Online Appendix of "The Mutable Geography of Firms' International Trade": Summary of UK Results

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Contents

1 Summary of Main Results

This section summaries the main findings from the UK exporters. Two sets of results are discussed: (a) new stylized facts on within-firm market changes and (b) regression results to characterize the relationship between market changes and price and quantity adjustments in the firm's continuing markets.

HMRC Overseas Trade Statistics (OTS) is the main data source. HMRC provides exports at the product level for individual firms in two distinct datasets: the OTS EU Dispatches dataset and the OTS non-EU Exports dataset. The EU dispatches data include monthly records of export value and quantity at the firm-product-destination-time level for UK firms whose exports to the EU exceed £250,000 in a given calendar year.[1] The non-EU exports dataset includes transaction level records of export value and quantity at the firm-product-destination-time level for all trade between the UK and non-EU foreign markets. I aggregate data on firm export dynamics at the product level into calendar year annual observations (January-December). A summary of aggregate statistics of the datasets including the number of observations, trade value and number of firms is available in Appendix 4.

To account for the possible heterogeneity across groups, statistics are calculated separately for the following sub-samples:

- Non-EU exports versus all exports (including both EU and non-EU destinations)

- All firms versus large firms (those export values at the top 50% percentile at the firm-product level or firm level)

1.1 Key Statistics

Table 1 presents the median of market change measures for UK exporters. Overall, I find very similar patterns to those documented using the Chinese customs data. At the firm-product level, 92% of markets have changed between two observed trading years. Large firms seem to have slightly more stable trade patterns and only 75% of markets have been changed. Note that large firms tend to trade with more markets and therefore the number of markets changed is still bigger than that of small firms.

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[1]These firms account for the majority of value of UK-EU exports. Whilst the legal requirement for the Intrastat reporting threshold is that 93% of the value of trade must be recorded, comparison with official statistics indicates that the £250,000 threshold captures 96-98% of the total value of UK exports to the EU. The Intrastat threshold has changed over time, rising progressively from £135,000 in 1993 when the UK joined the Single Market to £270,000 in 2009. Since 2009, the nominal value of the threshold for dispatches has remained fixed at £250,000 and therefore is constant over the time period of the analysis in this paper.

Table 1: Statistics on Within-Firm Market Changes

	Non-EU Markets		All Markets	
	All Firms	Large Firms	All Firms	Large Firms
(a) Firm-product level				
Markets Changes/ Markets	0.92	0.75	0.50	0.50
Drop/ Changes	0.50	0.50	0.50	0.50
Prob. of Churn	0.36	0.50	0.33	0.46
Number of Markets	1.00	2.00	1.00	4.00
(b) Firm-sector level				
Markets Changes/ Markets	0.67	0.50	0.50	0.40
Drop/ Changes	0.50	0.50	0.50	0.50
Prob. of Churn	0.33	0.71	0.33	0.71
Number of Markets	2.00	9.00	2.00	11.00
(c) Firm level				
Markets Changes/ Markets	0.69	0.50	0.62	0.38
Drop/ Changes	0.50	0.50	0.50	0.50
Prob. of Churn	0.43	0.71	0.43	0.83
Number of Markets	2.00	10.00	2.00	18.00

Note: This table summarizes key statistics of market changes for UK exporters. The median value of each measure is presented in the table. The market change-to-market ratio is defined as the number of markets that have changed from one year to the next, divided by the total number of markets in the current year. The drop-to-change ratio is defined as the number of markets that have been dropped, divided by the total number of markets that have changed. More details regarding the distribution of relevant statistics are discussed in the later sections. Source: Calculations based on HMRC administrative datasets.

The drop-to-change ratio suggests market entries and exits account for roughly equal share of market changes. Moreover, these statistics suggest firms simultaneously add and drop markets at the same time — a behavior that has not been explicitly modeled by conventional trade models focusing on supply side shocks.

It is important to note that the behavior of market churning is not restricted to small firms. As can be seen in the table, the median drop-to-change ratio is the same for large and small firms. In fact, the probability of churn is higher for larger firms due to the fact that these firms sell to a significantly higher number of destination markets.

1.2 Key Elasticities

Table 2 reports estimates regressing the quantity and price changes in a firm's continuing markets on its drop-to-change ratio, capturing the proportion of markets being dropped among all changed markets. Consistent to the patterns documented using Chinese customs data, I find firms drop more markets sell significant less quantity in their continuing markets, but there is little change in price in these markets.

