Trade Reforms, Market Power, and Pass-Through in Selected East Asian Nations*

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Abstract:

Employing an approach devised by Goldberg and Knetter (1999), we estimate whether European exporters exercised market power in selected East Asian markets during 1989-2004. We find that in one-third of product lines considered here European firms exercised market power in East Asian markets for manufactured goods. Exporters from the United Kingdom were able to pass-through exchange rate fluctuations more often than French and German rivals. Of the four East Asian nations considered in this study, Thailand seems to be the most vulnerable to non-competitive pricing by foreign firms. Given that Thailand is known to have a weak competition regime, our result suggests a link between competition policy regimes and the gains from international trade. Korea is least vulnerable, a finding that is interesting given its strong (by regional standards) competition law enforcement regime.

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I. Introduction:

Some proponents of trade liberalization argue that implementing liberal trade policies will lead to more competitive markets and greater inter-firm rivalry. Moreover, so the argument goes, as foreign firms enter national markets competition increases and the need for competition policies to tackle anticompetitive behavior or abuses of market power is reduced. We pose the question of whether market power can survive in open international markets. If it does not, then trade is a substitute for competition policy. But if it does, then this points to the need to implement and enforce competition rules. We also questioned whether differences in the extent of pass-through across goods and over time be accounted for by product line-specific, exchange rate-related, exporter-specific, and importing nation-specific characteristics (the latter includes the intensity, if any, of the enforcement of competition law).

Using a technique developed by Goldberg and Knetter (1999), we estimate the degree of market power exercised by European firms in selected East Asian markets. In the empirical analysis, we evaluated the following hypotheses: 1) The degree of pass-through is independent of the nationality of the exporter; 2) The estimates of pass-through imply that there is no evidence of market power being exercised by the firms concerned; 3) Differences in the degree of pass-through are unrelated to perceived international differences in the strength of state measures against anti-competitive practices; and 4) Differences in the degree of pass-through are unrelated to international differences in trade reforms.

This paper is organized in the following manner: Section II provides a review of recent literature, particularly the theories of exchange rate pass-through (ERPT) and pricing-to-market (PTM). Section III identifies the empirical strategy, drawing from Goldberg and Knetter's (1999) paper on market power of firms. Section IV outlines our econometric specification. Section V describes the dataset and the motivations for choosing particular products. Section VI provides the estimation results both for the regressions run with and without the trade policy variable. Section VII offers conclusions and areas of future research.

II. Relationship to Previous Research:

There are two sets of theories which relate to estimating the exercise of market power: Exchange Rate Pass Through (ERPT) and Pricing-to-market (PTM). ERPT can be defined as the percentage change in local prices in response to changes in the real exchange rate between an exporting country and an importing country. These theories usually assume the existence of segmented markets, imperfect competition, or a dynamic adjustment process to explain variations from traditional competitive models and perfect pass-through mechanisms. PTM behaviour refers to the relationship between exchange rate fluctuations and destination-specific pricing of exports, or as Krugman (1987) suggests, the phenomenon of exchange rate induced price discrimination in international markets.

ERPT research focuses on the adjustment of local prices to an exchange rate shock between trading partners. Kreinin (1977) estimates pass-through to U.S. import prices to be only 50%, Germany 60%, Japan 70%, Canada and Belgium 90%, and Italy 100%. Research undertaken in the 1980s focused mainly on pass-through to the U.S. and took into account issues of non-stationarity, simultaneity, dynamic adjustment, and symmetric response of prices to costs, exchange rates, and competing prices. The range of pass-through estimates was closer to 60% which implied that 40% of the exchange rate change was offset by changes in the markups of exporters.[1] Feenstra (1989) represents the leading example of estimating ERPT at the industry level. Using U.S. import values from Japan of cars, trucks, and motorcycles, Feenstra estimates that the degree of ERPT ranges from 63% for trucks to nearly 100% for motorcycles.

Empirical testing of these hypotheses has clearly demonstrated that exchange rate deviations lead firms to adjust mark-ups i.e. relative mark-up of price (p) over marginal cost(MC), or the Lerner index $(p-MC)/p$ in various industries. These exchange-rate induced deviations from the Law of One Price (LOP) are often destination-specific and confirm that price discrimination exists in most markets. These deviations imply price stickiness in the adjustment mechanism to the LOP, frictions which can be attributed to trade or monetary policies, transportation costs, nominal rigidities, and exchange rate volatility.[2]

However, the use of the Lerner Index is limited given the difficulties associated with the measurement of marginal costs at the firm level. As pointed out by Goldberg and Knetter (1999), an exporter may face different demand conditions and different competitors in each export destination. In order to individually calculate these, extensive (and unavailable) data is required for all industries.

Research on PTM attempts to resolve the measurement error inherent in the ERPT research and also provides information on whether markup adjustment is destination-specific. The findings on PTM are consistently around the 50% level, that is, 50% of the movement in the foreign exchange is offset by destination-specific price adjustment for over a given marginal cost in the transport, equipment, and consumer goods industries.[3] Gagnon and Knetter (1995) estimate that Japanese auto exporters offset roughly 70 percent of exchange rate variation on buyer's prices through mark-up adjustment. In contrast, Devereux and Yetman (2005) estimate how much prices change in response to changes in the nominal exchange rate and find a low pass-through of exchange rates into domestic prices. They posit that this price stickiness is consistent with the real effects of monetary policy shocks.

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[1] See Goldberg and Knetter (1996). The authors cite the research of Wing Woo (1984), and Peter Hooper and Catherine Mann (1989) as specific examples.

[2] Goldberg and Knetter (1999). The authors cite works by Engel and Rogers (1996), Parsley and Wei (1995), and Verboven (1996) as examples.

[3] See Marston (1990).

Though price discrimination is shown to exist in the PTM literature, Goldberg and Knetter (1996) point out that this research does not quantify its economic significance, nor does it explain its sources. The relationship between pass-through or pricing-to-market and the level of mark-up is not monotonic; the adjustment of mark-ups to cost shocks depends on the convexity of the demand schedule the firm faces in each destination market. This convexity is not related to the level of demand elasticity but rather how this elasticity changes along the demand schedule.[4] It is therefore not possible to infer directly the degree of market power or imperfect competition through mark-ups. In addition, given that firms are not unconstrained and work within a trade and regulatory policy framework, pricing behaviour may be determined by such frameworks. Harrison (1993) found that incomplete pass-through in steel in the U.S. was the result of the restrictive trade policies of the U.S. government. Trade policy changes i.e. the effects of joining the WTO or the increased use of antidumping measures, can have a serious effect on prices which suggests that there is an inherent danger in drawing conclusions about conduct of firms or inter-firm rivalry based solely on mark-ups above marginal cost.

Industrial organization research has been useful in examining the relationship between quantity adjustments and prices paid. Sumner (1981) found that the pass-through of tax rate changes to prices was not proportional (and hence the cigarette industry was not competitive) while Bulow and Pfleiderer (1983) demonstrated that Sumner's work assumed a constant elasticity of demand which was not valid for inferring market power. Sullivan (1985) examined more carefully the issue of price and quantity responses to tax rate changes. In doing this, Sullivan was able to estimate the elasticity of demand faced by cigarette producers and test for monopoly power. This approach improved upon that of Sumner (1981) since it did not make assumptions on elasticity of demand but was only valid in the context of a homogenous good monopoly.

