

Online Appendix of “The Mutable Geography of Firms’
International Trade: Evidence and Macroeconomic Implications”:
Summary of UK Results

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1 Outline

Subsection 1.1 introduces the construction of various measures to capture changes in trade patterns and market switching. Subsection 1.2 summaries the main estimation results. Subsection 1.3 discusses robustness checks on heterogeneity and sampling differences.

1.1 Measuring Changes in Trade Patterns

Before getting to the main results, it is useful introduce the relevant market switching measures. This subsection gives details on how changes in trade patterns are measured and how estimation equations are constructed. In the following discussion, variables are defined at the firm-product level. However, all cases will go through if variables were measured at the firm level. Relevant results on firm level statistics are reported in section 3.

To be clear on how variables are defined and calculated, I will use the following example throughout my explanation. Consider a firm sells a product to four countries, A, B, C, D over 4 time periods. The left panel shows the trading records of this firm-product pair. An empty cell means no trade. These records resemble the structure of many real trading patterns and reflect the highly unbalanced nature of custom datasets. The right panel shows the definition of relevant variables and statistics.

				Trade Pattern	Activity	M. Changes/ Markets	Drops/ Changes
$t = 1$	A	B		A-B	–	–	–
$t = 2$	A		C	A-C	Switch	2/2	1/2
$t = 3$	A		C	D	Add	1/3	0/1
$t = 4$	A		C		Drop	1/2	1/1

Figure 1: An Example of Market Switching Measures

Trade pattern is defined as the set of destination markets that a firm-product pair exports to in a given period. The first column of the right hand side panel shows the set of destinations. In this example, we can identify 3 trade patterns over 4 time periods, A-B, A-C, and A-C-D. The second column of the right hand side panel classifies the activity of market adjustments into different categories. Market switching is defined as simultaneously adding and dropping markets in a given period. In this example, only period 2 is counted as market switching. The last two columns of Figure 1 show that the adjustment of extensive margins can be decomposed into two components: (a) the proportion of markets changed among all trading markets and (b) the proportion of markets being dropped/added among the changed markets. In addition, I create a frequency measure that captures how often “switching” occurs among all trading periods. The definition of these variables

are given below:

- **Market Changes / Number of Markets:** At the firm-product level, the number of changes in set of trading markets from $t - 1$ to t divided by the total number of markets in period t . This variable captures the magnitude of extensive market adjustments.
- **Market Drop / Market Changes (DC Ratio):** At the firm-product level, the number of markets being dropped from $t - 1$ to t divided by the number of market changes from $t - 1$ to t . This variable captures the proportion of markets being dropped among the total number of markets changed. Note that market switching happens if DC ratio is not 0 or 1.
- **Firm Level Switching Rate:** defined as the number of market switching activities over the total number of trading periods at the firm level. In the example of Figure 1, the switching rate is 1/4.

In studying these changes, a relevant question is “to what extent the markets traded by exporters are different? In other words, when the firm adjusts markets, to what extent the adjustments are synchronized?” To get a measure for the degree of heterogeneity in firms’ market choices, I calculate deviations from the common trade pattern among firms, where the “Common Trade Pattern” is defined as the most often occurred set of markets across firms selling the same product in any given period. In most cases, the common trade pattern is the most popular market or a combination of two most popular markets of a product. More specifically, I construct the following entropy measure.

- **Deviation from the Common Trade Pattern in Each Period:** This variable reflects the degree to which the trade pattern of a firm-product pair differs from the common trade pattern in each time period. To construct this variable, in each time period, I count the number of deviations from the common trade pattern for each firm-product pair. To obtain a comparable measure across firms, I divide the calculated deviation counts by the number of trading markets in period t .

Trade Pattern	Common Trade Pattern	Deviation / Markets
A	A	0/1
A	$A - C$	1/1
$A - B$	A	1/2
$A - B$	$A - C$	2/2
C	A	2/1
C	$A - C$	1/1

Figure 2: Examples of How the Entropy Measure Is Calculated

Similarly, as illustrated in the last two columns of Figure 3, related measures on market changes and switching can be constructed based on the deviation from the common trade pattern.

				Common Trade Pattern	Deviation	M. Changes/ Markets	Drops/ Changes
$t = 1$	A	B		A	B	–	–
$t = 2$	A		C	$A-C$		1/0	1/0
$t = 3$	A		C	$A-C$	D	1/1	0/1
$t = 4$	A		C	A	C	2/1	1/2

Figure 3: Measures Based on Deviation from the Common Trade Pattern across Firms

Notably, ways to construct the common trade pattern is not unique. Instead of studying the deviation from the common trade pattern among firms, one may be interested in how a firm’s trading markets deviate from the firm’s own most frequently exported set of destinations. Figure 4 illustrates the construction of such a measure.

				Common Trade Pattern	Deviation	M. Changes/ Markets	Drops/ Changes
$t = 1$	A	B		$A-C$	B $-C$	–	–
$t = 2$	A		C	$A-C$		2/0	1/0
$t = 3$	A		C	$A-C$	D	1/1	0/1
$t = 4$	A		C	$A-C$		1/0	1/0

Figure 4: Measures Based on Deviation from the Common Trade Pattern over Time

1.1.1 Measures to Characterize the Relationship between Switching and Pricing

This subsection introduces the measures that have been used to characterize the relationship among firm’s pricing and switching decisions. Regarding measures of pricing strategies, I focus on changes in unit value, mean quantity and total quantity over time. The main switching measure is the drop-to-change ratio (DC ratio). The main estimation equation is illustrated in Figure 5. Essentially, I study the relationship between time variations of changes in unit value and quantity measures and the DC ratio. Note that the DC ratio is already a change measure and therefore no further time differences need to be taken.

				Changes in Unit Value	Drops/Changes (DC ratio)
$t = 1$	A	B		—	—
$t = 2$	A		C	$p_{AC,2} - p_{AB,1}$	1/2
$t = 3$	A		C	$p_{ACD,3} - p_{AC,2}$	0/1
$t = 4$	A		C	$p_{AC,4} - p_{ACD,3}$	1/1

Figure 5: Illustration of the Estimation Equation

Note: $p_{TP,t}$ represents the logged unit value for the set of countries TP in period t .

- **Unit Value:** the total trade value divided by the total quantity across all destinations at the firm-product level in period t .
- **Mean Quantity:** the total quantity sold at time t divided by the number of destinations at time t .
- **Total Quantity:** the total quantity sold at the firm-product level in period t .
- **Drop-to-Change (DC) Ratio:** Main variable of interest. The number of markets dropped over the number of market changes from $t - 1$ to t at the firm-product level.

Similar measures can be constructed only for those continuing markets as shown in Figure 6.

				Changes in the Unit Value of Continuing Markets
$t = 1$	A	B		—
$t = 2$	A		C	$\log(V_{A,2}/Q_{A,2}) - \log(V_{A,1}/Q_{A,1})$
$t = 3$	A		C	$\log[(V_{A,3} + V_{C,3})/(Q_{A,3} + Q_{C,3})]$ $- \log[(V_{A,2} + V_{C,2})/(Q_{A,2} + Q_{C,2})]$
$t = 4$	A		C	$\log[(V_{A,4} + V_{C,4})/(Q_{A,4} + Q_{C,4})]$ $- \log[(V_{A,3} + V_{C,3})/(Q_{A,3} + Q_{C,3})]$

Figure 6: Construction of Controls of Continuing Markets

Note: V and Q represent the trade value denominated in sterling and the quantity traded respectively.

- **Mean Quantity of Continuing Markets (MQCM):** the total quantity sold at continuing markets divided by the number of continuing markets in period t .
- **Unit Value of Continuing Markets (UVCN):** the total trade value divided by the total quantity among continuing markets in period t .

The following variables are constructed to understand whether the switching behaviour is related to changes in relative market conditions. For instance, an appreciation of the currency of a destination country makes the product relatively cheaper and thus it is more profitable to sell to this market. Thus, all else equal, the firm is less likely to drop (more likely to add) a market that has just appreciated. Similarly, a depreciation of the destination country's currency makes the firm less profitable and less likely to add (more likely to drop) this market. To focus on the markets that has changed, I construct the following augmented relative market condition measures as illustrated in Figure 7.

				Continuing Markets	Markets Changed	Augmented Exchange Rates
$t = 1$	A	B	C	—	—	—
$t = 2$	A	B	C	A	B, C	$\log(e_{C,2}/e_{C,1}) - \log(e_{B,2}/e_{B,1})$
$t = 3$	A		C	A, C	D	$\log(e_{D,3}/e_{D,2})$
$t = 4$	A		C	A, C	D	$-\log(e_{D,4}/e_{D,3})$

Figure 7: Construction of the Augmented Aggregate Variables

Note: Red arrow indicates continuing markets. The circled cells mark the variation used to construct the augmented exchange rate variable. The grey shaded circles indicate an auxiliary cell with no real trade transaction.

- **Augmented Bilateral Exchange Rates:** The average change in bilateral exchange rates from $t - 1$ to t for those changed markets at the firm-product level. To construct a compatible measure that can be used for both market entry and exit, I multiply +1 for exchange rate changes associated with those market being added and -1 for exchange rate changes associated with those markets being dropped.
- **Augmented Destination CPI:** The change of destination CPI rates from $t - 1$ to t for those switching markets at the firm-product level. This variable is constructed in the same way as the augmented bilateral exchange rates.
- **Mean Distance:** Distance refers to the geographical distance between the United Kingdom and its trade partners. “Mean Distance” is calculated as the total distance of all trade partners divided by the total number of markets at the firm-product level in period t .

1.2 Summary of Main Results

Two sets of results are discussed in this subsection: (a) new stylized facts on market switching activities of exporters and (b) regression results to characterize the relationship between switching and pricing decisions of firms.

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 basic statistics of the datasets including the number of observations, trade value and number of firms is available in Appendix A.

1.2.1 Stylized Facts

On average, British exporters sell a product to 5.34 foreign markets and 2.45 non-EU destinations. Large firms (measured by the total trade value of a firm-product pair across all years) sell to significantly more destinations, i.e., 7.67 foreign markets and 4.92 non-EU destinations on average.

Table 1 presents the median of market switching measures for non-EU destinations.² As can be seen in the table, there is a substantial adjustment of destination markets at the firm-product level. 86% of markets have changed between two observed trading years. Large firms seem to have slightly more stable trade patterns and only 71% of markets have been changed. However, 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.

To clarify the economic importance of these market adjustments, it is important to understand whether market changes are mainly due to frequent changes of fringe markets with small trade values. To address this concern, I construct trade weighted measures by multiplying the count of market changes with its corresponding trade value. As can be seen in the table, the trade weighted measure is actually substantially larger than the non-trade weighted measures, meaning the market adjustments involve shifts in trade focuses of the firm rather than merely trial and error with small markets.

Notably, there is a substantial variation in the trade weighted measure of market changes across product types. Companies selling less differentiated products such as vegetable and animal products, and foodstuffs rarely change their destination markets. In contrast, companies selling more differentiated products, such as machinery and mechanical appliances and optical and photographic

¹These 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.