Table 2: Elasticities of Quantity and Price Changes in Continuing Markets to Drop-to-Change Ratio

	Non-EU Markets		All Markets	
	Quantity	Price	Quantity	Price
Count Measure				
Firm-product level	-0.35***	0.01**	-0.51***	0.00
Firm-sector level	-0.28***	0.03***	-0.40***	0.01**
Firm level	-0.21***	0.01	-0.25***	0.01*
Value Measure				
Firm-product level	-0.34***	0.00	-0.45***	-0.02**
Firm-sector level	-0.25***	0.01**	-0.34***	0.00
Firm level	-0.21***	0.01	-0.23***	0.01

Note: This table summarizes the key estimates characterizing the relationship between market changes and price and quantity adjustments in the continuing markets. The top and bottom panels show estimates using count and value measures of the drop-to-change ratio respectively. The different rows within each panel indicate the level of disaggregation at which the trade pattern measures are constructed. _Each cell represents an estimate from a separate estimation equation._ Firm-product and year fixed effects are added for firm-product and firm-sector specifications. Firm and year fixed effects are added for firm level specifications. The statistical significance is calculated based on robust standard errors with ***, **, * representing statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

In the following sections, I present detailed estimation results. Sections differ in the level of disaggregation, the way the trade pattern is measured and/or the set of countries that estimation procedure is applied. The first subsection of each section reports the key statistics of market change measures. The second subsection of each section reports regression estimates characterizing the relationship between market changes and quantity and price adjustments in the firms' continuing markets.

2   Detailed Results on Firm-product and Firm-sector Level Trade Patterns

2.1   Key Statistics

Table 3: All Sectors - All Firms - Non-EU Exports
Trade patterns are calculated at the firm-product(8-digit HS)-year level

	Mean	Median	Distribution (Percentile)				Obs.
			1st	25th	75th	99th	
Number of Destination Markets	2.49	1.00	1.00	1.00	2.00	20.00	2,191,645
Number of Market Changes/ Number of Markets	1.04	0.92	0.00	0.00	2.00	4.00	1,486,228
Market Drop/ Market Changes	0.50	0.50	0.00	0.33	0.67	1.00	1,045,732
Prob. of Churn	0.34	0.36	0.00	0.17	0.50	0.77	2,191,645

Table 4: All Sectors - Large Firms - Non-EU Exports
Trade patterns are calculated at the firm-product(8-digit HS)-year level

	Mean	Median	Distribution (Percentile)				Obs.
			1st	25th	75th	99th	
Number of Destination Markets	5.11	2.00	1.00	1.00	6.00	34.00	515,137
Number of Market Changes/ Number of Markets	0.95	0.75	0.00	0.33	1.25	5.00	408,768
Market Drop/ Market Changes	0.50	0.50	0.00	0.29	0.67	1.00	330,028
Prob. of Churn	0.44	0.50	0.00	0.24	0.66	0.86	515,137

Table 5: All Sectors - All Firms - All Exports
Trade patterns are calculated at the firm-product(8-digit HS)-year level

			Distribution (Percentile)				
	Mean	Median	1st	25th	75th	99th	Obs.
Number of Destination Markets	3.78	1.00	1.00	1.00	3.00	30.00	3,901,312
Number of Market Changes/ Number of Markets	0.85	0.50	0.00	0.00	1.33	4.00	2,767,697
Market Drop/ Market Changes	0.49	0.50	0.00	0.25	0.67	1.00	1,862,409
Prob. of Churn	0.31	0.33	0.00	0.09	0.50	0.76	3,901,312

Table 6: All Sectors - Large Firms - All Exports
Trade patterns are calculated at the firm-product(8-digit HS)-year level

			Distribution (Percentile)				
	Mean	Median	1st	25th	75th	99th	Obs.
Number of Destination Markets	7.88	4.00	1.00	1.00	11.00	45.00	911,433
Number of Market Changes/ Number of Markets	0.75	0.50	0.00	0.14	1.00	5.00	733,046
Market Drop/ Market Changes	0.49	0.50	0.00	0.25	0.71	1.00	572,370
Prob. of Churn	0.42	0.46	0.00	0.17	0.66	0.86	911,433

Table 7: All Sectors - All Firms - Non-EU Exports
Trade patterns are calculated at the firm-sector(2-digit HS)-year level