III. Empirical Strategy:

We follow the approach of Goldberg and Knetter (1999) who utilize both price and quantity data to estimate the residual demand curve an exporter group faces in a particular destination, and use this elasticity estimate to infer the degree of competition in the export market.[5] By making use of both the Lerner index and the elasticity of the inverse demand function faced by each exporting country, this elasticity function is a means of measuring a country's market power in a particular import market. If the elasticity is infinite, then there is perfect competition and zero mark-up. If the elasticity is close to -1, or equal to the market demand elasticity, then the market is monopolistic. If the elasticity is between the two extremes, then the market is characterized by imperfect competition. Goldberg and Knetter use the elasticity of the residual demand curve to take into account the supply responses of rival firms.

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[4] See Goldberg and Knetter (1999). The authors generalize Sullivan's approach to other market structures and the potential presence of product differentiation.

[5] The use of the residual demand curve elasticity to infer the degree of competition builds on Baker and Bresnahan (1988) and Bresnahan (1989).

If a negative elasticity is estimated then market power can be said to exist. Exporting firms that have no market power will have a horizontal demand curve so the estimated elasticity would be zero. Goldberg and Knetter's technique uses an instrument for the firm's own quantity to identify the residual demand elasticity.

Goldberg and Knetter also make use of the coincidence of relative mark-ups (or Lerner Index), as a measure of market power, with that of the residual demand curve. This approach allows for the possibility of geographical differentiation of mark-ups due to PTM policies. They apply this framework to a small sample to test its applicability to measuring competition in export markets. They find that, in the case of German exports of beer, the elasticity of the residual demand curve exporters face is related to the presence of competition from the Netherlands. In the case of U.S. linerboard exports, the authors found compelling evidence of imperfect competition in Australia, where the market is both small and competition from other producers is scarce.

We implement this approach to study international transactions in 23 products (from three broad categories of manufactured goods), exported from three European countries (UK, France, and Germany), to four East Asian destinations (Malaysia, Thailand, South Korea, and the Philippines).

IV. Econometric Specification:

Goldberg and Knetter provide a clear derivation of the residual demand curve, as well as its relationship with the mark-up.[6] The authors derive a general form for the estimating equation:

$$\ln p_{mt}^{ex} = \lambda_m + \eta_m \ln Q_{mt}^{ex} + \alpha_m' \ln Z_{mt} + \beta_m' \ln W_{mt}^{N} + \varepsilon_{mt} \qquad (1)$$

Where p^{ex} is the logged unit price of exports, Q^{ex} is the logged export quantity, and ε_{mt} is an *idd* error term. The Greek letters denote parameters (or vectors of parameters in the case of α' and β') to be estimated, the subscripts m and t indexes a specific market (or destination-product pair) and time respectively. The vector Z_{mt} contains the demand-shifters for destination m, and typically consists of various combinations of a time trend, real income, and the price level for each destination market. The vector W_{mt}^{N} contains cost-shifters for the n competitors the export group faces in the specific destination market. These are decomposed into two parts: A part expressed in the competitor's currency that is not destination-specific, and a part that varies by destination, namely the exchange rate of the competitor country with respect to the destination market. Importantly, W_{mt}^{N} does not include any cost shifters for the export group itself.

The parameter of interest η_m can be directly interpreted as the estimate of the residual demand elasticity, given its logarithmic specification. The larger the η, the larger the

[6] See their paper for further details.

deviation from perfect competition, and the more market power the exporter has over price.

Our model is adapted to account for product-specific effects of 23 manufactured goods, and in one specification, a trade policy effect. Our reduced derivation of the estimating equation is:

$$\ln p^{ex}_{mtp} = \lambda_m + \eta_m \ln Q^{ex}_{mtp} + \underbrace{\alpha'_m \ln Z_{mt}}_{\text{demand shifters}} + \underbrace{\theta'_m \ln W_{mt}}_{\text{cost shifters}} + \underbrace{\sigma'_m PD_p}_{\text{product dummies}} + \underbrace{[\rho_m TPD_{mt}]}_{\text{trade policy dummy}} + \varepsilon_{mtp} \quad (2)$$

Given that we want to identify the effects of inter-firm rivalry and the associated demand shifts, in addition to the product-specific and trade policy effects, we can rewrite this equation as:

$$\begin{aligned} \ln p^{ex}_{mtp} = {} & \lambda_m + \eta_m \ln Q^{ex}_{mtp} + \gamma^1_m \ln GDP_{mt} + \xi^1_m \ln FDI_{mt} + \psi^1_m \ln LCI_{mt} + \omega^1_m \ln e^1_{mt} \\ & + \beta^1_m \ln L^1_{mt} + \omega^2_m \ln e^2_{mt} + \beta^2_m \ln L^2_{mt} + \sigma'_m PD_p + [\rho_m TPD_{mt}] + \varepsilon_{mtp} \end{aligned} \quad (3)$$

The cost shifters do not vary from the Goldberg and Knetter specification, parceled out as the exchange rates of competitors countries 1 and 2 (e^1_{mt} and e^2_{mt}) and the labour cost indices L^1_{mt} and L^2_{mt}. However, we do add an index of FDI (FDI_{mt}) as a demand shifter. Since FDI has been shown to be highly correlated with imports of parts and components in manufactured goods, we wanted to control for the nature of this effect. We also control for real income (GDP_{mt}) and labour costs (LCI_{mt}) in the destination market. As mentioned earlier, we also include a vector of product-specific dummies (PD_p).The superscript p indicates the product-specific eight-digit code.

The final variation on the Goldberg and Knetter model is a 2nd specification which includes a trade policy dummy (TPD_{mt}). This implies that model (3) was run for all 36 product and country-pairs both with and without the policy dummy (Total of 72 regressions). This dummy represents the destination country-specific year that trade policy reforms were completed. This dummy will hopefully capture the price reduction following a trade policy reform.

Given that Q^{ex} is endogenous, we also instrument using the exchange rate between the exporting country's currency and the importing country's currency, the labour cost index for the exporter, and the consumer price index for the exporter, in addition to the other exogenous variables in each estimating equation.

V. Data Collected:

Estimating the model requires annual value and quantity data of exports from the United Kingdom, France, and Germany to Malaysia, Thailand, South Korea, and the Philippines for selected manufactured products at the eight-digit level. Data was sourced from

Comext (Eurostat trade statistics[7]) for selected manufactured products in categories 84 (nuclear reactors, boilers, machinery and mechanical appliances; parts thereof), 90 (optical, photographic, cinematographic, measuring, checking, precision, medical or surgical instruments and apparatus; parts and accessories thereof), and 91 (clocks and watches and parts thereof).[8] Unit value of exports was derived from the value and quantity data and is denominated in ECU.[9]

The data covers three broad export industries from the UK, France, and Germany for the years 1989-2004. These products were chosen for three reasons:

- The products are differentiated so there is a higher likelihood of finding evidence of market power;
- The products are manufactured goods with traditional tariff regimes;
- The products are traded in significant volumes between our trading partners.

In addition, these export destinations were chosen because the ECU/EURO fluctuates freely against the currency of the import country.[10] For each product/trading-partner pair, the log of the unit value of exports was derived and became the dependant variable in our econometric analysis. There are 476 product/trading partner pairs covering 23 eight-digit product lines.