²Statistics including EU countries show a very similar qualitative pattern compared with those of non-EU statistics and are reported in the later sections. As goods are free to move among EU countries, some of market switches observed in the data could merely reflect changing logistic routes. For this reason, non-EU statistics and estimates are used as the benchmark.

Table 1: Statistics on Firm-product Level Trade Patterns
(Non-EU Exports, Median)

	All Firms	Large Firms
Markets Changes/ Markets	0.86	0.71
Markets Changes/ Markets (Trade Weighted)	13.72	9.09
Markets Drop/ Market Changes	0.50	0.50
Markets Drop/ Market Changes (Trade Weighted)	0.49	0.48
Firm Level Switching Rate	0.35	0.48

Note: This table presents the statistics of firm-product level market switching measures. Statistics are calculated based on year-to-year changes using non-EU exports of British firms during 2010-2016. The median of each measure is presented in the table. More details regarding the distribution of relevant statistics are discussed in the later sections. Source: Calculations based on HMRC administrative datasets.

products, demonstrate significantly larger degree of market changes. While the exact value of this trade-weighted statistic may differ across distinct estimation samples, the qualitative pattern for product differentiation holds. Heterogeneity and sample selection issues are further discussed in the next subsection.

In documenting such large scale of market dynamics, a natural question is whether these changes mainly involve dropping existing markets or adding new markets. The drop-to-change ratio suggests market entries and exits account for roughly equal share of market changes, irrespective of whether the measure is trade weighted. Moreover, these statistics suggest firms simultaneously add and drop markets at the same time — a behavior that has not been explicitly modelled by conventional trade models focusing on supply side shocks.

It is important to note that the behavior of switching 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. Very similar statistics are found for trade weighted measures. In terms of frequency, market switching accounts for around one-third to one-half of the trading periods.

Table 2: Deviation from the Common Trade Pattern (CTP)

	Mean	Median	Distribution (Percentile)				Obs.
			1st	25th	75th	99th	
<u>8-digit level deviation from</u>							
product-time CTP	1.34	1.50	0.00	0.67	2.00	2.00	2,118,190
firm-product CTP	0.70	0.00	0.00	0.00	1.25	4.00	2,118,190
<u>2-digit level deviation from</u>							
product-time CTP	1.28	1.33	0.00	0.80	2.00	2.00	795,062
firm-product CTP	0.67	0.24	0.00	0.00	1.00	4.00	795,062

Note: This table presents measures of deviations from the common trade pattern. Two deviation measures are constructed, the deviation from the product-time common trade pattern and the deviation from the firm-product common trade pattern. Note that the deviation is normalized by the number of markets traded to facilitate the comparison across firms. Statistics are calculated based on non-EU exports of British firms during 2010-2016. Source: Calculations based on HMRC administrative datasets.

Table 2 shows an entropy measure designed to capture the degree of heterogeneity of trade patterns across and within firms. The deviation from the product-time common trade patterns captures the heterogeneity in the set of destinations across firms, whereas the deviation from the firm-product common trade pattern captures the heterogeneity of trading countries within a firm over time. Details on construction of entropy measure is explained in Figure 2 in the previous subsection. With a mean of deviation measure around 1.3, we can see substantial heterogeneity in trade patterns among firms. Nonetheless, the time deviation from the common trade pattern within a firm is much smaller, with median value being equal to 0.00 for 8-digit measures and 0.24 for 2-digit measures.

1.2.2 Market Changes and Pricing Decisions

I further explore the determinants of market switching and study how switching is related to firms' price and quantity decisions. The main variable of interest is the proportion of markets being dropped, measured by the ratio between the number of market dropped and the number of market changes, abbreviated as the DC ratio.

There are two main findings. First, the DC ratio is related to firm's price and quantity decisions across markets. Specifically, there are three sets of supporting evidence: (a) the DC ratio is positively correlated with the average price — the unit value is higher if more markets are dropped; (b) the DC ratio is negatively correlated with the mean quantity and total quantity — less units being sold per market if more markets are dropped; and (c) the DC ratio is highly correlated with the mean quantity of continuing markets and is only very weakly correlated with the unit value of continuing markets.

Table 3: Elasticity of Prices and Quantities to DC Ratio
(Summary of Key Estimates)

	Unit Value	Mean Quantity	Total Quantity	Observations
<i>All markets</i>				
Firm-product (8-digit) level	0.24***	-0.44***	-2.28***	793,046
Firm-sector (2-digit) level	0.25***	-0.30***	-1.98***	401,386
Firm level	0.34***	-0.24***	-1.86***	257,471
<i>Continuing markets</i>				
Firm-product (8-digit) level	0.01**†	-0.35***	-	483,774
Firm-sector (2-digit) level	0.03***†	-0.27***	-	299,470
Firm level	0.01†	-0.21***	-	205,870

Note: This table summarizes the key estimates characterizing the relationship between switching and pricing. The first column indicates the level of disaggregation at which the trade pattern measures are constructed. The header of the second to fourth columns indicates the dependent variable of the corresponding estimation equation. Estimates are obtained from regressing changes of the variable described in the column header on the drop change ratio. **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, non-EU exports, 2010-2016.

Second, the DC ratio is endogenous to changes in market-specific conditions. I find elasticities of DC ratio with respect to augmented bilateral exchange rates and local market CPI changes to be 2-15%³ and 90-110% respectively.

Table 4: DC Ratio to Changes in Relative Market Conditions

	Exchange Rate	Destination CPI	Within R^2	Observations
<u>Non-weighted</u>				
Firm-product (8-digit) level	-0.12***	-1.06***	0.20	805,626
Firm-sector (2-digit) level	-0.11***	-0.97***	0.19	405,255
Firm-level	-0.09***	-0.92***	0.19	259,026
<u>Trade-weighted</u>				
Firm-product (8-digit) level	-0.12***	-1.07***	0.15	805,626
Firm-sector (2-digit) level	-0.10***	-0.99***	0.14	405,255
Firm level	-0.09***	-0.93***	0.14	259,026

Note: This table shows estimates from regressing drop-change ratio on augmented exchange rates and destination CPI measures. The upper panel shows results using non-weighted drop-change ratio as the dependent variable and the bottom panels shows results using trade-weighted drop-change ratio as the dependent variable. The subsections of the first column indicate the level of disaggregation at which the trade pattern measures are constructed. 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, non-EU exports, 2010-2016.

³The estimated coefficients on the augmented exchange rates are substantially smaller for the sample including EU countries compared to the estimates using the sample with only non-EU destinations.

Moreover, the DC ratio is negatively correlated to the mean distance of trading markets, suggesting longer distance markets are more likely to be dropped.

Table 5: Mean Distance to DC Ratio

	Mean Distance	Within R^2	Observations
<u>Non-weighted</u>			
Firm-product (8-digit) level	-0.21***	0.01	805,626
Firm-sector (2-digit) level	-0.10***	0.00	405,255
Firm level	-0.20***	0.02	259,026
<u>Trade-weighted</u>			
Firm-product (8-digit) level	-0.16***	0.01	805,626
Firm-sector (2-digit) level	-0.11***	0.00	405,255
Firm level	-0.15***	0.01	259,026

Note: This table shows estimates from regressing changes in average distance of trading markets on the DC ratio. The upper panel shows results using non-weighted drop-change ratio as the dependent variable and the bottom panels shows results using trade weighted drop-change ratio as the dependent variable. The subsections of the first column indicate the level of disaggregation at which the trade pattern measures are constructed. 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, non-EU exports, 2010-2016.

1.3 Robustness Checks

Due to the multi-dimensional feature of the customs data, the exact value of each statistic and estimate may change depend on the group being studied. Statistics and estimates on alternative samples and construction methods not only helps to verify the robustness of the main results but also provide insights on export market switching from alternative aspects.

I construct two sets of robustness checks. The first set addresses concerns about the heterogeneity among groups. The second set considers possible sampling differences. The relevant statistics of each constructed sample are further discussed in Appendix A.

1.3.1 Heterogeneity

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)

1.3.2 Sampling Differences

1. **Whether conditional on non-missing aggregate variables:** In the benchmark specification, I have restricted the sample to destinations that have non-missing exchange rate and CPI destinations. As detailed in Appendix A, this restriction rules out some small countries and thus may affect the corresponding market switching measures. In appendices B and C, I present the estimation results without conditional on non-missing exchange rate and CPI destinations.
2. **Long versus short distance markets:** An interesting result of market switching is that the firms is more likely to drop markets with a longer distance. To further explore this issue, I divide the sample into three subsamples according to the geographic distance between UK and its trade partner. I report additional estimation results in the appendix for the following subsamples: (a) only long distance markets (the top 33 percentile of all markets) are included in the estimation sample; and (b) only short distance markets (the bottom 33 percentile of all markets) are included in the estimation sample. Results are not included in this appendix but is available upon request.

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 switching measures. The second subsection of each section reports regression estimates characterizing the relationship between switching and pricing.

2 Estimation results based on firm-product level trade patterns. The estimation sample is constructed based on destinations with non-missing exchange rate and CPI series.

2.1 Key Statistics

Table 6: 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	2.45	1.00	1.00	1.00	2.00	20.00	2,118,190
Number of Market Changes/ Number of Markets	1.03	0.86	0.00	0.00	2.00	4.00	1,437,614
Market Changes/ Markets (trade weighted)	4794.66	13.72	0.00	0.00	193.07	39968.00	1,423,328
Market Drop/ Market Changes	0.50	0.50	0.00	0.33	0.67	1.00	1,008,702
Market Drop/ Market Changes (trade weighted)	0.50	0.49	0.00	0.14	0.85	1.00	1,008,702
Firm Level Switching Rate	0.33	0.35	0.00	0.17	0.50	0.77	2,118,190

Table 7: 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	4.92	2.00	1.00	1.00	6.00	32.00	508,442
Number of Market Changes/ Number of Markets	0.93	0.71	0.00	0.33	1.25	4.50	403,444
Market Changes/ Markets (trade weighted)	8496.00	9.09	0.00	0.23	116.21	76108.34	401,929
Market Drop/ Market Changes	0.49	0.50	0.00	0.27	0.70	1.00	324,373
Market Drop/ Market Changes (trade weighted)	0.49	0.48	0.00	0.09	0.90	1.00	324,373
Firm Level Switching Rate	0.43	0.48	0.00	0.22	0.65	0.86	508,442

Table 8: By Industries (Median) - NonEUExp
 Trade patterns are calculated at the firm-product(8-digit HS)-year level