	Mean	Median	Distribution (Percentile)				Obs.
			1st	25th	75th	99th	
Number of Destination Markets	3.67	2.00	1.00	1.00	3.00	31.00	817,697
Number of Market Changes/ Number of Markets	0.89	0.67	0.00	0.00	1.33	4.00	599,409
Market Drop/ Market Changes	0.50	0.50	0.00	0.33	0.67	1.00	431,081
Prob. of Churn	0.35	0.33	0.00	0.00	0.60	0.86	817,697

Table 8: All Sectors - Large Firms - Non-EU Exports
Trade patterns are calculated at the firm-sector(2-digit HS)-year level

	Mean	Median	Distribution (Percentile)				Obs.
			1st	25th	75th	99th	
Number of Destination Markets	12.80	9.00	1.00	3.00	18.00	61.00	84,657
Number of Market Changes/ Number of Markets	0.66	0.50	0.00	0.33	0.80	3.00	71,070
Market Drop/ Market Changes	0.49	0.50	0.00	0.33	0.67	1.00	64,258
Prob. of Churn	0.58	0.71	0.00	0.40	0.86	0.86	84,657

Table 9: All Sectors - All Firms - All Exports
Trade patterns are calculated at the firm-sector(2-digit HS)-year level

	Mean	Median	Distribution (Percentile)				Obs.
			1st	25th	75th	99th	
Number of Destination Markets	5.44	2.00	1.00	1.00	5.00	44.00	1,170,211
Number of Market Changes/ Number of Markets	0.79	0.50	0.00	0.00	1.00	4.00	874,429
Market Drop/ Market Changes	0.49	0.50	0.00	0.25	0.67	1.00	626,705
Prob. of Churn	0.35	0.33	0.00	0.00	0.67	0.86	1,170,211

Table 10: All Sectors - Large Firms - All Exports
Trade patterns are calculated at the firm-sector(2-digit HS)-year level

	Mean	Median	Distribution (Percentile)				Obs.
			1st	25th	75th	99th	
Number of Destination Markets	16.57	11.00	1.00	4.00	25.00	73.00	143,703
Number of Market Changes/ Number of Markets	0.56	0.40	0.00	0.22	0.67	3.22	120,524
Market Drop/ Market Changes	0.48	0.50	0.00	0.29	0.67	1.00	105,606
Prob. of Churn	0.56	0.71	0.00	0.29	0.86	0.86	143,703

2.2 Key Elasticities

2.2.1 Results Based on Count Measure

Table 11: 8-Digit - Non-EU Exports

	(1) Price	(2) Price
Market Drop/ Market Changes	0.01***	0.01**
	(0.00)	(0.00)
Constant	0.02***	
	(0.00)	
Observations	594,068	495,877
Fixed Effects	No	F-P + T
R^2	1.64e-05	0.219

Note: Variables are constructed based on year-to-year changes at the firm-product level. All variables other than ratio measures are entered in logs. Firm-product and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 12: 2-Digit - Non-EU Exports

	(1) Price	(2) Price
Market Drop/ Market Changes	0.03***	0.03***
	(0.01)	(0.01)
Constant	0.01**	
	(0.00)	
Observations	317,303	307,212
Fixed Effects	No	F-P + T
R^2	8.66e-05	0.0992

Note: Variables are constructed based on year-to-year changes at the firm-product level. All variables other than ratio measures are entered in logs. Firm-product and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 13: 8-Digit - Non-EU Exports

	(1) Quantity	(2) Quantity
Market Drop/ Market Changes	-0.39***	-0.35***
	(0.01)	(0.01)
Constant	0.18***	
	(0.00)	
Observations	594,068	495,877
Fixed Effects	No	F-P + T
R^2	0.00912	0.232

Note: Variables are constructed based on year-to-year changes at the firm-product level. All variables other than ratio measures are entered in logs. Firm-product and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 14: 2-Digit - Non-EU Exports

	(1) Quantity	(2) Quantity
Market Drop/ Market Changes	-0.33***	-0.28***
	(0.01)	(0.01)
Constant	0.15***	
	(0.00)	
Observations	317,303	307,212
Fixed Effects	No	F-P + T
R^2	0.00618	0.111

Note: Variables are constructed based on year-to-year changes at the firm-product level. All variables other than ratio measures are entered in logs. Firm-product and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 15: 8-Digit - All Exports

