
Anderson-Rubin Wald test F-stat	2.20	2.19	2.19	2.17	2.18	2.18
Anderson-Rubin Wald test p-value	0.00	0.00	0.00	0.00	0.00	0.00

Notes: Table reports estimates of equation (22) in text, using a two-step feasible efficient GMM estimator. Specifications are similar to those in Table 6. Robust standard errors in parentheses. *10% level, **5% level, ***1% level.

Table A10. Examining role of market power in input markets, time-invariant market power measures

	dep. var.: firm-average log real input price			
	(1)	(2)	(3)	(4)
log avg. destination gdp/cap	0.71*** (0.21)	0.48** (0.21)	0.40* (0.22)	0.64*** (0.15)
export share of sales	-0.26 (0.25)	0.04 (0.23)	-0.45* (0.25)	-0.20 (0.17)
log avg. destination distance	0.05** (0.02)	0.03 (0.02)	0.05** (0.02)	0.03** (0.02)
log sales	0.01 (0.01)	0.01** (0.01)	0.02*** (0.01)	0.01* (0.01)
herfindahl (suppliers)	-0.15 (1.71)			5.63 (5.76)
herfindahl (purchasers)		2.04 (3.60)		-14.39 (14.79)
purchaser share			-0.07 (0.62)	9.25* (5.41)
log avg. destination gdp/cap *herfindahl (suppliers)	-0.04 (0.13)			-0.89 (0.62)
log avg. destination gdp/cap *herfindahl (purchasers)		-0.02 (0.35)		2.25 (1.61)
log avg. destination gdp/cap *purchaser share			-0.03 (5.77)	-1.00* (0.58)
initial source interactions	Y	Y	Y	Y
firm effects	Y	Y	Y	Y
year effects	Y	Y	Y	Y
N	42710	45659	45659	42710
Kleibergen-Paap LM statistic (under-identification)	311.02	357.04	368.77	599.17
Kleibergen-Paap LM p-value	0.00	0.00	0.00	0.00
Kleibergen-Paap Wald rk F-stat (weak insts.)	1.47	1.75	2.41	2.35
Anderson-Rubin Wald test F-stat	1.49	1.80	4.70	19.50
Anderson-Rubin Wald test p-value	0.00	0.00	0.00	0.00

Notes: Table is similar to Table 8, but firm-specific measures of market power are calculated from product-level measures that are averaged over sample period. See footnote 32 in Section 5.5 for details. First-stage results in Appendix Table B16. Robust standard errors in parentheses. *10% level, **5% level, ***1% level.