The data for the cost and demand shifters was sourced from the World Bank Development Indicators (WDI) and the U.S. Bureau of Labour Statistics. These include indices for Foreign Direct Investment (FDI) and Consumer Prices (CPI), Gross Domestic Product (GDP) in constant local currency, and a Labour Cost Index (LCI) for all available years.[11] FDI data provides an indication of whether production has shifted to the export destinations. GDP and CPI also provide an indication of possible demand shift. [12]

The annual average nominal foreign exchange data was sourced from the WDI. Given the unavailability of exchange rate data for ECU for the entire sample period, local exchange rates were sourced for both the export and import destinations against the U.S. dollar (in the case of France and Germany, in Francs and in Marks) and then an exporter-importer

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[7] Eurostat reports data using the 8-digit Harmonised System (HS) codes.

[8] Disaggregated data at the eight-digit level can be found in Appendix 1 for all products used in the sample.

[9] Comext data is denominated in ECU prior to conversion to the EURO. However, this is a one-to-one conversion.

[10] In the case of Malaysia, the Ringit was pegged to the Dollar following the East Asian crisis. This could have an effect on the determination of our foreign exchange rates discussed later.

[11] In cases where 2004 data was missing for FDI, an index value was derived based on a 5-year average change (FDI) for export destinations and our three exporting countries (given that FDI fluctuates quite a bit year-to-year). For Germany, WDI data on CPI was unavailable before 1990. The year-to-year differences recorded by the Penn Tables were used to complement the WDI data for CPI. Data missing for 2004 for the LCI for all three exporters and importers was derived using the year-to-year change of 2002-3.

[12] Identifying changes in tariff rates at the 8-digit level and identifying any trade remedy cases would ideally be used as well.

exchange rate was derived, i.e. Mark/Dollar and Ringit/Dollar were used to calculate what would have been the Mark/Ringit exchange rate had the Euro not been created.

Information on trade policies was obtained through the WTO Trade Policy Reviews. A dummy was used to indicate the existence of trade policy changes, the break year being when significant trade reforms were completed. The idea behind including this variable is to establish whether significant changes in trade policy affect firm behaviour in export destinations or whether trade reforms have an effect on pass-through.

The summary statistics for the sample can be found in Appendix 2.

VI. Estimation and Results:

This paper estimates the residual demand elasticities in three broad export industries (84, 90, 91). Changes in trade policy are controlled for using a dummy for the break year (Malaysia 1997, Thailand 1997, Philippines 1999, South Korea 1992). We construct a panel of 23 eight-digit products exported from the UK, France, and Germany to Malaysia, Thailand, South Korea, and the Philippines over the period 1989-2004.

In this section, we test the degree to which a group of exporters faces competition in destination-specific Asian markets in select manufactured goods. As in Goldberg and Knetter (1999), we measure the intensity of competition by the residual demand elasticity the group faces (identified by exchange rate shocks).

We estimate this dataset in double-log form. The CPI, LCI, and exchange rate between the exporter and the export destination are used as instruments for the endogenous quantity variable (along with the other exogenous variables). The vector of demand shifters includes GDP (local currency), the CPI, and FDI index for each destination. The cost shifters include the LCI and exchange rate between the exporter's competitors and the export destination. For example, if looking at bilateral trade between Germany and Malaysia, the pound-ringit and franc-ringit foreign exchange rates would be control variables. Product specific dummies represent the various products at the 8-digit level.

A total of 36 regressions were run with a specification for each country-pair of importers and exporters and for three 2-digit product category. In addition, a further 36 regressions were run which included the trade policy dummy, for a total of 72 regressions.

After establishing that the Quantity variable was endogenous i.e. correlated with the residual disturbances, we took two approaches to this problem:

1) Estimated the model by instrumental variables and used the residuals to calculate an estimate for quantity. We then applied a Generalised Two-Step Least Squares (G2SLS) and ran Hausman tests to verify whether there is a possible correlation of the explanatory variable with the errors. Finally, we compared the G2SLS estimator with to the GLS estimator.

However, we noted that according to Staiger and Stock (1997), our instrument was weak, using the rule of thumb that instruments are weak if the 1st stage F-stat < 10. The consequence of this would be that our subsequent instrumental variables (IV) estimators would be biased. In the presence of weak instruments, we therefore,

2) Estimated the model using Limited Information Maximum Likelihood Estimator (LIML) which is an efficient Generalised Method of Moments (GMM) estimator under conditional homoskedasticity.

Under conditional homoskedasticity, the (efficient) iterated GMM estimator is the IV estimator and the iterations converge in one step. In sum, with weak instruments, IV, GMM, and LIML all yield similar results.[13]

We were aware that our data was more likely to be heteroskedastic than conditionally homoskedastic. However, using the IV regression with heteroskedastic errors, we were not able to estimate various slope parameters. For those we could estimate, we ran regressions for some product/country pairs using both IV with heteroskedastic errors and LIML with conditional homoskedasticity and the coefficients were similar. In addition, we ran a Hausman test which tests the hypothesis that the coefficients estimated by the efficient LIML (conditional homoskedastic IV) estimator are the same as the ones estimated by the IV regression (heteroskedastic errors). We obtained an insignificant p-value therefore we were safe to use LIML with conditional homoskedasticity for all estimations.

The first stage of the regression involved running the LIML specification for all values. Once we had ascertained that our instrument was strong (i.e. F-stats > 10 and p-values close to 0), we were confident that our parameter estimates were efficient. However, concerns about outliers led us to trim systematically at 2, 2.5, and 3 according to the absolute value of the residuals from the 1st stage regression.

Once the outliers were removed, the parameters were re-estimated three times to ensure robustness of our estimates. We identify at this point the specification with outliers trimmed at 2.5 as **base specification A**.

The model was then re-estimated using the trade policy exogenous variable for all specifications (all and cutoffs 2, 2.5, 3). The aim of this is to compare between base specification A (prior to changes in trade policy) with **base specification B** (with trade policy variable and outliers trimmed at 2.5).

Table 1 reports a tally of the sign and significance of the parameter estimates for the residual demand elasticity. In base specification A, with outliers trimmed at 2.5%, ten estimates were negative and statistically significant. This would imply that market power may be exercised in roughly one-third of cases. Where the residual demand elasticity is positive or negative and statistically insignificant, we can infer that the market exhibits

[13] See Staiger and Stock (1997), Egger (2001), and Stock and Yogo (2002).

close to perfect competition. Generally, very few other parameters in base specification A (either demand or cost shifters, or dummies) were significant in the regressions. The results also reveal that there is no one particular product market that is characterized by monopoly power. Robustness checks to assess the influence of outliers on the sample reveal no large difference between trimming the sample at 2, 2.5, or 3.