	Market Markets	Changes / Trade Weighted	Market Market	Drops / Changes Trade Weighted	Firm Level Switching Rate	Obs.
1-5 Live animals; animal products	0.50	0.11	0.50	0.47	0.17	12,737
6-14 Vegetable products	0.33	0.07	0.50	0.49	0.17	12,841
15 Animal/vegetable fats	0.33	0.07	0.50	0.48	0.22	3,317
16-24 Prepared foodstuffs	0.50	0.46	0.50	0.46	0.25	62,862
25-27 Mineral products	0.50	0.13	0.50	0.50	0.25	10,251
28-38 Products of chemical and allied industries	0.57	1.86	0.50	0.50	0.31	155,519
39-40 Plastics/rubber articles	0.67	2.81	0.50	0.49	0.31	121,004
41-43 Rawhides/leather articles, furs	0.83	17.98	0.50	0.48	0.35	26,022
44-46 Wood and articles of wood	0.79	3.12	0.50	0.50	0.29	8,060
47-49 Pulp of wood/other fibrous cellulosic material	0.80	3.71	0.50	0.51	0.33	70,850
50-63 Textile and textile articles	0.75	8.70	0.50	0.48	0.33	188,031
64-67 Footwear, headgear, etc.	0.91	17.51	0.50	0.47	0.35	25,997
68-70 Misc. manufactured articles	0.75	3.75	0.50	0.48	0.33	34,647
71 Precious or semiprec. stones	0.67	12.52	0.50	0.50	0.30	19,172
72-83 Base metals and articles of base metals	0.80	5.93	0.50	0.50	0.33	192,520
84-85 Machinery and mechanical appliances, etc.	1.00	49.22	0.50	0.50	0.38	759,048
86-89 Vehicles, aircraft, etc.	0.80	22.81	0.50	0.50	0.34	106,352
90-92 Optical, photographic, etc.	1.00	98.27	0.50	0.49	0.42	190,339
93 Arms and ammunition	0.75	73.05	0.50	0.49	0.40	2,593
94-96 Articles of stone, plaster, etc.	1.00	10.01	0.50	0.48	0.38	92,969
97+ Others	0.67	81.85	0.50	0.46	0.29	23,059

Table 9: All Sectors - All Firms - All 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	3.74	1.00	1.00	1.00	3.00	29.00	3,820,003
Number of Market Changes/ Number of Markets	0.83	0.50	0.00	0.00	1.25	4.00	2,713,284
Market Changes/ Markets (trade weighted)	3246.12	2.10	0.00	0.00	59.46	23892.18	2,698,280
Market Drop/ Market Changes	0.49	0.50	0.00	0.25	0.67	1.00	1,822,449
Market Drop/ Market Changes (trade weighted)	0.49	0.48	0.00	0.07	0.91	1.00	1,822,449
Firm Level Switching Rate	0.31	0.32	0.00	0.09	0.50	0.76	3,820,003

Table 10: All Sectors - Large Firms - All 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	7.67	4.00	1.00	1.00	10.00	43.00	906,090
Number of Market Changes/ Number of Markets	0.74	0.50	0.00	0.14	1.00	4.80	728,743
Market Changes/ Markets (trade weighted)	6564.34	1.45	0.00	0.01	27.51	40436.12	727,296
Market Drop/ Market Changes	0.49	0.50	0.00	0.25	0.71	1.00	568,048
Market Drop/ Market Changes (trade weighted)	0.48	0.46	0.00	0.05	0.92	1.00	568,048
Firm Level Switching Rate	0.41	0.45	0.00	0.16	0.65	0.86	906,090

Table 11: By Industries (Median) - AllExp
 Trade patterns are calculated at the firm-product(8-digit HS)-year level

	Market Markets	Changes / Trade Weighted	Market Market	Drops / Changes Trade Weighted	Firm Level Switching Rate	Obs.
1-5 Live animals; animal products	0.00	0.00	0.50	0.44	0.09	49,997
6-14 Vegetable products	0.12	0.00	0.50	0.42	0.11	66,804
15 Animal/vegetable fats	0.33	0.05	0.50	0.41	0.17	11,150
16-24 Prepared foodstuffs	0.25	0.03	0.50	0.43	0.17	162,957
25-27 Mineral products	0.30	0.02	0.50	0.51	0.18	26,544
28-38 Products of chemical and allied industries	0.50	0.64	0.50	0.48	0.28	311,296
39-40 Plastics/rubber articles	0.50	0.68	0.50	0.48	0.29	246,812
41-43 Rawhides/leather articles, furs	0.50	2.81	0.50	0.47	0.31	64,053
44-46 Wood and articles of wood	0.29	0.06	0.50	0.48	0.14	27,341
47-49 Pulp of wood/other fibrous cellulosic material	0.50	0.76	0.50	0.50	0.29	141,559
50-63 Textile and textile articles	0.50	1.48	0.50	0.46	0.29	428,988
64-67 Footwear, headgear, etc.	0.50	1.29	0.50	0.43	0.29	70,953
68-70 Misc. manufactured articles	0.50	0.70	0.50	0.48	0.30	69,291
71 Precious or semiprec. stones	0.50	5.27	0.50	0.48	0.31	26,333
72-83 Base metals and articles of base metals	0.50	1.16	0.50	0.48	0.30	385,826
84-85 Machinery and mechanical appliances, etc.	0.67	17.80	0.50	0.50	0.38	1,111,727
86-89 Vehicles, aircraft, etc.	0.57	8.16	0.50	0.49	0.33	143,637
90-92 Optical, photographic, etc.	0.75	38.70	0.50	0.49	0.40	262,996
93 Arms and ammunition	0.64	29.52	0.50	0.49	0.40	3,185
94-96 Articles of stone, plaster, etc.	0.50	1.52	0.50	0.47	0.33	184,884
97+ Others	0.67	86.13	0.50	0.46	0.29	23,670

Table 12: 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	3.57	2.00	1.00	1.00	3.00	30.00	795,062
Number of Market Changes/ Number of Markets	0.88	0.67	0.00	0.00	1.33	4.00	583,017
Market Changes/ Markets (trade weighted)	2059.95	5.78	0.00	0.00	75.74	19583.33	579,326
Market Drop/ Market Changes	0.49	0.50	0.00	0.33	0.67	1.00	418,440
Market Drop/ Market Changes (trade weighted)	0.49	0.48	0.00	0.11	0.86	1.00	418,440
Firm Level Switching Rate	0.35	0.33	0.00	0.00	0.60	0.86	795,062

Table 13: 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	11.98	8.00	1.00	3.00	17.00	54.00	84,916
Number of Market Changes/ Number of Markets	0.65	0.50	0.00	0.31	0.79	3.00	71,271
Market Changes/ Markets (trade weighted)	7429.23	1.54	0.00	0.16	13.24	25923.68	71,245
Market Drop/ Market Changes	0.49	0.50	0.00	0.31	0.67	1.00	64,135
Market Drop/ Market Changes (trade weighted)	0.48	0.46	0.00	0.12	0.83	1.00	64,135
Firm Level Switching Rate	0.57	0.71	0.00	0.33	0.86	0.86	84,916

Table 14: By Industries (Median) - NonEUExp
 Trade patterns are calculated at the firm-sector(2-digit HS)-year level

	Market Markets	Changes / Trade Weighted	Market Market	Drops / Changes Trade Weighted	Firm Level Switching Rate	Obs.
1-5 Live animals; animal products	0.50	0.14	0.50	0.44	0.14	5,605
6-14 Vegetable products	0.33	0.06	0.50	0.49	0.00	6,859
15 Animal/vegetable fats	0.33	0.12	0.50	0.46	0.00	1,576
16-24 Prepared foodstuffs	0.40	0.18	0.50	0.43	0.17	22,740
25-27 Mineral products	0.50	0.13	0.50	0.49	0.20	6,314
28-38 Products of chemical and allied industries	0.50	1.26	0.50	0.48	0.29	71,155
39-40 Plastics/rubber articles	0.60	2.19	0.50	0.47	0.33	59,479
41-43 Rawhides/leather articles, furs	0.67	8.47	0.50	0.46	0.33	11,644
44-46 Wood and articles of wood	0.60	1.79	0.50	0.48	0.25	5,521
47-49 Pulp of wood/other fibrous cellulosic material	0.67	3.02	0.50	0.50	0.33	39,638
50-63 Textile and textile articles	0.57	3.32	0.50	0.48	0.29	65,205
64-67 Footwear, headgear, etc.	0.67	6.58	0.50	0.46	0.33	9,068
68-70 Misc. manufactured articles	0.67	2.59	0.50	0.46	0.33	20,240
71 Precious or semiprec. stones	0.53	5.57	0.50	0.48	0.29	9,400
72-83 Base metals and articles of base metals	0.63	3.20	0.50	0.49	0.33	87,958
84-85 Machinery and mechanical appliances, etc.	0.75	18.38	0.50	0.49	0.43	200,495
86-89 Vehicles, aircraft, etc.	0.67	16.10	0.50	0.50	0.33	49,853
90-92 Optical, photographic, etc.	0.71	36.11	0.50	0.48	0.50	62,041
93 Arms and ammunition	0.58	26.82	0.50	0.46	0.29	1,333
94-96 Articles of stone, plaster, etc.	0.75	5.99	0.50	0.47	0.33	43,809
97+ Others	0.67	57.23	0.50	0.46	0.25	15,129

Table 15: 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	5.34	2.00	1.00	1.00	5.00	42.00	1,146,153
Number of Market Changes/ Number of Markets	0.78	0.50	0.00	0.00	1.00	4.00	856,912
Market Changes/ Markets (trade weighted)	2444.26	1.72	0.00	0.00	35.26	14141.33	852,968
Market Drop/ Market Changes	0.49	0.50	0.00	0.25	0.69	1.00	614,084
Market Drop/ Market Changes (trade weighted)	0.49	0.47	0.00	0.07	0.90	1.00	614,084
Firm Level Switching Rate	0.35	0.33	0.00	0.00	0.67	0.86	1,146,153

Table 16: 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	15.87	11.00	1.00	4.00	24.00	68.00	143,824
Number of Market Changes/ Number of Markets	0.55	0.38	0.00	0.21	0.65	3.00	120,603
Market Changes/ Markets (trade weighted)	10227.45	0.41	0.00	0.03	4.18	10245.77	120,569
Market Drop/ Market Changes	0.48	0.50	0.00	0.29	0.67	1.00	105,492
Market Drop/ Market Changes (trade weighted)	0.47	0.44	0.00	0.10	0.84	1.00	105,492
Firm Level Switching Rate	0.55	0.71	0.00	0.29	0.86	0.86	143,824

Table 17: By Industries (Median) - AllExp
 Trade patterns are calculated at the firm-sector(2-digit HS)-year level