	(1) Price	(2) Price
Market Drop/ Market Changes	-0.00**	-0.00
	(0.00)	(0.00)
Constant	0.02***	
	(0.00)	
Observations	1,330,449	1,165,013
Fixed Effects	No	F-P + T
R^2	3.32e-06	0.211

Note: Variables are constructed based on year-to-year changes at the firm-product level. All variables other than ratio measures are entered in logs. Firm-product and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 16: 2-Digit - All Exports

	(1) Price	(2) Price
Market Drop/ Market Changes	0.02***	0.01**
	(0.00)	(0.00)
Constant	0.01***	
	(0.00)	
Observations	507,605	496,936
Fixed Effects	No	F-P + T
R^2	2.80e-05	0.0816

Note: Variables are constructed based on year-to-year changes at the firm-product level. All variables other than ratio measures are entered in logs. Firm-product and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 17: 8-Digit - All Exports

	(1) Quantity	(2) Quantity
Market Drop/ Market Changes	-0.61***	-0.51***
	(0.00)	(0.00)
Constant	0.29***	
	(0.00)	
Observations	1,330,449	1,165,013
Fixed Effects	No	F-P + T
R^2	0.0254	0.243

Note: Variables are constructed based on year-to-year changes at the firm-product level. All variables other than ratio measures are entered in logs. Firm-product and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 18: 2-Digit - All Exports

	(1) Quantity	(2) Quantity
Market Drop/ Market Changes	-0.47***	-0.40***
	(0.01)	(0.01)
Constant	0.22***	
	(0.00)	
Observations	507,605	496,936
Fixed Effects	No	F-P + T
R^2	0.0137	0.107

Note: Variables are constructed based on year-to-year changes at the firm-product level. All variables other than ratio measures are entered in logs. Firm-product and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

2.2.2 Results Based on Value Measure

Table 19: 8-Digit - Non-EU Exports

	(1) Price	(2) Price
Market Drop/ Market Changes (trade weighted)	0.01*	0.00
	(0.00)	(0.00)
Constant	0.02***	
	(0.00)	
Observations	594,068	495,877
Fixed Effects	No	F-P + T
R^2	5.81e-06	0.219

Note: Variables are constructed based on year-to-year changes at the firm-product level. All variables other than ratio measures are entered in logs. Firm-product and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 20: 2-Digit - Non-EU Exports

	(1) Price	(2) Price
Market Drop/ Market Changes (trade weighted)	0.02***	0.01**
	(0.01)	(0.01)
Constant	0.01***	
	(0.00)	
Observations	317,303	307,212
Fixed Effects	No	F-P + T
R^2	4.54e-05	0.0992

Note: Variables are constructed based on year-to-year changes at the firm-product level. All variables other than ratio measures are entered in logs. Firm-product and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 21: 8-Digit - Non-EU Exports

	(1) Quantity	(2) Quantity
Market Drop/ Market Changes (trade weighted)	-0.36***	-0.34***
	(0.01)	(0.01)
Constant	0.16***	
	(0.00)	
Observations	594,068	495,877
Fixed Effects	No	F-P + T
R^2	0.00923	0.233

Note: Variables are constructed based on year-to-year changes at the firm-product level. All variables other than ratio measures are entered in logs. Firm-product and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 22: 2-Digit - Non-EU Exports

	(1) Quantity	(2) Quantity
Market Drop/ Market Changes (trade weighted)	-0.30***	-0.25***
	(0.01)	(0.01)
Constant	0.13***	
	(0.00)	
Observations	317,303	307,212
Fixed Effects	No	F-P + T
R^2	0.00622	0.111

Note: Variables are constructed based on year-to-year changes at the firm-product level. All variables other than ratio measures are entered in logs. Firm-product and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 23: 8-Digit - All Exports

	(1) Price	(2) Price
Market Drop/ Market Changes (trade weighted)	-0.02***	-0.02***
	(0.00)	(0.00)
Constant	0.03***	
	(0.00)	
Observations	1,330,449	1,165,013
Fixed Effects	No	F-P + T
R^2	5.30e-05	0.211

Note: Variables are constructed based on year-to-year changes at the firm-product level. All variables other than ratio measures are entered in logs. Firm-product and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 24: 2-Digit - All Exports