Table 1: Effects on Logged Quantity Variable: Dependant variable Log Unit Price of Exports

		At 5% significance level			At 10% significance level		
		SS +	**SI**	**SS -**	**SS +**	**SI**	**SS -**
Base Specification	*Outliers removed at 2.5 DoF*	0	26	10	0	22	14
	By 2-digit HS code						
	84	0	8	4	0	7	5
	90	0	9	3	0	7	5
	91	0	9	3	0	8	4
Robustness Checks	*All data points*	0	27	9	0	26	10
	Outliers removed at 2 DoF	0	25	11	0	23	13
	Outliers removed at 3 DoF	0	28	8	0	27	9

Table 2 reports the results by exporter to see whether one country exporter exhibits greater market power. It is clear from the results that UK exporters demonstrated several negative and statistically significant estimates. French and German exporters do not seem to wield much market power in Asian markets but this may also be due to the fact that the Deutschmark/French Franc exchange rate moved close together prior to the introduction of the Euro. Given that the amount of exchange rate pass-through is key to establishing market power in a country, the closeness of the exporter-importer country exchange rates between German and French firms may have created additional competition between the two countries. This is in marked contrast with the Pound Sterling. As for importing countries, Thailand seemed most vulnerable to market power by foreign firms whereas South Korea seems to have protected itself effectively.

Table 2: Effects on Logged Quantity Variable: Dependant variable Log Unit Price of Exports, by Exporting and Importing Country

		Trading nation	At 5% significance level			At 10% significance level		
			SS +	**SI**	**SS -**	**SS +**	**SI**	**SS -**
Base Specification	Exporters	*France*	0	34	2	0	30	4
		Germany	0	34	2	0	34	2
		United Kingdom	0	30	6	0	28	8
	Importers	*Malaysia*	0	34	2	0	33	3
		Thailand	0	31	5	0	31	5
		South Korea	0	35	1	0	32	4
		Philippines	0	34	2	0	34	2

Table 3 reports the difference in the number of negative and statistically significant variables when we added a trade policy dummy to the estimating equation. The results indicate that the inclusion of the trade policy dummy reduced the number of significant cases by one.

Table 3: Effects of the Trade Policy Dummy on Logged Quantity, ATP/BTP

	SS +	SI	SS -
Before Trade Policy Changes (Base Specification A)	0	26	10
After Trade Policy Changes (Base Specification B)	0	27	9

Given that the reduction of market power following trade policy changes was minimal (i.e. from 10 cases to 9 cases), we contend that our original results are not biased because of the timing of trade policy.

VI. Concluding remarks and suggestions for further research:

The results of our estimations suggest that, in one-third of cases, market power is being exercised in East Asian markets by European exporters of manufactured products. In particular British exporters, perhaps due to greater exchange rate fluctuations and the continued use of the pound sterling rather than the euro, exert the greatest influence over their prices. Thailand, which is known to have a weak competition regime, is shown to be vulnerable to price discrimination caused by exchange rate fluctuations. Korea, in contrast, does not. In addition, we have found that the pattern of results is unaffected by the timing of trade policy reforms. These findings have a number of policy implications: First, open markets do not always result in prices being determined by marginal costs; second, even in economies with open borders competitive outcomes tend to be found more often in countries with stronger competition enforcement regimes; third, therefore, trade and competition policies are complements and not substitutes; and last, exchange rate regimes have an effect on inter-firm rivalry.

We attempted to collect a time series of tariff rates for our manufactured products in order to provide a measure of the barriers to entry to East Asian markets. However, there is no readily-available information on this subject; a collection of a time series at the eight-digit level would be extremely useful but highly time-intensive. Future research may want to attempt to develop a time series at the two-digit level to begin with. In addition, future research should control for trade remedy cases to ensure that the effects of non tariff barriers are not being picked up in the parameter estimates. In addition, a similar exercise estimating the market power of U.S. exporters of manufactured products would also be instructive.

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Appendices:

Appendix 1: List of Product Codes and Description

84131990	Pumps for liquids, with or designed to be fitted with a measuring device (excl. Those for civil aircraft of subheading no 8413.19-10 and pumps for dispensing fuel or lubricants, of the type used in filling-stations or in garages)
84132090	Hand pumps (excl. Those for civil aircraft of subheading no 8413.20-10 and pumps of subheading 8413.11 and 8413.19)
84135050	Dosing and proportioning reciprocating positive displacement pumps, power-driven (excl. Those for civil aircraft of subheading no 8413.50-10 and pumps of subheading nos 8413.11 and 8413.19)
84135071	Hydraulic fluid power piston pumps (excl. Those for civil aircraft of subheading no 8413.50-10 and hydraulic units)
84135090	Reciprocating positive displacement pumps, power-driven (excl. Those for civil aircraft of subheading no 8413.50-10, pumps of subheading nos 8413.11 and 8413.19, fuel, lubricating or cooling-medium pumps for internal combustion piston engines
84136041	Hydraulic fluid power gear pumps (excl. Those for civil aircraft of subheading no 8413.60-10 and hydraulic units)
84136049	Gear pumps, power-driven (excl. Those for civil aircraft of subheading no 8413.60-10, pumps of subheading nos 8413.11 and 8413.19, fuel, lubricating or cooling-medium pumps for internal combustion piston engines and hydraulic pumps, incl. Hydraulic
84137021	Submersible pumps, single-stage
84137091	Single-stage centrifugal pumps, power-driven, with a discharge outlet diameter > 15 mm (excl. Those for civil aircraft of subheading no 8413.70-10; pumps of subheading nos 8413.11 and 8413.19; fuel, lubricating or cooling-medium pumps for internal
84138190	Pumps for liquids, power-driven (excl. Those for civil aircraft of subheading no 8413.81-10, pumps of subheading nos 8413.11 and 8413.19, fuel, lubricating or cooling-medium pumps for internal combustion piston engines, concrete pumps, general
84145930	Axial fans (excl. Those for civil aircraft of subheading no 8414.59-10 and table, floor, wall, window, ceiling or roof fans, with a self-contained electric motor of an output =< 125 w)
84145950	Centrifugal fans (excl. Those for civil aircraft of subheading no 8414.59-10 and table, floor, wall, window, ceiling or roof fans, with a self-contained electric motor of an output =< 125 w)
84145990	Fans (excl. Those for civil aircraft of subheading no 8414.59-10, table, floor, wall, window, ceiling or roof fans, with a self-contained electric motor of an output =< 125 w, axial fans and centrifugal fans)
84231090	Personal weighing machines, including baby scales
90251199	Thermometers, liquid-filled, for direct reading, not combined with other instruments (excl. For civil aircraft and clinical or veterinary thermometers)
90251991	Electronic thermometers not combined with other instruments (excl. For civil aircraft)
90251999	Thermometers, not combined with other instruments (excl. Electronic, for civil aircraft, liquid-filled and for direct reading)
90262090	Instruments and apparatus for measuring or checking the pressure of liquids or gases (excl. Electronic, for civil aircraft, spiral or metal diaphragm tyre pressure gauges, and regulators)
90271010	Electronic gas or smoke analysis apparatus
90271090	Gas or smoke analysis apparatus (excl. Electronic)
91011100	Wrist-watches of precious metal or of metal clad with precious metal, whether or not incorporating a stop-watch facility, battery or accumulator powered, with mechanical display only (excl. With backs made of steel)
91021100	Wrist-watches, whether or not incorporating a stop-watch facility, battery or accumulator powered, with mechanical display only (excl. Of precious metal or of metal clad with precious metal)
91070000	Time switches with clock or watch movement or with synchronous motor

Appendix 2: Summary Statistics of the French, German, and British samples.