	Market Markets	Changes / Trade Weighted	Market Market	Drops / Trade Weighted	Firm Level Switching Rate	Obs.
1-5 Live animals; animal products	0.27	0.03	0.50	0.41	0.00	12,145
6-14 Vegetable products	0.28	0.03	0.50	0.42	0.14	19,016
15 Animal/vegetable fats	0.26	0.04	0.50	0.39	0.00	3,969
16-24 Prepared foodstuffs	0.29	0.04	0.50	0.41	0.14	41,832
25-27 Mineral products	0.33	0.04	0.50	0.47	0.14	13,689
28-38 Products of chemical and allied industries	0.44	0.50	0.50	0.46	0.29	115,066
39-40 Plastics/rubber articles	0.50	0.83	0.50	0.45	0.33	88,829
41-43 Rawhides/leather articles, furs	0.50	2.28	0.50	0.45	0.33	21,260
44-46 Wood and articles of wood	0.42	0.27	0.50	0.46	0.17	14,241
47-49 Pulp of wood/other fibrous cellulosic material	0.50	1.15	0.50	0.50	0.33	62,294
50-63 Textile and textile articles	0.50	0.93	0.50	0.47	0.29	102,917
64-67 Footwear, headgear, etc.	0.43	0.90	0.50	0.43	0.29	20,589
68-70 Misc. manufactured articles	0.50	0.73	0.50	0.46	0.29	33,806
71 Precious or semiprec. stones	0.50	3.06	0.50	0.47	0.29	12,374
72-83 Base metals and articles of base metals	0.50	1.29	0.50	0.47	0.29	139,077
84-85 Machinery and mechanical appliances, etc.	0.65	11.22	0.50	0.48	0.50	229,234
86-89 Vehicles, aircraft, etc.	0.61	10.55	0.50	0.50	0.33	57,478
90-92 Optical, photographic, etc.	0.63	19.12	0.50	0.47	0.50	76,118
93 Arms and ammunition	0.50	11.21	0.50	0.44	0.29	1,575
94-96 Articles of stone, plaster, etc.	0.50	1.79	0.50	0.46	0.33	65,090
97+ Others	0.67	58.33	0.50	0.46	0.25	15,554

2.2 Characterizing the Relationship between Switching and Pricing

Table 18: 8-Digit - NonEUExp

VARIABLES	(1) UVCM	(2) UVCM	(3) UVCM
Market Drop/ Market Changes	0.01*** (0.00)	0.01** (0.00)	0.01** (0.00)
Constant	0.02*** (0.00)		
Observations	579,136	483,774	562,658
Fixed Effects	No	F-P + T	P-T + F
R^2	1.52e-05	0.219	0.111
Within R^2		1.96e-05	1.41e-05

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). Product-year and firm fixed effects are added for the specification of column (3). 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 19: 2-Digit - NonEUExp

VARIABLES	(1) UVCM	(2) UVCM	(3) UVCM
Market Drop/ Market Changes	0.03*** (0.01)	0.03*** (0.01)	0.03*** (0.01)
Constant	0.01*** (0.00)		
Observations	309,338	299,470	299,470
Fixed Effects	No	F-P + T	P-T + F
R^2	7.61e-05	0.0992	0.0992
Within R^2		5.92e-05	5.92e-05

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). Product-year and firm fixed effects are added for the specification of column (3). 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: 8-Digit - NonEUExp

VARIABLES	(1) MQCM	(2) MQCM	(3) MQCM
Market Drop/ Market Changes	-0.39*** (0.01)	-0.35*** (0.01)	-0.36*** (0.01)
Constant	0.18*** (0.00)		
Observations	579,136	483,774	562,658
Fixed Effects	No	F-P + T	P-T + F
R^2	0.00914	0.232	0.121
Within R^2		0.00767	0.00754

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). Product-year and firm fixed effects are added for the specification of column (3). 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: 2-Digit - NonEUExp

VARIABLES	(1) MQCM	(2) MQCM	(3) MQCM
Market Drop/ Market Changes	-0.33*** (0.01)	-0.27*** (0.01)	-0.27*** (0.01)
Constant	0.15*** (0.00)		
Observations	309,338	299,470	299,470
Fixed Effects	No	F-P + T	P-T + F
R^2	0.00602	0.111	0.111
Within R^2		0.00409	0.00409

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). Product-year and firm fixed effects are added for the specification of column (3). 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: 8-Digit - NonEUExp

VARIABLES	(1) DC Ratio	(2) DC Ratio	(3) DC Ratio
Augmented Bil. Exchange Rates	-0.14*** (0.00)	-0.12*** (0.00)	-0.13*** (0.00)
Augmented Destination CPI	-0.98*** (0.01)	-1.06*** (0.01)	-0.96*** (0.01)
Constant	0.50*** (0.00)		
Observations	1,008,702	805,626	989,487
Fixed Effects	No	F-P + T	P-T + F
R^2	0.183	0.321	0.249
Within R^2		0.204	0.179

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). Product-year and firm fixed effects are added for the specification of column (3). 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: 2-Digit - NonEUExp

VARIABLES	(1) DC Ratio	(2) DC Ratio	(3) DC Ratio
Augmented Bil. Exchange Rates	-0.12*** (0.00)	-0.11*** (0.00)	-0.11*** (0.00)
Augmented Destination CPI	-0.99*** (0.01)	-0.97*** (0.01)	-0.97*** (0.01)
Constant	0.49*** (0.00)		
Observations	418,440	405,255	405,255
Fixed Effects	No	F-P + T	P-T + F
R^2	0.190	0.255	0.255
Within R^2		0.187	0.187

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). Product-year and firm fixed effects are added for the specification of column (3). 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: 8-Digit - AllExp

VARIABLES	(1) UVCM	(2) UVCM	(3) UVCM
Market Drop/ Market Changes	-0.01** (0.00)	-0.00 (0.00)	-0.01** (0.00)
Constant	0.02*** (0.00)		
Observations	1,312,232	1,149,821	1,297,392
Fixed Effects	No	F-P + T	P-T + F
R^2	3.81e-06	0.210	0.0752
Within R^2		3.01e-06	5.77e-06

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). Product-year and firm fixed effects are added for the specification of column (3). 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: 2-Digit - AllExp

VARIABLES	(1) UVCM	(2) UVCM	(3) UVCM
Market Drop/ Market Changes	0.02*** (0.00)	0.01** (0.00)	0.01** (0.00)
Constant	0.01*** (0.00)		
Observations	499,351	488,877	488,877
Fixed Effects	No	F-P + T	P-T + F
R^2	2.43e-05	0.0815	0.0815
Within R^2		1.07e-05	1.07e-05

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). Product-year and firm fixed effects are added for the specification of column (3). 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: 8-Digit - AllExp

VARIABLES	(1) MQCM	(2) MQCM	(3) MQCM
Market Drop/ Market Changes	-0.60*** (0.00)	-0.51*** (0.00)	-0.56*** (0.00)
Constant	0.29*** (0.00)		
Observations	1,312,232	1,149,821	1,297,392
Fixed Effects	No	F-P + T	P-T + F
R^2	0.0256	0.242	0.107
Within R^2		0.0199	0.0214

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). Product-year and firm fixed effects are added for the specification of column (3). 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 27: 2-Digit - AllExp

VARIABLES	(1) MQCM	(2) MQCM	(3) MQCM
Market Drop/ Market Changes	-0.46*** (0.01)	-0.39*** (0.01)	-0.39*** (0.01)
Constant	0.22*** (0.00)		
Observations	499,351	488,877	488,877
Fixed Effects	No	F-P + T	P-T + F
R^2	0.0136	0.107	0.107
Within R^2		0.00969	0.00969

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). Product-year and firm fixed effects are added for the specification of column (3). 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 28: 8-Digit - AllExp

VARIABLES	(1) DC Ratio	(2) DC Ratio	(3) DC Ratio
Augmented Bil. Exchange Rates	-0.03*** (0.00)	0.01*** (0.00)	-0.03*** (0.00)
Augmented Destination CPI	-1.06*** (0.01)	-1.10*** (0.01)	-1.03*** (0.01)
Constant	0.49*** (0.00)		
Observations	1,822,449	1,542,071	1,804,709
Fixed Effects	No	F-P + T	P-T + F
R^2	0.138	0.292	0.206
Within R^2		0.149	0.134

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). Product-year and firm fixed effects are added for the specification of column (3). 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 29: 2-Digit - AllExp

VARIABLES	(1) DC Ratio	(2) DC Ratio	(3) DC Ratio
Augmented Bil. Exchange Rates	-0.03*** (0.00)	-0.03*** (0.00)	-0.03*** (0.00)
Augmented Destination CPI	-0.97*** (0.01)	-0.94*** (0.01)	-0.94*** (0.01)
Constant	0.49*** (0.00)		
Observations	614,084	600,443	600,443
Fixed Effects	No	F-P + T	P-T + F
R^2	0.154	0.226	0.226
Within R^2		0.148	0.148

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). Product-year and firm fixed effects are added for the specification of column (3). 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.

2.2.1 Trade Weighted Results

Table 30: 8-Digit - NonEUExp

VARIABLES	(1) UVCM	(2) UVCM	(3) UVCM
Market Drop/ Market Changes (trade weighted)	0.01* (0.00)	0.00 (0.00)	0.01 (0.00)
Constant	0.02*** (0.00)		
Observations	579,136	483,774	562,658
Fixed Effects	No	F-P + T	P-T + F
R^2	5.38e-06	0.219	0.111
Within R^2		1.13e-06	3.86e-06

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). Product-year and firm fixed effects are added for the specification of column (3). 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 31: 2-Digit - NonEUExp

VARIABLES	(1) UVCM	(2) UVCM	(3) UVCM
Market Drop/ Market Changes (trade weighted)	0.02*** (0.01)	0.01** (0.01)	0.01** (0.01)
Constant	0.02*** (0.00)		
Observations	309,338	299,470	299,470
Fixed Effects	No	F-P + T	P-T + F
R^2	3.75e-05	0.0991	0.0991
Within R^2		2.01e-05	2.01e-05

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). Product-year and firm fixed effects are added for the specification of column (3). 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: 8-Digit - NonEUExp

VARIABLES	(1) MQCM	(2) MQCM	(3) MQCM
Market Drop/ Market Changes (trade weighted)	-0.36*** (0.01)	-0.34*** (0.01)	-0.33*** (0.01)
Constant	0.16*** (0.00)		
Observations	579,136	483,774	562,658
Fixed Effects	No	F-P + T	P-T + F
R^2	0.00926	0.232	0.121
Within R^2		0.00877	0.00772

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). Product-year and firm fixed effects are added for the specification of column (3). 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: 2-Digit - NonEUExp

VARIABLES	(1) MQCM	(2) MQCM	(3) MQCM
Market Drop/ Market Changes (trade weighted)	-0.30*** (0.01)	-0.25*** (0.01)	-0.25*** (0.01)
Constant	0.13*** (0.00)		
Observations	309,338	299,470	299,470
Fixed Effects	No	F-P + T	P-T + F
R^2	0.00617	0.112	0.112
Within R^2		0.00442	0.00442

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). Product-year and firm fixed effects are added for the specification of column (3). 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: 8-Digit - NonEUExp

VARIABLES	(1) DC Ratio	(2) DC Ratio	(3) DC Ratio
Augmented Bil. Exchange Rates	-0.14*** (0.00)	-0.12*** (0.00)	-0.14*** (0.00)
Augmented Destination CPI	-1.01*** (0.01)	-1.07*** (0.01)	-0.98*** (0.01)
Constant	0.49*** (0.00)		
Observations	1,008,702	805,626	989,487
Fixed Effects	No	F-P + T	P-T + F
R^2	0.131	0.294	0.201
Within R^2		0.151	0.128