	(1) Price	(2) Price
Market Drop/ Market Changes (trade weighted)	0.00	-0.00
	(0.00)	(0.00)
Constant	0.02***	
	(0.00)	
Observations	507,605	496,936
Fixed Effects	No	F-P + T
R^2	1.36e-06	0.0816

Note: Variables are constructed based on year-to-year changes at the firm-product level. All variables other than ratio measures are entered in logs. Firm-product and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 25: 8-Digit - All Exports

	(1) Quantity	(2) Quantity
Market Drop/ Market Changes (trade weighted)	-0.52*** (0.00)	-0.45*** (0.00)
Constant	0.24*** (0.00)	
Observations	1,330,449	1,165,013
Fixed Effects	No	F-P + T
R^2	0.0233	0.242

Note: Variables are constructed based on year-to-year changes at the firm-product level. All variables other than ratio measures are entered in logs. Firm-product and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 26: 2-Digit - All Exports

	(1) Quantity	(2) Quantity
Market Drop/ Market Changes (trade weighted)	-0.39*** (0.01)	-0.34*** (0.01)
Constant	0.19*** (0.00)	
Observations	507,605	496,936
Fixed Effects	No	F-P + T
R^2	0.0127	0.106

Note: Variables are constructed based on year-to-year changes at the firm-product level. All variables other than ratio measures are entered in logs. Firm-product and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

3   Detailed Results on Firm Level Trade Patterns

3.1   Key Statistics

Table 27: All Sectors - All Firms - Non-EU Exports
Trade patterns are calculated at the firm-year level

	Mean	Median	Distribution (Percentile)				Obs.
			1th	25th	75th	99th	
Number of Destination Markets	4.73	2.00	1.00	1.00	5.00	38.00	491,313
Number of Market Changes/ Number of Markets	0.93	0.69	0.00	0.33	1.33	4.00	359,348
Market Drop/ Market Changes	0.50	0.50	0.00	0.33	0.67	1.00	288,181
Prob. of Churn	0.40	0.43	0.00	0.00	0.71	0.86	491,313

Table 28: All Sectors - Large Firms - Non-EU Exports
Trade patterns are calculated at the firm-year level

	Mean	Median	Distribution (Percentile)				Obs.
			1th	25th	75th	99th	
Number of Destination Markets	14.01	10.00	1.00	4.00	19.00	61.00	82,928
Number of Market Changes/ Number of Markets	0.67	0.50	0.00	0.33	0.80	3.00	69,789
Market Drop/ Market Changes	0.50	0.50	0.00	0.33	0.67	1.00	65,259
Prob. of Churn	0.63	0.71	0.00	0.43	0.86	0.86	82,928

Table 29: All Sectors - All Firms - All Exports
Trade patterns are calculated at the firm-year level

	Mean	Median	Distribution (Percentile)				Obs.
			1th	25th	75th	99th	
Number of Destination Markets	6.93	2.00	1.00	1.00	7.00	56.00	524,105
Number of Market Changes/ Number of Markets	0.89	0.62	0.00	0.25	1.17	4.00	386,435
Market Drop/ Market Changes	0.50	0.50	0.00	0.33	0.67	1.00	311,026
Prob. of Churn	0.41	0.43	0.00	0.00	0.71	0.86	524,105

Table 30: All Sectors - Large Firms - All Exports
Trade patterns are calculated at the firm-year level

	Mean	Median	Distribution (Percentile)				Obs.
			1th	25th	75th	99th	
Number of Destination Markets	22.92	18.00	1.00	7.00	34.00	83.00	79,241
Number of Market Changes/ Number of Markets	0.54	0.38	0.00	0.24	0.60	3.00	66,923
Market Drop/ Market Changes	0.49	0.50	0.00	0.33	0.67	1.00	62,596
Prob. of Churn	0.66	0.83	0.00	0.57	0.86	0.86	79,241

3.2 Key Elasticities

3.2.1 Results Based on Count Measure

Table 31: Non-EU Exports

	(1) Price	(2) Price
Market Drop/ Market Changes	0.02***	0.01
	(0.01)	(0.01)
Constant	0.02***	
	(0.01)	
Observations	226,811	210,575
Fixed Effects	No	F + T
R^2	4.35e-05	0.183

Note: Variables are constructed based on year-to-year changes at the firm level. All variables other than ratio measures are entered in logs. Firm and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 32: Non-EU Exports