France Code 84						
Variable	***Mean***	***Maximum***	***Minimum***	***Coefficient of Variation***	***Median***	***Standard Deviation***
lnquant	2.845	11.625	0.000	3.135	1.946	1.102
lnprice_f	6.105	11.835	-1.431	2.314	6.025	0.379
lncpi_f	4.556	4.683	4.402	0.078	4.571	0.017
lncpi_t	4.431	4.792	3.705	0.230	4.472	0.052
lnfdi_t	0.481	2.171	-1.818	0.978	0.622	2.032
lngdp_t	28.938	34.173	25.300	2.984	27.980	0.103
lnfxfb	3.853	7.351	1.024	2.051	3.518	0.532
lnfxgb	3.862	7.351	1.036	2.051	3.543	0.531
lnfxukb	4.222	7.750	1.351	2.055	3.879	0.487
lnlci_f	4.530	4.625	4.457	0.058	4.528	0.013
lnlci_g	4.635	4.699	4.476	0.068	4.651	0.015
lnlci_uk	4.667	4.787	4.450	0.094	4.672	0.020
Germany Code 84						
Variable	***Mean***	***Maximum***	***Minimum***	***Coefficient of Variation***	***Median***	***Standard Deviation***
lnquant	1.261	11.081	-4.605	0.432	2.601	2.063
lnprice_g	4.861	10.793	0.489	4.585	1.232	0.253
lncpi_g	4.081	7.351	1.036	3.911	2.073	0.508
lncpi_p	1.436	4.792	-1.818	1.098	1.910	1.331
lnfdi_p	22.514	34.173	-0.911	28.191	12.703	0.564
lngdp_p	9.540	27.769	1.024	3.911	10.252	1.075
lnfxgp	4.148	7.750	1.351	3.797	2.082	0.502
lnfxfp	4.270	4.742	3.377	4.380	0.392	0.092
lnfxukp	6.257	11.896	0.368	6.093	2.385	0.381
lnlci_g	4.555	4.699	4.457	4.570	0.075	0.016
lnlci_f	4.635	4.787	4.450	4.612	0.105	0.023
lnlci_uk	4.667	4.787	4.450	4.672	0.095	0.020
United Kingdom Code 84						
Variable	***Mean***	***Maximum***	***Minimum***	***Coefficient of Variation***	***Median***	***Standard Deviation***
lnquant	4.169	14.510	0.000	0.719	4.413	2.996
lnprice_uk	5.655	12.589	-2.455	0.374	5.549	2.116
lncpi_uk	4.500	4.697	4.215	0.030	4.512	0.133
lncpi_t	4.431	4.792	3.705	0.052	4.472	0.230
lnfdi_t	0.481	2.171	-1.818	2.032	0.622	0.978
lngdp_t	28.938	34.173	25.300	0.103	27.980	2.984
lnfxukb	4.130	7.351	1.351	0.464	3.879	1.916
lnfxgb	3.862	7.351	1.036	0.531	3.543	2.051
lnfxfb	3.945	7.750	1.024	0.556	3.518	2.193
lnlci_uk	4.667	4.787	4.450	0.020	4.672	0.094
lnlci_g	4.635	4.699	4.476	0.015	4.651	0.068
lnlci_f	4.530	4.625	4.457	0.013	4.528	0.058

Appendix 2: Summary Statistics of the French, German, and British samples.

France Code 90						
Variable	***Mean***	***Maximum***	***Minimum***	***Coefficient of Variation***	***Median***	***Standard Deviation***
lnquant	3.125	9.682	0.000	0.921	2.639	2.878
lnprice_f	5.807	12.116	-1.252	0.387	5.864	2.250
lncpi_f	4.556	4.683	4.402	0.017	4.571	0.078
lncpi_m	4.431	4.792	3.705	0.052	4.472	0.230
lnfdi_m	0.481	2.171	-1.818	2.033	0.622	0.979
lngdp_m	28.938	34.173	25.300	0.103	27.980	2.987
lnfxfr	3.853	7.351	1.024	0.533	3.518	2.053
lnfxgr	3.862	7.351	1.036	0.531	3.543	2.052
lnfxukr	4.222	7.750	1.351	0.487	3.879	2.057
lnlci_f	4.556	4.699	4.457	0.017	4.570	0.076
lnlci_g	4.643	4.787	4.450	0.017	4.651	0.077
lnlci_uk	4.633	4.787	4.450	0.023	4.612	0.105
Germany Code 90						
Variable	***Mean***	***Maximum***	***Minimum***	***Coefficient of Variation***	***Median***	***Standard Deviation***
lnquant	7.410	13.074	0.000	0.352	7.557	2.611
lnprice_g	4.111	9.372	1.056	0.517	3.690	2.127
lncpi_g	4.541	4.665	4.303	0.021	4.566	0.096
lncpi_m	4.431	4.792	3.705	0.052	4.472	0.230
lnfdi_m	0.481	2.171	-1.818	2.033	0.622	0.979
lngdp_m	28.938	34.173	25.300	0.103	27.980	2.987
lnfxgr	3.855	7.351	1.036	0.532	3.518	2.050
lnfxfr	3.860	7.351	1.024	0.532	3.543	2.055
lnfxukr	4.222	7.750	1.351	0.487	3.879	2.057
lnlci_g	4.635	4.699	4.476	0.015	4.651	0.068
lnlci_f	4.530	4.625	4.457	0.013	4.528	0.058
lnlci_uk	4.667	4.787	4.450	0.020	4.672	0.094
United Kingdom Code 90						
Variable	***Mean***	***Maximum***	***Minimum***	***Coefficient of Variation***	***Median***	***Standard Deviation***
lnquant	6.324	18.318	0.000	0.454	6.858	2.872
lnprice_uk	4.709	10.752	-4.747	0.462	4.792	2.175
lncpi_uk	4.500	4.697	4.215	0.030	4.512	0.133
lncpi_p	4.431	4.792	3.705	0.052	4.472	0.230
lnfdi_p	0.481	2.171	-1.818	2.033	0.622	0.979
lngdp_p	28.938	34.173	25.300	0.103	27.980	2.987
lnfxukp	4.130	7.351	1.351	0.464	3.879	1.918
lnfxgp	3.862	7.351	1.036	0.531	3.543	2.052
lnfxfp	3.945	7.750	1.024	0.556	3.518	2.195
lnlci_uk	4.667	4.787	4.450	0.020	4.672	0.094
lnlci_g	4.635	4.699	4.476	0.015	4.651	0.068
lnlci_f	4.530	4.625	4.457	0.013	4.528	0.058

Appendix 2: Summary Statistics of the French, German, and British samples.