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). Product-year and firm fixed effects are added for the specification of column (3). 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 35: 2-Digit - NonEUExp

VARIABLES	(1) DC Ratio	(2) DC Ratio	(3) DC Ratio
Augmented Bil. Exchange Rates	-0.11*** (0.00)	-0.10*** (0.00)	-0.10*** (0.00)
Augmented Destination CPI	-1.01*** (0.01)	-0.99*** (0.01)	-0.99*** (0.01)
Constant	0.49*** (0.00)		
Observations	418,440	405,255	405,255
Fixed Effects	No	F-P + T	P-T + F
R^2	0.146	0.218	0.218
Within R^2		0.143	0.143

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). Product-year and firm fixed effects are added for the specification of column (3). 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: 8-Digit - AllExp

VARIABLES	(1) UVCM	(2) UVCM	(3) UVCM
Market Drop/ Market Changes (trade weighted)	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)
Constant	0.03*** (0.00)		
Observations	1,312,232	1,149,821	1,297,392
Fixed Effects	No	F-P + T	P-T + F
R^2	5.41e-05	0.210	0.0752
Within R^2		8.02e-05	5.84e-05

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). Product-year and firm fixed effects are added for the specification of column (3). 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: 2-Digit - AllExp

VARIABLES	(1) UVCM	(2) UVCM	(3) UVCM
Market Drop/ Market Changes (trade weighted)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Constant	0.02*** (0.00)		
Observations	499,351	488,877	488,877
Fixed Effects	No	F-P + T	P-T + F
R^2	6.05e-07	0.0815	0.0815
Within R^2		1.71e-06	1.71e-06

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). Product-year and firm fixed effects are added for the specification of column (3). 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: 8-Digit - AllExp

VARIABLES	(1) MQCM	(2) MQCM	(3) MQCM
Market Drop/ Market Changes (trade weighted)	-0.52*** (0.00)	-0.45*** (0.00)	-0.48*** (0.00)
Constant	0.25*** (0.00)		
Observations	1,312,232	1,149,821	1,297,392
Fixed Effects	No	F-P + T	P-T + F
R^2	0.0235	0.242	0.105
Within R^2		0.0191	0.0197

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). Product-year and firm fixed effects are added for the specification of column (3). 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 39: 2-Digit - AllExp

VARIABLES	(1) MQCM	(2) MQCM	(3) MQCM
Market Drop/ Market Changes (trade weighted)	-0.39*** (0.01)	-0.33*** (0.01)	-0.33*** (0.01)
Constant	0.19*** (0.00)		
Observations	499,351	488,877	488,877
Fixed Effects	No	F-P + T	P-T + F
R^2	0.0126	0.107	0.107
Within R^2		0.00922	0.00922

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). Product-year and firm fixed effects are added for the specification of column (3). 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 40: 8-Digit - AllExp

VARIABLES	(1) DC Ratio	(2) DC Ratio	(3) DC Ratio
Augmented Bil. Exchange Rates	-0.05*** (0.00)	-0.01*** (0.00)	-0.04*** (0.00)
Augmented Destination CPI	-1.14*** (0.01)	-1.18*** (0.01)	-1.11*** (0.01)
Constant	0.49*** (0.00)		
Observations	1,822,449	1,542,071	1,804,709
Fixed Effects	No	F-P + T	P-T + F
R^2	0.112	0.277	0.174
Within R^2		0.123	0.109

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). Product-year and firm fixed effects are added for the specification of column (3). 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 41: 2-Digit - AllExp

VARIABLES	(1) DC Ratio	(2) DC Ratio	(3) DC Ratio
Augmented Bil. Exchange Rates	-0.04*** (0.00)	-0.03*** (0.00)	-0.03*** (0.00)
Augmented Destination CPI	-1.03*** (0.01)	-1.00*** (0.01)	-1.00*** (0.01)
Constant	0.49*** (0.00)		
Observations	614,084	600,443	600,443
Fixed Effects	No	F-P + T	P-T + F
R^2	0.124	0.194	0.194
Within R^2		0.119	0.119

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). Product-year and firm fixed effects are added for the specification of column (3). 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 This sample aggregates product level trade transactions and study how export market switching at the firm level. For each time period, the trade pattern is calculated for each firm across all products it exports. The estimation sample is constructed based on destinations with non-missing exchange rate and CPI series.

3.1 Key Statistics

Table 42: 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	4.56	2.00	1.00	1.00	5.00	35.00	480,900
Number of Market Changes/ Number of Markets	0.91	0.67	0.00	0.31	1.29	4.00	351,591
Market Changes/ Markets (trade weighted)	2427.97	7.50	0.00	0.19	75.86	27716.14	350,150
Market Drop/ Market Changes	0.50	0.50	0.00	0.33	0.67	1.00	280,977
Market Drop/ Market Changes (trade weighted)	0.49	0.48	0.00	0.12	0.87	1.00	280,977
Firm Level Switching Rate	0.39	0.43	0.00	0.00	0.67	0.86	480,900

Table 43: 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	13.02	10.00	1.00	4.00	18.00	55.00	84,273
Number of Market Changes/ Number of Markets	0.65	0.50	0.00	0.33	0.77	3.00	70,890
Market Changes/ Markets (trade weighted)	5862.87	2.05	0.00	0.23	17.06	25779.66	70,863
Market Drop/ Market Changes	0.50	0.50	0.00	0.33	0.67	1.00	65,906
Market Drop/ Market Changes (trade weighted)	0.48	0.47	0.00	0.14	0.83	1.00	65,906
Firm Level Switching Rate	0.61	0.71	0.00	0.43	0.86	0.86	84,273

Table 44: 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	6.75	2.00	1.00	1.00	7.00	53.00	514,394
Number of Market Changes/ Number of Markets	0.87	0.60	0.00	0.24	1.11	4.00	379,278
Market Changes/ Markets (trade weighted)	3463.72	4.49	0.00	0.06	62.10	26835.82	377,777
Market Drop/ Market Changes	0.50	0.50	0.00	0.31	0.67	1.00	304,455
Market Drop/ Market Changes (trade weighted)	0.49	0.48	0.00	0.11	0.87	1.00	304,455
Firm Level Switching Rate	0.41	0.43	0.00	0.00	0.71	0.86	514,394

Table 45: 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	21.74	18.00	1.00	7.00	32.00	76.00	79,806
Number of Market Changes/ Number of Markets	0.52	0.37	0.00	0.23	0.59	3.00	67,386
Market Changes/ Markets (trade weighted)	9743.00	0.47	0.00	0.05	5.05	9293.65	67,373
Market Drop/ Market Changes	0.49	0.50	0.00	0.33	0.67	1.00	62,856
Market Drop/ Market Changes (trade weighted)	0.48	0.45	0.00	0.14	0.81	1.00	62,856
Firm Level Switching Rate	0.65	0.75	0.00	0.57	0.86	0.86	79,806

3.2 Characterizing the Relationship between Switching and Pricing

Table 46: NonEUExp

VARIABLES	(1) UVCM	(2) UVCM
Market Drop/ Market Changes	0.02** (0.01)	0.01 (0.01)
Constant	0.02*** (0.01)	
Observations	221,752	205,870
Fixed Effects	No	F + T
R^2	3.32e-05	0.183
Within R^2		9.87e-06

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 47: NonEUExp

VARIABLES	(1) MQCM	(2) MQCM
Market Drop/ Market Changes	-0.31*** (0.01)	-0.21*** (0.01)
Constant	0.13*** (0.01)	
Observations	221,752	205,870
Fixed Effects	No	F + T
R^2	0.00455	0.198
Within R^2		0.00214

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 48: NonEUExp

VARIABLES	(1) DC Ratio	(2) DC Ratio
Augmented Bil. Exchange Rates	-0.11*** (0.00)	-0.09*** (0.00)
Augmented Destination CPI	-0.91*** (0.01)	-0.92*** (0.01)
Constant	0.50*** (0.00)	
Observations	280,977	259,026
Fixed Effects	No	F + T
R^2	0.184	0.294
Within R^2		0.187

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 49: AllExp

VARIABLES	(1) UVCM	(2) UVCM
Market Drop/ Market Changes	0.02*** (0.01)	0.02* (0.01)
Constant	0.01** (0.00)	
Observations	247,270	230,634
Fixed Effects	No	F + T
R^2	3.85e-05	0.185
Within R^2		2.16e-05

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 50: AllExp

VARIABLES	(1) MQCM	(2) MQCM
Market Drop/ Market Changes	-0.37*** (0.01)	-0.25*** (0.01)
Constant	0.15*** (0.01)	
Observations	247,270	230,634
Fixed Effects	No	F + T
R^2	0.00680	0.204
Within R^2		0.00329

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 51: AllExp

VARIABLES	(1) DC Ratio	(2) DC Ratio
Augmented Bil. Exchange Rates	-0.05*** (0.00)	-0.04*** (0.00)
Augmented Destination CPI	-0.83*** (0.01)	-0.82*** (0.01)
Constant	0.50*** (0.00)	
Observations	304,455	281,947
Fixed Effects	No	F + T
R^2	0.169	0.291
Within R^2		0.168

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.

3.2.1 Trade Weighted Results

Table 52: NonEUExp

VARIABLES	(1) UVCM	(2) UVCM
Market Drop/ Market Changes (trade weighted)	0.01** (0.01)	0.01 (0.01)
Constant	0.02*** (0.00)	
Observations	221,752	205,870
Fixed Effects	No	F + T
R^2	2.01e-05	0.183
Within R^2		3.70e-06

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 53: NonEUExp

VARIABLES	(1) MQCM	(2) MQCM
Market Drop/ Market Changes (trade weighted)	-0.28*** (0.01)	-0.21*** (0.01)
Constant	0.11*** (0.01)	
Observations	221,752	205,870
Fixed Effects	No	F + T
R^2	0.00466	0.199
Within R^2		0.00272

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 54: NonEUExp

VARIABLES	(1) DC Ratio	(2) DC Ratio
Augmented Bil. Exchange Rates	-0.11*** (0.00)	-0.09*** (0.00)
Augmented Destination CPI	-0.94*** (0.01)	-0.93*** (0.01)
Constant	0.49*** (0.00)	
Observations	280,977	259,026
Fixed Effects	No	F + T
R^2	0.140	0.270
Within R^2		0.142

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 55: AllExp

VARIABLES	(1) UVCM	(2) UVCM
Market Drop/ Market Changes (trade weighted)	0.02** (0.01)	0.01 (0.01)
Constant	0.01*** (0.00)	
Observations	247,270	230,634
Fixed Effects	No	F + T
R^2	2.72e-05	0.185
Within R^2		1.52e-05

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 56: AllExp

VARIABLES	(1) MQCM	(2) MQCM
Market Drop/ Market Changes (trade weighted)	-0.31*** (0.01)	-0.23*** (0.01)
Constant	0.12*** (0.00)	
Observations	247,270	230,634
Fixed Effects	No	F + T
R^2	0.00658	0.205
Within R^2		0.00375

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 57: AllExp

VARIABLES	(1) DC Ratio	(2) DC Ratio
Augmented Bil. Exchange Rates	-0.05*** (0.00)	-0.04*** (0.00)
Augmented Destination CPI	-0.86*** (0.01)	-0.85*** (0.01)
Constant	0.49*** (0.00)	
Observations	304,455	281,947
Fixed Effects	No	F + T
R^2	0.129	0.271
Within R^2		0.129

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.