	(1) Quantity	(2) Quantity
Market Drop/ Market Changes	-0.32***	-0.21***
	(0.01)	(0.01)
Constant	0.13***	
	(0.01)	
Observations	226,811	210,575
Fixed Effects	No	F + T
R^2	0.00468	0.197

Note: Variables are constructed based on year-to-year changes at the firm level. All variables other than ratio measures are entered in logs. Firm and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 33: All Exports

	(1) Price	(2) Price
Market Drop/ Market Changes	0.02***	0.01*
	(0.01)	(0.01)
Constant	0.01**	
	(0.00)	
Observations	251,752	234,785
Fixed Effects	No	F + T
R^2	4.07e-05	0.186

Note: Variables are constructed based on year-to-year changes at the firm level. All variables other than ratio measures are entered in logs. Firm and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 34: All Exports

	(1) Quantity	(2) Quantity
Market Drop/ Market Changes	-0.37***	-0.25***
	(0.01)	(0.01)
Constant	0.15***	
	(0.01)	
Observations	251,752	234,785
Fixed Effects	No	F + T
R^2	0.00682	0.204

Note: Variables are constructed based on year-to-year changes at the firm level. All variables other than ratio measures are entered in logs. Firm and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

3.2.2 Results Based on Value Measure

Table 35: Non-EU Exports

	(1) Price	(2) Price
Market Drop/ Market Changes (trade weighted)	0.02**	0.01
	(0.01)	(0.01)
Constant	0.02***	
	(0.00)	
Observations	226,811	210,575
Fixed Effects	No	F + T
R^2	2.79e-05	0.183

Note: Variables are constructed based on year-to-year changes at the firm level. All variables other than ratio measures are entered in logs. Firm and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 36: Non-EU Exports

	(1) Quantity	(2) Quantity
Market Drop/ Market Changes (trade weighted)	-0.29***	-0.21***
	(0.01)	(0.01)
Constant	0.11***	
	(0.01)	
Observations	226,811	210,575
Fixed Effects	No	F + T
R^2	0.00478	0.197

Note: Variables are constructed based on year-to-year changes at the firm level. All variables other than ratio measures are entered in logs. Firm and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 37: All Exports

	(1) Price	(2) Price
Market Drop/ Market Changes (trade weighted)	0.02**	0.01
	(0.01)	(0.01)
Constant	0.01***	
	(0.00)	
Observations	251,752	234,785
Fixed Effects	No	F + T
R^2	2.73e-05	0.186

Note: Variables are constructed based on year-to-year changes at the firm level. All variables other than ratio measures are entered in logs. Firm and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

Table 38: All Exports

	(1) Quantity	(2) Quantity
Market Drop/ Market Changes (trade weighted)	-0.32***	-0.23***
	(0.01)	(0.01)
Constant	0.12***	
	(0.00)	
Observations	251,752	234,785
Fixed Effects	No	F + T
R^2	0.00657	0.204

Note: Variables are constructed based on year-to-year changes at the firm level. All variables other than ratio measures are entered in logs. Firm and year fixed effects are added for the specification of column (2). Robust standard errors are reported in the parentheses. ***, **, * represent statistical significance at 1%, 5%, 10% respectively. Source: Calculations based on HMRC administrative datasets, 2010-2016.

4   Aggregate Statistics

Table 39: Aggregate Statistics of Samples Reported in Section 2

Sample	Observations	Value (million £)	Firms	Products	Firm-product pairs
Firm-product Level Trade Pattern					
All Countries	3,901,312	1,876,415	92,123	9,076	1,133,615
All Countries - Large Firms	911,433	1,699,776	36,248	8,418	178,387
Non-EU Countries	2,191,645	930,073	84,518	8,446	705,417
Non-EU Countries - Large Firms	515,137	825,783	27,131	7,277	106,369
Firm-sector Level Trade Pattern					
All Countries	1,170,211	1,876,415	92,123	8,684	562,222
All Countries - Large Firms	143,703	1,761,017	15,011	6,961	70,640
Non-EU Countries	817,697	930,073	84,518	7,982	402,884
Non-EU Countries - Large Firms	84,657	870,808	9,529	5,629	43,516

Table 40: Aggregate Statistics of Samples Reported in Section 3

Sample	Observations	Value (million £)	Firms
All Countries	524,105	1,983,699	137,670
Non-EU countries	491,313	987,495	131,965