France Code 91						
Variable	***Mean***	***Maximum***	***Minimum***	***Coefficient of Variation***	***Median***	***Standard Deviation***
lnquant	5.578	11.900	0.000	0.698	6.805	3.891
lnprice_f	4.271	10.599	1.016	0.515	4.384	2.198
lncpi_f	4.556	4.683	4.402	0.017	4.571	0.078
lncpi_p	4.431	4.792	3.705	0.052	4.472	0.230
lnfdi_p	0.481	2.171	-1.818	2.036	0.622	0.980
lngdp_p	28.938	34.173	25.300	0.103	27.980	2.991
lnfxfp	3.853	7.351	1.024	0.533	3.518	2.055
lnfxgp	3.862	7.351	1.036	0.532	3.543	2.055
lnfxukp	4.222	7.750	1.351	0.488	3.879	2.060
lnlci_f	4.530	4.625	4.457	0.013	4.528	0.058
lnlci_g	4.635	4.699	4.476	0.015	4.651	0.069
lnlci_uk	4.667	4.787	4.450	0.020	4.672	0.095
Germany Code 91						
Variable	***Mean***	***Maximum***	***Minimum***	***Coefficient of Variation***	***Median***	***Standard Deviation***
lnquant	5.476	12.627	0.000	0.725	5.944	3.969
lnprice_g	4.190	10.353	1.015	0.553	3.378	2.318
lncpi_g	4.541	4.665	4.303	0.021	4.566	0.096
lncpi_m	4.431	4.792	3.705	0.052	4.472	0.230
lnfdi_m	0.481	2.171	-1.818	2.036	0.622	0.980
lngdp_m	28.938	34.173	25.300	0.103	27.980	2.991
lnfxgr	3.855	7.351	1.036	0.532	3.518	2.053
lnfxfr	3.860	7.351	1.024	0.533	3.543	2.058
lnfxukr	4.222	7.750	1.351	0.488	3.879	2.060
lnlci_g	4.635	4.699	4.476	0.015	4.651	0.069
lnlci_f	4.530	4.625	4.457	0.013	4.528	0.058
lnlci_uk	4.667	4.787	4.450	0.020	4.672	0.095
United Kingdom Code 91						
Variable	***Mean***	***Maximum***	***Minimum***	***Coefficient of Variation***	***Median***	***Standard Deviation***
lnquant	0.689	10.025	-11.003	5.465	0.000	3.767
lnprice_uk	4.529	11.155	1.735	0.256	4.496	1.158
lncpi_uk	4.625	4.787	4.215	0.028	4.630	0.128
lncpi_k	1.753	4.742	-0.911	0.961	1.214	1.685
lnfdi_k	20.330	28.931	-1.818	0.599	26.755	12.186
lngdp_k	10.567	34.173	1.036	1.276	3.543	13.482
lnfxukw	4.161	8.823	-1.202	0.609	3.960	2.535
lnfxgw	3.855	7.351	1.024	0.534	3.518	2.059
lnfxfw	5.061	7.351	3.705	0.223	4.590	1.126
lnlci_uk	3.555	4.787	1.351	0.333	3.879	1.182
lnlci_g	4.635	4.699	4.476	0.015	4.651	0.069
lnlci_f	4.530	4.625	4.457	0.013	4.528	0.058

Appendix 3: Estimation Results

LIML

	All, including outliers (if any)					DoF cutoff					DoF cutoff 2.5					DoF cutoff 3				
	Lnquant					Lnquant					Lnquant					Lnquant				
Trade	Coeff	S.E.	p-value	P > F	R2	Coeff	S.E.	p-value	P > F	R2	Coeff	S.E.	p-value	P > F	R2	Coeff	S.E.	p-value	P > F	R2
Group				1st reg	1st reg				1st reg	1st reg				1st reg	1st reg				1st reg	1st reg
84_FM	-9.34	34.52	0.787	0.000	0.53	-3.48	3.92	0.376	0.000	0.74	-3.92	5.06	0.44	0.000	0.71	-6.37	15.07	0.673	0.000	0.696
84_FP	-.281	.521	0.592	0.000	0.41	.123	.582	0.834	0.000	0.597	-.281	.521	0.592	0.000	0.597	-.281	.521	0.592	0.000	0.597
84_FSK	-2.43	1.903	0.203	0.000	0.354	-3.15	4.09	0.443	0.000	0.643	-2.03	1.17	0.085	0.000	0.581	-2.43	1.903	0.203	0.000	0.57
84_FT	-2.99	6.49	0.645	0.000	0.559	7.29	77.14	0.925	0.000	0.637	-3.98	37.6	0.916	0.000	0.598	-2.61	4.10	0.525	0.000	0.54
84_GM	1.93	4.27	0.651	0.000	0.679	.223	.489	0.648	0.000	0.809	.328	.599	0.585	0.000	0.787	.571	.938	0.543	0.000	0.757
84_GP	-6.86	27.44	0.803	0.000	0.652	-2.84	2.60	0.276	0.000	0.778	-2.94	3.13	0.377	0.000	0.74	-7.11	28.29	0.802	0.000	0.728
84_GSK	-.113	.991	0.91	0.000	0.777	2.28	9.51	0.81	0.000	0.798	-.085	.908	0.925	0.000	0.791	-.271	.549	0.622	0.000	0.789
84_GT	***-.916***	***.384***	***0.018****	***0.000***	***0.813***	***-.688***	***.337***	***0.043****	***0.000***	***0.814***	***-.976***	***.479***	***0.043****	***0.000***	***0.814***	-1.14	1.33	0.392	0.000	0.81
84_UKM	-.607	.701	0.387	0.000	0.489	-1.16	.770	0.133	0.000	0.579	-1.45	1.22	0.236	0.000	0.58	-.839	.693	0.228	0.000	0.576
84_UKP	***-.520***	***.265***	***0.052****	***0.000***	***0.332***	-.407	.218	0.064	0.000	0.481	***-.506***	***.233***	***0.032****	***0.000***	***0.43***	***-.602***	***.235***	***0.012****	***0.000***	***0.43***
84_UKSK	-1.31	.870	0.135	0.000	0.514	***-1.20***	***.440***	***0.007****	***0.000***	***0.576***	***-1.32***	***.659***	***0.047****	***0.000***	***0.539***	-1.31	.870	0.135	0.000	0.508
84_UKT	***-.659***	***.208***	***0.002****	***0.000***	***0.374***	***-.651***	***.188***	***0.001****	***0.000***	***0.285***	***-.608***	***.194***	***0.002****	***0.000***	***0.273***	***-.659***	***.208***	***0.002****	***0.000***	***0.276***
90_FM	-2.45	1.79	0.177	0.043	0.257	-2.30	1.35	0.093	0.115	0.362	-2.01	1.09	0.071	0.018	0.343	-2.45	1.79	0.177	0.101	0.275
90_FP	-.432	1.01	0.673	0.023	0.276	-.592	.557	0.297	0.102	0.514	-.592	.557	0.297	0.102	0.514	-.432	1.01	0.673	0.149	0.477
90_FSK	.931	2.91	0.75	0.000	0.514	.423	1.28	0.743	0.000	0.607	.931	2.92	0.75	0.000	0.521	.931	2.91	0.75	0.000	0.521
90_FT	***-1.12***	***.347***	***0.002****	***0.000***	***0.641***	***-.959***	***.258***	***0****	***0.000***	***0.717***	***-1.12***	***.347***	***0.002****	***0.000***	***0.674***	***-1.12***	***.347***	***0.002****	***0.000***	***0.674***
90_GP	10.05	239.9	0.967	0.000	0.68	.384	1.39	0.783	0.000	0.776	.371	1.25	0.769	0.000	0.765	10.05	239.9	0.967	0.000	0.722
90_GM	-.748	.532	0.164	0.000	0.531	-.628	.451	0.168	0.000	0.664	-3.48	22.01	0.875	0.000	0.563	-.748	.533	0.164	0.000	0.538
90_GSK	-5.15	21.34	0.81	0.000	0.767	-5.69	19.86	0.775	0.000	0.81	-27.00	618.7	0.965	0.000	0.783	-27.00	618.7	0.965	0.000	0.783
90_GT	1.06	4.14	0.799	0.000	0.74	-1.6	1.44	0.27	0.000	0.789	-1.48	1.30	0.258	0.000	0.78	-2.63	4.59	0.569	0.000	0.75
90_UKM	.244	1.02	0.812	0.000	0.515	1.32	2.82	0.64	0.000	0.635	.420	1.21	0.73	0.000	0.628	2.65	10.98	0.81	0.000	0.604
90_UKP	***-.980***	***.130***	***0****	***0.001***	***0.35***	***-.930***	***.110***	***0****	***0.017***	***0.344***	***-.980***	***.130***	***0****	***0.019***	***0.333***	***-.980***	***.130***	***0****	***0.019***	***0.333***
90_UKSK	-1.65	1.43	0.252	0.011	0.297	-2.45	6.12	0.69	0.006	0.329	-1.21	.705	0.089	0.003	0.344	-5.27	41.99	0.9	0.002	0.347
90_UKT	***-1.05***	***.264***	***0****	***0.000***	***0.579***	***-1.00***	***.239***	***0****	***0.000***	***0.595***	***-1.05***	***.264***	***0****	***0.000***	***0.579***	***-1.05***	***.264***	***0****	***0.000***	***0.579***