A Statistics of Each Estimation Sample

Table 58: Basic Statistics (2010-2016)

Sample	Flow	Observations	Value (million £)	Firms	Products	Countries
Raw (aggregated at firm-product-destination-year level)	All	16,357,110	1,986,674	165,798	10,457	217
	Non-EU	6,772,946	989,980	159,328	10,032	191
	EU	9,584,164	996,694	35,751	10,249	27
Full Sample (firm-product-destination-year level)	All	16,116,923	1,905,850	165,217	9,283	217
	Non-EU	6,690,753	956,148	158,803	9,018	191
	EU	9,426,170	949,702	35,513	9,126	27
Conditional on non-missing exchange rate and CPI destinations	All	14,500,348	1,856,714	103,098	9,113	166
	Non-EU	5,384,761	915,590	96,591	8,568	141
	EU	9,115,587	941,125	32,939	8,993	26
Long distance markets (top 33 percentile); Conditional non-missing exchange rate and CPI destinations	All	1,600,871	220,440	47,682	7,580	44
	Non-EU	1,600,871	220,440	47,682	7,580	44
	EU	0	.	0	0	0
Short distance markets (bottom 33 percentile); Conditional non-missing exchange rate and CPI destinations	All	10,202,199	1,116,123	53,915	9,032	62
	Non-EU	1,118,648	175,724	42,896	7,621	37
	EU	9,083,551	940,399	31,866	8,973	26
Firm level (data are aggregated at the firm-destination-year level)	All	3,661,556	1,986,674	165,798	-	217
	Non-EU	2,350,666	989,980	159,328	-	191
	EU	1,310,890	996,694	35,751	-	27
Firm level; Conditional on non-missing exchange rate and CPI destinations	All	3,471,790	1,955,026	136,075	-	166
	Non-EU	2,194,794	965,034	130,254	-	141
	EU	1,276,996	989,992	34,878	-	26

Note: Croatia joined the EU in 2013. Romania was dropped from the sample conditional on non-missing exchange rate and CPI destinations due to poor CPI data.

Table 59: Estimation results based on firm-product level trade patterns. The estimation sample is constructed based on destinations with non-missing exchange rate and CPI series.

Sample	Observations	Value (million £)	Firms	Products	Firm-product pairs
8-digit Trade Pattern					
All Countries	3,820,003	1,849,883	90,530	9,070	1,106,719
All Countries - Large Firms	906,090	1,679,894	36,082	8,404	177,347
Non-EU countries	2,118,190	909,460	82,771	8,417	680,576
Non-EU Countries - Large Firms	508,442	810,215	26,887	7,226	104,998
2-digit Trade Pattern					
All Countries	1,146,153	1,849,883	90,530	8,649	548,749
All Countries - Large Firms	143,824	1,738,573	15,071	6,935	70,324
Non-EU countries	795,062	909,460	82,771	7,940	390,301
Non-EU Countries - Large Firms	84,916	853,137	9,568	5,586	43,352

Note: The number of observations is significantly smaller compared to Table 58 because the destination dimension has been aggregated up, i.e., the aggregation level of the data is now firm-product-year. Firm-product pairs that only traded once during the period 2010-2016 are dropped from the estimation sample.

Table 60: Estimates based on deviations from the common trade pattern calculated at the product-time level; The estimation sample is constructed based on destinations with non-missing exchange rate and CPI series.

Sample	Observations	Value (million £)	Firms	Products	Firm-product pairs
8-digit Trade Pattern					
All Countries	3,820,003	1,849,883	90,530	9,070	1,106,719
All Countries - Large Firms	906,090	1,679,894	36,082	8,404	177,347
Non-EU countries	2,118,190	909,460	82,771	8,417	680,576
Non-EU Countries - Large Firms	508,442	810,215	26,887	7,226	104,998
2-digit Trade Pattern					
All Countries	1,146,153	1,849,883	90,530	8,657	549,005
All Countries - Large Firms	143,824	1,738,573	15,071	6,937	70,448
Non-EU countries	795,062	909,460	82,771	7,944	390,111
Non-EU Countries - Large Firms	84,916	853,137	9,568	5,606	43,208

Note: The number of observations is significantly smaller compared to Table 58 because the destination dimension has been aggregated up, i.e., the aggregation level of the data is now firm-product-year. Firm-product pairs that only traded once during the period 2010-2016 are dropped from the estimation sample.

Table 61: Estimates based on deviations from the common trade pattern calculated at the firm-product level; The estimation sample is constructed based on destinations with non-missing exchange rate and CPI series.

Sample	Observations	Value (million £)	Firms	Products	Firm-product pairs
8-digit Trade Pattern					
All Countries	3,820,003	1,849,883	90,530	9,070	1,106,719
All Countries - Large Firms	906,090	1,679,894	36,082	8,404	177,347
Non-EU countries	2,118,190	909,460	82,771	8,417	680,576
Non-EU Countries - Large Firms	508,442	810,215	26,887	7,226	104,998
2-digit Trade Pattern					
All Countries	1,146,153	1,849,883	90,530	8,650	548,823
All Countries - Large Firms	143,824	1,738,573	15,071	6,916	70,209
Non-EU countries	795,062	909,460	82,771	7,968	390,276
Non-EU Countries - Large Firms	84,916	853,137	9,568	5,607	43,182

Note: The number of observations is significantly smaller compared to Table 58 because the destination dimension has been aggregated up, i.e., the aggregation level of the data is now firm-product-year. Firm-product pairs that only traded once during the period 2010-2016 are dropped from the estimation sample.

Table 62: Estimates based on deviations from the common trade pattern calculated at the product-time level.

Sample	Observations	Value (million £)	Firms	Products	Firm-product pairs
8-digit 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
2-digit Trade Pattern					
All Countries	1,170,211	1,876,415	92,123	8,667	562,051
All Countries - Large Firms	143,703	1,761,017	15,011	6,916	70,407
Non-EU countries	817,697	930,073	84,518	7,987	402,600
Non-EU Countries - Large Firms	84,657	870,808	9,529	5,661	43,257

Note: The number of observations is significantly smaller compared to Table 58 because the destination dimension has been aggregated up, i.e., the aggregation level of the data is now firm-product-year. Firm-product pairs that only traded once during the period 2010-2016 are dropped from the estimation sample.

Table 63: Long distance markets; Estimation results based on firm-product level trade patterns; The estimation sample is constructed based on destinations with non-missing exchange rate and CPI series.

Sample	Observations	Value (million £)	Firms	Products	Firm-product pairs
8-digit Trade Pattern					
All Countries	782,409	219,059	43,791	7,496	248,449
All Countries - Large Firms	233,496	185,693	15,720	5,788	50,835
Non-EU countries	782,409	219,059	43,791	7,496	248,449
Non-EU Countries - Large Firms	233,496	185,693	15,720	5,788	50,835
2-digit Trade Pattern					
All Countries	345,435	219,059	43,791	6,927	160,276
All Countries - Large Firms	52,799	204,488	6,282	4,625	25,388
Non-EU countries	345,435	219,059	43,791	6,939	160,211
Non-EU Countries - Large Firms	52,799	204,488	6,282	4,587	25,336

Note: The number of observations is significantly smaller compared to Table 58 because the destination dimension has been aggregated up, i.e., the aggregation level of the data is now firm-product-year. Firm-product pairs that only traded once during the period 2010-2016 are dropped from the estimation sample.

Table 64: Short distance markets; Estimation results based on firm-product level trade patterns; The estimation sample is constructed based on destinations with non-missing exchange rate and CPI series.

Sample	Observations	Value (million £)	Firms	Products	Firm-product pairs
8-digit Trade Pattern					
All Countries	2,523,170	1,111,371	50,461	8,978	680,586
All Countries - Large Firms	689,635	1,003,509	26,708	8,085	133,498
Non-EU countries	612,184	171,657	37,529	7,220	193,015
Non-EU Countries - Large Firms	201,531	146,640	14,403	5,533	44,701
2-digit Trade Pattern					
All Countries	719,831	1,111,371	50,461	8,430	326,898
All Countries - Large Firms	130,490	1,052,963	13,810	6,693	60,094
Non-EU countries	283,913	171,657	37,529	6,765	129,554
Non-EU Countries - Large Firms	50,535	163,273	6,086	4,646	24,004

Note: The number of observations is significantly smaller compared to Table 58 because the destination dimension has been aggregated up, i.e., the aggregation level of the data is now firm-product-year. Firm-product pairs that only traded once during the period 2010-2016 are dropped from the estimation sample.

Table 65: Only long distance markets (the top 33 percentile of all markets) are included in the estimation sample; Estimates based on deviations from the common trade pattern calculated at the product-time level; The estimation sample is constructed based on destinations with non-missing exchange rate and CPI series;

Sample	Observations	Value (million £)	Firms	Products	Firm-product pairs
8-digit Trade Pattern					
All Countries	782,409	219,059	43,791	7,496	248,449
All Countries - Large Firms	233,496	185,693	15,720	5,788	50,835
Non-EU countries	782,409	219,059	43,791	7,496	248,449
Non-EU Countries - Large Firms	233,496	185,693	15,720	5,788	50,835
2-digit Trade Pattern					
All Countries	345,435	219,059	43,791	6,950	160,219
All Countries - Large Firms	52,799	204,488	6,282	4,637	25,353
Non-EU countries	345,435	219,059	43,791	6,952	160,128
Non-EU Countries - Large Firms	52,799	204,488	6,282	4,641	25,269

Note: The number of observations is significantly smaller compared to Table 58 because the destination dimension has been aggregated up, i.e., the aggregation level of the data is now firm-product-year. Firm-product pairs that only traded once during the period 2010-2016 are dropped from the estimation sample.

Table 66: This sample aggregates product level trade transactions and study how export market switching at the firm level. For each time period, the trade pattern is calculated for each firm across all products it exports. The estimation sample is constructed based on destinations with non-missing exchange rate and CPI series.

Sample	Observations	Value (million £)	Firms
All Countries	514,394	1,954,988	135,116
Non-EU countries	480,900	965,000	129,309

Note: The number of observations is significantly smaller compared to Table 58 because the destination dimension has been aggregated up, i.e., the aggregation level of the data is now firm-year. Firms that only traded once during the period 2010-2016 are dropped from the estimation sample.

Table 67: This sample aggregates product level trade transactions and study how market adjustments at the firm level. For each time period, the trade pattern is calculated for each firm across all products it exports.

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

Note: The number of observations is significantly smaller compared to Table 58 because the destination dimension has been aggregated up, i.e., the aggregation level of the data is now firm-year. Firms that only traded once during the period 2010-2016 are dropped from the estimation sample.

B This sample aggregates product level trade transactions and study how market adjustments at the firm level. For each time period, the trade pattern is calculated for each firm across all products it exports.

B.1 Key Statistics

Table 68: 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 Changes/ Markets (trade weighted)	2465.95	7.83	0.00	0.23	77.38	28256.56	357,873
Market Drop/ Market Changes	0.50	0.50	0.00	0.33	0.67	1.00	288,181
Market Drop/ Market Changes (trade weighted)	0.49	0.49	0.00	0.12	0.86	1.00	288,181
Firm Level Switching Rate	0.40	0.43	0.00	0.00	0.71	0.86	491,313

Table 69: 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 Changes/ Markets (trade weighted)	6153.09	2.20	0.00	0.25	17.84	27105.00	69,765
Market Drop/ Market Changes	0.50	0.50	0.00	0.33	0.67	1.00	65,259
Market Drop/ Market Changes (trade weighted)	0.48	0.47	0.00	0.15	0.82	1.00	65,259
Firm Level Switching Rate	0.63	0.71	0.00	0.43	0.86	0.86	82,928

Table 70: 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 Changes/ Markets (trade weighted)	3453.62	4.76	0.00	0.07	63.69	27262.00	384,899
Market Drop/ Market Changes	0.50	0.50	0.00	0.33	0.67	1.00	311,026
Market Drop/ Market Changes (trade weighted)	0.49	0.48	0.00	0.11	0.86	1.00	311,026
Firm Level Switching Rate	0.41	0.43	0.00	0.00	0.71	0.86	524,105

Table 71: 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 Changes/ Markets (trade weighted)	9689.25	0.51	0.00	0.06	5.39	9548.92	66,913
Market Drop/ Market Changes	0.49	0.50	0.00	0.33	0.67	1.00	62,596
Market Drop/ Market Changes (trade weighted)	0.48	0.46	0.00	0.14	0.80	1.00	62,596
Firm Level Switching Rate	0.66	0.83	0.00	0.57	0.86	0.86	79,241

B.2 Characterizing the Relationship between Switching and Pricing

Table 72: NonEUExp

VARIABLES	(1) UVCM	(2) UVCM
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
Within R^2		1.21e-05

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 73: NonEUExp

VARIABLES	(1) MQCM	(2) MQCM
Market Drop/ Market Changes	-0.32*** (0.01)	-0.21*** (0.01)
Constant	0.13*** (0.01)	
Observations	226,811	210,575
Fixed Effects	No	F + T
R^2	0.00468	0.197
Within R^2		0.00220

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 74: AllExp

VARIABLES	(1) UVCM	(2) UVCM
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
Within R^2		1.77e-05

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 75: AllExp

VARIABLES	(1) MQCM	(2) MQCM
Market Drop/ Market Changes	-0.37*** (0.01)	-0.25*** (0.01)
Constant	0.15*** (0.01)	
Observations	251,752	234,785
Fixed Effects	No	F + T
R^2	0.00682	0.204
Within R^2		0.00326

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.

B.2.1 Trade Weighted Results

Table 76: NonEUExp

VARIABLES	(1) UVCM	(2) UVCM
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
Within R^2		4.86e-06

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 77: NonEUExp

VARIABLES	(1) MQCM	(2) MQCM
Market Drop/ Market Changes (trade weighted)	-0.29*** (0.01)	-0.21*** (0.01)
Constant	0.11*** (0.01)	
Observations	226,811	210,575
Fixed Effects	No	F + T
R^2	0.00478	0.197
Within R^2		0.00279

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 78: AllExp

VARIABLES	(1) UVCM	(2) UVCM
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
Within R^2		1.06e-05

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 79: AllExp

VARIABLES	(1) MQCM	(2) MQCM
Market Drop/ Market Changes (trade weighted)	-0.32*** (0.01)	-0.23*** (0.01)
Constant	0.12*** (0.00)	
Observations	251,752	234,785
Fixed Effects	No	F + T
R^2	0.00657	0.204
Within R^2		0.00370

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.

C Estimation results based on firm-product level trade patterns. The estimation sample is constructed based on destinations with non-missing exchange rate and CPI series.

C.1 Key Statistics

Table 80: 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 Changes/ Markets (trade weighted)	4851.02	14.24	0.00	0.00	196.98	41000.00	1,471,638
Market Drop/ Market Changes	0.50	0.50	0.00	0.33	0.67	1.00	1,045,732
Market Drop/ Market Changes (trade weighted)	0.50	0.49	0.00	0.14	0.85	1.00	1,045,732
Firm Level Switching Rate	0.34	0.36	0.00	0.17	0.50	0.77	2,191,645

Table 81: 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 Changes/ Markets (trade weighted)	8766.35	9.56	0.00	0.27	120.07	79714.29	407,260
Market Drop/ Market Changes	0.50	0.50	0.00	0.29	0.67	1.00	330,028
Market Drop/ Market Changes (trade weighted)	0.49	0.48	0.00	0.09	0.89	1.00	330,028
Firm Level Switching Rate	0.44	0.50	0.00	0.24	0.66	0.86	515,137

Table 82: By Industries (Median) - NonEUExp
 Trade patterns are calculated at the firm-product(8-digit HS)-year level

	Market Markets	Changes / Trade Weighted	Market Market	Drops / Changes Trade Weighted	Firm Level Switching Rate	Obs.
1-5 Live animals; animal products	0.40	0.09	0.50	0.48	0.15	13,859
6-14 Vegetable products	0.33	0.07	0.50	0.49	0.17	13,429
15 Animal/vegetable fats	0.25	0.03	0.50	0.49	0.21	3,593
16-24 Prepared foodstuffs	0.50	0.45	0.50	0.46	0.26	67,267
25-27 Mineral products	0.50	0.14	0.50	0.50	0.25	10,752
28-38 Products of chemical and allied industries	0.60	2.02	0.50	0.50	0.32	161,628
39-40 Plastics/rubber articles	0.67	3.05	0.50	0.49	0.32	124,614
41-43 Rawhides/leather articles, furs	0.88	18.83	0.50	0.48	0.36	26,540
44-46 Wood and articles of wood	0.67	2.00	0.50	0.50	0.26	8,851
47-49 Pulp of wood/other fibrous cellulosic material	0.84	3.85	0.50	0.51	0.33	73,072
50-63 Textile and textile articles	0.75	8.92	0.50	0.48	0.33	192,388
64-67 Footwear, headgear, etc.	1.00	18.32	0.50	0.47	0.36	26,809
68-70 Misc. manufactured articles	0.75	3.47	0.50	0.49	0.33	36,447
71 Precious or semiprec. stones	0.67	13.47	0.50	0.49	0.31	19,465
72-83 Base metals and articles of base metals	0.83	6.23	0.50	0.50	0.33	198,879
84-85 Machinery and mechanical appliances, etc.	1.00	51.52	0.50	0.50	0.39	785,298
86-89 Vehicles, aircraft, etc.	0.86	23.99	0.50	0.50	0.35	110,107
90-92 Optical, photographic, etc.	1.00	103.97	0.50	0.49	0.42	195,839
93 Arms and ammunition	0.83	79.58	0.50	0.48	0.40	2,653
94-96 Articles of stone, plaster, etc.	1.00	10.02	0.50	0.49	0.38	96,922
97+ Others	0.67	87.48	0.50	0.46	0.29	23,233

Table 83: All Sectors - All Firms - All 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	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 Changes/ Markets (trade weighted)	3295.50	2.22	0.00	0.00	61.79	24666.67	2,752,414
Market Drop/ Market Changes	0.49	0.50	0.00	0.25	0.67	1.00	1,862,409
Market Drop/ Market Changes (trade weighted)	0.49	0.48	0.00	0.07	0.91	1.00	1,862,409
Firm Level Switching Rate	0.31	0.33	0.00	0.09	0.50	0.76	3,901,312

Table 84: All Sectors - Large Firms - All 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	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 Changes/ Markets (trade weighted)	6697.84	1.52	0.00	0.01	28.48	41955.00	731,607
Market Drop/ Market Changes	0.49	0.50	0.00	0.25	0.71	1.00	572,370
Market Drop/ Market Changes (trade weighted)	0.48	0.46	0.00	0.05	0.91	1.00	572,370
Firm Level Switching Rate	0.42	0.46	0.00	0.17	0.66	0.86	911,433

Table 85: By Industries (Median) - AllExp
 Trade patterns are calculated at the firm-product(8-digit HS)-year level

	Market Markets	Changes / Trade Weighted	Market Market	Drops / Changes Trade Weighted	Firm Level Switching Rate	Obs.
1-5 Live animals; animal products	0.00	0.00	0.50	0.44	0.10	51,003
6-14 Vegetable products	0.13	0.00	0.50	0.42	0.11	67,336
15 Animal/vegetable fats	0.33	0.05	0.50	0.41	0.17	11,398
16-24 Prepared foodstuffs	0.25	0.03	0.50	0.43	0.18	166,825
25-27 Mineral products	0.33	0.02	0.50	0.51	0.19	27,036
28-38 Products of chemical and allied industries	0.50	0.70	0.50	0.48	0.29	317,108
39-40 Plastics/rubber articles	0.50	0.71	0.50	0.48	0.29	251,497
41-43 Rawhides/leather articles, furs	0.50	2.94	0.50	0.47	0.32	64,657
44-46 Wood and articles of wood	0.29	0.05	0.50	0.48	0.14	28,137
47-49 Pulp of wood/other fibrous cellulosic material	0.50	0.77	0.50	0.50	0.29	144,770
50-63 Textile and textile articles	0.50	1.43	0.50	0.47	0.29	438,986
64-67 Footwear, headgear, etc.	0.50	1.38	0.50	0.43	0.30	71,671
68-70 Misc. manufactured articles	0.50	0.72	0.50	0.48	0.30	71,078
71 Precious or semiprec. stones	0.50	5.47	0.50	0.48	0.31	26,667
72-83 Base metals and articles of base metals	0.50	1.25	0.50	0.48	0.31	392,773
84-85 Machinery and mechanical appliances, etc.	0.71	19.11	0.50	0.50	0.38	1,138,117
86-89 Vehicles, aircraft, etc.	0.60	8.92	0.50	0.49	0.35	147,337
90-92 Optical, photographic, etc.	0.76	41.92	0.50	0.49	0.42	268,497
93 Arms and ammunition	0.67	34.48	0.50	0.48	0.41	3,245
94-96 Articles of stone, plaster, etc.	0.50	1.58	0.50	0.48	0.33	189,329
97+ Others	0.67	90.25	0.50	0.46	0.30	23,845