	All, including outliers (if any)					DoF cutoff					DoF cutoff 2.5					DoF cutoff 3				
	Lnquant					Lnquant					Lnquant					Lnquant				
Trade Group	Coeff	S.E.	p-value	P > F 1st reg	R2 1st reg	Coeff	S.E.	p-value	P > F 1st reg	R2 1st reg	Coeff	S.E.	p-value	P > F 1st reg	R2 1st reg	Coeff	S.E.	p-value	P > F 1st reg	R2 1st reg
91_FM	-.069	.419	0.87	0.023	0.448	--.417	.169	9.03	0.000	0.813	-.069	.419	0.87	0.023	0.448	-.069	.419	0.87	0.023	0.448
91_FP	5.86	32.78	0.861	0.000	0.851	5.86	32.78	2.83	0.055	0.772	5.86	32.78	2.83	0.055	0.772	5.86	32.78	2.83	0.055	0.772
91_FSK[14]	-6.25	15.65	0.692	0.000	0.867											-6.25	15.65	0.692	0.000	0.867
91_FT	***-.602***	***.233***	***0.015****	***0.006***	***0.506***	***-.749***	***.179***	***0.00****	***0.002***	***0.664***	***-.772***	***.215***	***0.001****	***0.006***	***0.613***	***-.602***	***.232***	***0.015****	***0.003***	***0.624***
91_GM	-1.09	.674	0.114	0.000	0.835	***-.961***	***.345***	***0.009****	***0.000***	***0.873***	-1.09	.674	0.114	0.000	0.834	-1.09	.674	0.114	0.000	0.834
91_GP	-1.63	1.4	0.262	0.000	0.678	-1.63	1.40	0.262	0.101	0.619	-1.63	1.4	0.262	0.101	0.619	-1.63	1.4	0.262	0.101	0.619
91_GSK	-.229	.482	0.635	0.000	0.951	.194	.542	0.723	0.000	0.956	-.229	.482	0.639	0.000	0.955	-.229	.482	0.639	0.000	0.955
91_GT	-1.97	1.93	0.313	0.000	0.749	-1.97	1.93	0.313	0.000	0.747	-1.97	1.93	0.313	0.000	0.747	-1.97	1.93	0.313	0.000	0.747
91_UKM	***-.891***	***.336***	***0.013****	***0.295***	***0.299***	***-.705***	***.188***	***0.001****	***0.067***	***0.505***	***-.705***	***.187***	***0.001****	***0.067***	***0.505***	***-.891***	***.336***	***0.013****	***0.100***	***0.466***
91_UKP	***-.992***	***.292***	***0.019****	***0.229***	***0.319***	***-.992***	***.292***	***0.019****	***0.905***	***0.6***	***-.992***	***.292***	***0.019****	***0.905***	***0.6***	***-.992***	***.292***	***0.019****	***0.905***	***0.6***
91_UKSK	-.922	.477	0.067	0.165	0.342	-1.04	.736	0.175	0.710	0.339	-.922	.477	0.067	0.693	0.332	-.922	.477	0.067	0.693	0.332
91_UKT	-.207	1.06	0.847	0.008	0.495	-15.17	134.7	0.911	0.076	0.566	-.207	1.06	0.847	0.027	0.613	-.207	1.06	0.847	0.027	0.613

[14] We were unable to estimate the slope parameters when outliers were trimmed at 2 and 2.5 due to problems inverting the matrices.

Appendix 3: Estimation Results, including Dummy for Trade Policy

LIML – Including Break Year Dummy Variable

	All, including outliers (if any)					DoF cutoff					DoF cutoff 2.5					DoF cutoff 3				
	Lnquant					Lnquant					Lnquant					Lnquant				
Trade	Coeff	S.E.	p-value	P > F	R2	Coeff	S.E.	p-value	P > F	R2	Coeff	S.E.	p-value	P > F	R2	Coeff	S.E.	p-value	P > F	R2
Group				1st reg	1st reg				1st reg	1st reg				1st reg	1st reg				1st reg	1st reg
84_FM	-1.95	1.48	0.19	0.00	0.53	**-1.41**	**0.57**	**.014****	**0.00**	**0.73**	-1.59	0.84	0.058*	0.00	0.72	-1.65	1.02	0.11	0.00	0.71
84_FP	0.76	0.98	0.44	0.00	0.44	1.12	0.97	0.26	0.00	0.73	1.12	0.97	0.26	0.00	0.73	1.12	0.97	0.26	0.00	0.73
84_FSK	-2.22	1.51	0.14	0.00	0.36	-2.14	1.24	.086*	0.00	0.62	-1.90	0.98	.055*	0.00	0.58	**-2.22**	**1.51**	**0.14**	**0.00**	**0.57**
84_FT	-2.15	2.48	0.39	0.00	0.56	-1.11	0.73	0.13	0.00	0.61	-1.49	1.69	0.38	0.00	0.60	-2.15	2.48	0.39	0.00	0.51
84_GM	4.03	13.16	0.76	0.00	0.68	0.29	0.63	0.65	0.00	0.80	0.57	0.92	0.54	0.00	0.79	0.91	1.41	0.52	0.00	0.77
84_GP	8.09	66.69	0.90	0.00	0.65	-5.25	20.14	0.80	0.00	0.52	-12.51	104.63	0.91	0.00	0.74	8.09	66.69	0.90	0.00	0.71
84_GSK	0.35	1.30	0.79	0.00	0.78	0.53	1.51	0.73	0.00	0.82	-0.05	0.91	0.95	0.00	0.79	0.06	0.84	0.94	0.00	0.79
84_GT	***-0.92***	***0.37***	***.015****	***0.00***	***0.81***	***-0.74***	***0.28***	***.009****	***0.00***	***0.82***	***-1.18***	***0.59***	***.048****	***0.00***	***0.81***	-1.01	0.78	0.20	0.00	0.81
84_UKM	-0.93	1.88	0.62	0.00	0.49	-0.74	0.88	0.41	0.00	0.56	-0.21	1.52	0.89	0.00	0.56	-0.93	1.88	0.62	0.00	0.55
84_UKP	***-0.65***	***0.86***	***.014****	***0.00***	***0.34***	***-0.46***	***0.20***	***.028****	***0.00***	***0.45***	-0.29	0.29	0.31	0.00	0.43	***-0.63***	***0.25***	***.013****	***0.00***	***0.43***
84_UKSK	-1.61	1.76	0.36	0.00	0.51	***-1.03***	***0.43***	***.018****	***0.00***	***0.58***	-1.61	1.31	0.22	0.00	0.54	-1.61	1.76	0.36	0.00	0.51
84_UKT	***-1.04***	***0.41***	***.011****	***0.00***	***0.37***	***-1.09***	***0.28***	***0****	***0.00***	***0.34***	***-1.21***	***0.47***	***0.011****	***0.00***	***0.28***	**-1.04**	**0.41**	**0.011****	**0.00**	**0.28**
90_FM	-2.30	1.50	0.13	0.05	0.27	**-2.12**	**1.08**	**.053****	**0.02**	**0.37**	**-1.84**	**0.86**	**.036****	**0.02**	**0.35**	-2.30	1.50	0.13	0.14	0.28
90_FP	***-0.98***	***0.35***	***.007****	***0.02***	***0.29***	***-1.08***	***0.37***	***.007****	***0.06***	***0.52***	***-0.98***	***0.34***	***.007****	***0.11***	***0.53***	***-0.98***	***0.34***	***.007****	***0.11***	***0.53***
90_FSK	-7.75	64.78	0.91	0.00	0.51	0.07	1.02	0.95	0.00	0.64	-7.75	64.78	0.91	0.00	0.52	-7.75	64.78	0.91	0.00	0.52
90_FT	***-1.17***	***0.36***	***.002****	***0.00***	***0.65***	***-1.11***	***0.30***	***0****	***0.00***	***0.72***	***-1.17***	***0.36***	***.002****	***0.00***	***0.68***	***-1.17***	***0.36***	***.002****	***0.00***	***0.68***
90_GM	-0.89	0.59	0.14	0.00	0.53	-0.79	0.43	.069*	0.00	0.67	-3.75	18.37	0.84	0.00	0.56	-3.75	18.37	0.84	0.00	0.56
90_GP	-3.78	11.14	0.75	0.00	0.68	0.96	1.84	0.60	0.00	0.80	12.97	205.26	0.95	0.00	0.74	-3.78	11.94	0.75	0.00	0.72
90_GSK	2.87	12.14	0.81	0.00	0.77	-8.53	69.85	0.90	0.00	0.80	0.95	2.36	0.69	0.00	0.79	0.95	2.36	0.69	0.00	0.79
90_GT	0.97	3.59	0.79	0.00	0.74	-1.85	2.03	0.37	0.00	0.79	-1.65	1.67	0.33	0.00	0.78	-2.87	5.44	0.60	0.00	0.75
90_UKM	1.22	4.10	0.77	0.00	0.53	-9.17	55.92	0.87	0.00	0.66	1.68	5.31	0.75	0.00	0.64	1.68	5.31	0.25	0.00	0.64
90_UKP	***-0.92***	***0.13***	***0****	***0.00***	***0.38***	***-0.90***	***0.10***	***0****	***0.03***	***0.35***	***-0.92***	***0.13***	***0****	***0.02***	***0.35***	***-0.92***	***0.13***	***0****	***0.02***	***0.35***
90_UKSK	-1.48	1.05	0.16	0.01	0.30	1.28	7.50	0.87	0.02	0.09	1.55	0.95	0.95	0.01	0.33	5.56	95.90	0.95	0.00	0.34
90_UKT	***-1.16***	***0.44***	***.010****	***0.00***	***0.59***	***-1.14***	***0.35***	***.002****	***0.00***	***0.62***	***-1.16***	***0.44***	***.01****	***0.00***	***0.59***	***-1.16***	***0.44***	***.01****	***0.00***	***0.59***

	All, including outliers (if any)					DoF cutoff					DoF cutoff 2.5					DoF cutoff 3				
	Lnquant					Lnquant					Lnquant					Lnquant				
Trade	Coeff	S.E.	p-value	P > F	R2	Coeff	S.E.	p-value	P > F	R2	Coeff	S.E.	p-value	P > F	R2	Coeff	S.E.	p-value	P > F	R2
Group				1st reg	1st reg				1st reg	1st reg				1st reg	1st reg				1st reg	1st reg
91_FM	0.38	1.21	0.76	0.01	0.51	-0.14	0.37	0.71	0.00	0.82	0.87	2.19	0.69	0.00	0.69	0.38	1.21	0.76	0.00	0.61
91_FP	0.76	1.77	0.68	0.00	0.86	0.76	1.77	0.68	0.08	0.79	0.76	1.77	0.68	0.08	0.79	0.76	1.77	0.68	0.08	0.79
91_FSK	-11.85	62.29	0.85	0.00	0.81	6.38	37.36	0.87	0.00	0.71	6.38	37.36	0.87	0.00	0.71	-11.85	62.29	0.85	0.00	0.87
91_FT	-0.42	0.36	0.25	0.00	0.59	-0.73	0.35	0.05	0.00	0.65	-0.73	0.35	0.05	0.00	0.65	-0.42	0.36	0.25	0.00	0.66
91_GM	-3.36	8.98	0.71	0.00	0.84	-1.37	0.73	.071*	0.00	0.58	-3.36	8.98	0.71	0.00	0.84	-3.36	8.98	0.71	0.00	0.84
91_GP	-1.63	2.36	0.50	0.00	0.68	-1.63	2.36	0.50	0.15	0.63	-1.63	2.36	0.50	0.15	0.63	-1.63	2.36	0.50	0.15	0.63
91_GSK	0.19	1.21	0.87	0.00	0.95	0.99	2.54	0.70	0.00	0.96	0.19	1.21	0.87	0.00	0.96	0.19	1.21	0.87	0.00	0.96
91_GT	-2.08	2.25	0.36	0.00	0.76	-2.08	2.25	0.36	0.00	0.76	-2.08	2.25	0.36	0.00	0.76	-2.08	2.25	0.36	0.00	0.76
91_UKM	***-0.90***	***0.34***	***.014****	***0.38***	***0.30***	***-0.73***	***0.19***	***.001****	***0.10***	***0.51***	***-0.73***	***0.19***	***.001****	***0.10***	***0.51***	***-0.90***	***0.34***	***.014****	***0.14***	***0.47***
91_UKP	-2.44	7.62	0.77	0.30	0.32	-2.44	7.62	0.77	0.91	0.69	-2.44	7.62	0.77	0.91	0.69	-2.44	7.62	0.77	0.91	0.69
91_UKSK	-1.81	3.97	0.65	0.15	0.37	0.59	4.11	0.89	0.44	0.43	-1.81	3.97	0.65	0.57	0.41	-1.81	3.97	0.65	0.57	0.41
91_UKT	0.28	1.93	0.89	0.01	0.52	0.28	1.93	0.89	0.01	0.69	0.28	1.93	0.89	0.01	0.69	0.28	1.93	0.89	0.01	0.69