Table 86: 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 Changes/ Markets (trade weighted)	2226.61	6.02	0.00	0.00	77.19	19839.67	595,682
Market Drop/ Market Changes	0.50	0.50	0.00	0.33	0.67	1.00	431,081
Market Drop/ Market Changes (trade weighted)	0.49	0.48	0.00	0.12	0.86	1.00	431,081
Firm Level Switching Rate	0.35	0.33	0.00	0.00	0.60	0.86	817,697

Table 87: 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 Destinations in the Common Trade Pattern	0.00	0.00	0.00	0.00	0.00	0.00	84,657
Deviation from the Common TP in Each Period	1.00	1.00	1.00	1.00	1.00	1.00	84,657
Number of Market Changes/ Number of Markets	0.66	0.50	0.00	0.33	0.80	3.00	71,070
Market Changes/ Markets (trade weighted)	8806.06	1.66	0.00	0.18	14.05	26184.44	71,043
Market Drop/ Market Changes	0.49	0.50	0.00	0.33	0.67	1.00	64,258
Market Drop/ Market Changes (trade weighted)	0.48	0.47	0.00	0.13	0.83	1.00	64,258
Firm Level Switching Rate	0.58	0.71	0.00	0.40	0.86	0.86	84,657

Table 88: By Industries (Median) - NonEUExp
 Trade patterns are calculated at the firm-sector(2-digit HS)-year level

	Market Markets	Changes / Trade Weighted	Market Market	Drops / Changes Trade Weighted	Firm Level Switching Rate	Obs.
1-5 Live animals; animal products	0.50	0.13	0.50	0.44	0.00	5,966
6-14 Vegetable products	0.33	0.07	0.50	0.49	0.00	7,162
15 Animal/vegetable fats	0.33	0.09	0.50	0.48	0.00	1,729
16-24 Prepared foodstuffs	0.40	0.17	0.50	0.44	0.17	24,256
25-27 Mineral products	0.50	0.13	0.50	0.49	0.20	6,575
28-38 Products of chemical and allied industries	0.50	1.35	0.50	0.48	0.33	73,563
39-40 Plastics/rubber articles	0.62	2.35	0.50	0.47	0.33	60,872
41-43 Rawhides/leather articles, furs	0.67	8.81	0.50	0.46	0.33	11,844
44-46 Wood and articles of wood	0.54	1.50	0.50	0.48	0.25	5,882
47-49 Pulp of wood/other fibrous cellulosic material	0.69	3.20	0.50	0.50	0.33	40,607
50-63 Textile and textile articles	0.60	3.42	0.50	0.48	0.29	66,909
64-67 Footwear, headgear, etc.	0.67	7.10	0.50	0.46	0.33	9,366
68-70 Misc. manufactured articles	0.67	2.48	0.50	0.47	0.33	21,300
71 Precious or semiprec. stones	0.59	5.97	0.50	0.48	0.29	9,528
72-83 Base metals and articles of base metals	0.67	3.39	0.50	0.49	0.33	90,399
84-85 Machinery and mechanical appliances, etc.	0.75	19.51	0.50	0.49	0.43	205,177
86-89 Vehicles, aircraft, etc.	0.71	16.82	0.50	0.50	0.33	51,283
90-92 Optical, photographic, etc.	0.75	38.32	0.50	0.48	0.50	63,296
93 Arms and ammunition	0.67	32.46	0.50	0.47	0.33	1,351
94-96 Articles of stone, plaster, etc.	0.78	6.08	0.50	0.47	0.33	45,384
97+ Others	0.67	61.11	0.50	0.46	0.25	15,248

Table 89: 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 Changes/ Markets (trade weighted)	2538.98	1.80	0.00	0.00	36.30	14328.75	870,455
Market Drop/ Market Changes	0.49	0.50	0.00	0.25	0.67	1.00	626,705
Market Drop/ Market Changes (trade weighted)	0.49	0.47	0.00	0.08	0.89	1.00	626,705
Firm Level Switching Rate	0.35	0.33	0.00	0.00	0.67	0.86	1,170,211

Table 90: 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 Destinations in the Common Trade Pattern	0.00	0.00	0.00	0.00	0.00	0.00	143,703
Deviation from the Common TP in Each Period	1.00	1.00	1.00	1.00	1.00	1.00	143,703
Number of Market Changes/ Number of Markets	0.56	0.40	0.00	0.22	0.67	3.22	120,524
Market Changes/ Markets (trade weighted)	11055.86	0.43	0.00	0.04	4.37	10742.67	120,490
Market Drop/ Market Changes	0.48	0.50	0.00	0.29	0.67	1.00	105,606
Market Drop/ Market Changes (trade weighted)	0.47	0.45	0.00	0.10	0.84	1.00	105,606
Firm Level Switching Rate	0.56	0.71	0.00	0.29	0.86	0.86	143,703

Table 91: By Industries (Median) - AllExp
 Trade patterns are calculated at the firm-sector(2-digit HS)-year level

	Market Markets	Changes / Trade Weighted	Market Market	Drops / Trade Weighted	Firm Level Switching Rate	Obs.
1-5 Live animals; animal products	0.28	0.03	0.50	0.41	0.00	12,388
6-14 Vegetable products	0.29	0.03	0.50	0.42	0.14	19,265
15 Animal/vegetable fats	0.27	0.04	0.50	0.40	0.00	4,092
16-24 Prepared foodstuffs	0.29	0.05	0.50	0.41	0.14	42,954
25-27 Mineral products	0.33	0.04	0.50	0.47	0.14	13,929
28-38 Products of chemical and allied industries	0.47	0.54	0.50	0.46	0.29	117,276
39-40 Plastics/rubber articles	0.50	0.87	0.50	0.45	0.33	90,423
41-43 Rawhides/leather articles, furs	0.50	2.35	0.50	0.45	0.33	21,523
44-46 Wood and articles of wood	0.43	0.27	0.50	0.46	0.17	14,583
47-49 Pulp of wood/other fibrous cellulosic material	0.50	1.19	0.50	0.50	0.33	63,552
50-63 Textile and textile articles	0.50	0.87	0.50	0.47	0.29	106,343
64-67 Footwear, headgear, etc.	0.44	0.97	0.50	0.43	0.29	20,838
68-70 Misc. manufactured articles	0.50	0.74	0.50	0.47	0.29	34,809
71 Precious or semiprec. stones	0.50	3.15	0.50	0.47	0.29	12,542
72-83 Base metals and articles of base metals	0.50	1.36	0.50	0.48	0.33	141,782
84-85 Machinery and mechanical appliances, etc.	0.67	11.95	0.50	0.48	0.50	233,711
86-89 Vehicles, aircraft, etc.	0.67	11.18	0.50	0.50	0.33	58,823
90-92 Optical, photographic, etc.	0.67	20.38	0.50	0.47	0.50	77,311
93 Arms and ammunition	0.50	14.04	0.50	0.45	0.33	1,593
94-96 Articles of stone, plaster, etc.	0.50	1.84	0.50	0.46	0.33	66,802
97+ Others	0.67	61.45	0.50	0.46	0.29	15,672

C.2 Characterizing the Relationship between Switching and Pricing

Table 92: 8-Digit - NonEUExp

VARIABLES	(1) UVCM	(2) UVCM	(3) UVCM
Market Drop/ Market Changes	0.01*** (0.00)	0.01** (0.00)	0.01*** (0.00)
Constant	0.02*** (0.00)		
Observations	594,068	495,877	577,357
Fixed Effects	No	F-P + T	P-T + F
R^2	1.64e-05	0.219	0.110
Within R^2		1.85e-05	1.41e-05

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). Product-year and firm fixed effects are added for the specification of column (3). 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 93: 2-Digit - NonEUExp

VARIABLES	(1) UVCM	(2) UVCM	(3) UVCM
Market Drop/ Market Changes	0.03*** (0.01)	0.03*** (0.01)	0.03*** (0.01)
Constant	0.01** (0.00)		
Observations	317,303	307,212	307,212
Fixed Effects	No	F-P + T	P-T + F
R^2	8.66e-05	0.0992	0.0992
Within R^2		6.63e-05	6.63e-05

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). Product-year and firm fixed effects are added for the specification of column (3). 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 94: 8-Digit - NonEUExp

VARIABLES	(1) MQCM	(2) MQCM	(3) MQCM
Market Drop/ Market Changes	-0.39*** (0.01)	-0.35*** (0.01)	-0.36*** (0.01)
Constant	0.18*** (0.00)		
Observations	594,068	495,877	577,357
Fixed Effects	No	F-P + T	P-T + F
R^2	0.00912	0.232	0.120
Within R^2		0.00767	0.00753

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). Product-year and firm fixed effects are added for the specification of column (3). 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 95: 2-Digit - NonEUExp

VARIABLES	(1) MQCM	(2) MQCM	(3) MQCM
Market Drop/ Market Changes	-0.33*** (0.01)	-0.28*** (0.01)	-0.28*** (0.01)
Constant	0.15*** (0.00)		
Observations	317,303	307,212	307,212
Fixed Effects	No	F-P + T	P-T + F
R^2	0.00618	0.111	0.111
Within R^2		0.00423	0.00423

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). Product-year and firm fixed effects are added for the specification of column (3). 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 96: 8-Digit - AllExp

VARIABLES	(1) UVCM	(2) UVCM	(3) UVCM
Market Drop/ Market Changes	-0.00** (0.00)	-0.00 (0.00)	-0.01** (0.00)
Constant	0.02*** (0.00)		
Observations	1,330,449	1,165,013	1,315,430
Fixed Effects	No	F-P + T	P-T + F
R^2	3.32e-06	0.211	0.0748
Within R^2		3.31e-06	5.73e-06

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). Product-year and firm fixed effects are added for the specification of column (3). 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 97: 2-Digit - AllExp

VARIABLES	(1) UVCM	(2) UVCM	(3) UVCM
Market Drop/ Market Changes	0.02*** (0.00)	0.01** (0.00)	0.01** (0.00)
Constant	0.01*** (0.00)		
Observations	507,605	496,936	496,936
Fixed Effects	No	F-P + T	P-T + F
R^2	2.80e-05	0.0816	0.0816
Within R^2		1.10e-05	1.10e-05

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). Product-year and firm fixed effects are added for the specification of column (3). 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 98: 8-Digit - AllExp

VARIABLES	(1) MQCM	(2) MQCM	(3) MQCM
Market Drop/ Market Changes	-0.61*** (0.00)	-0.51*** (0.00)	-0.56*** (0.00)
Constant	0.29*** (0.00)		
Observations	1,330,449	1,165,013	1,315,430
Fixed Effects	No	F-P + T	P-T + F
R^2	0.0254	0.243	0.106
Within R^2		0.0198	0.0212

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). Product-year and firm fixed effects are added for the specification of column (3). 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 99: 2-Digit - AllExp

VARIABLES	(1) MQCM	(2) MQCM	(3) MQCM
Market Drop/ Market Changes	-0.47*** (0.01)	-0.40*** (0.01)	-0.40*** (0.01)
Constant	0.22*** (0.00)		
Observations	507,605	496,936	496,936
Fixed Effects	No	F-P + T	P-T + F
R^2	0.0137	0.107	0.107
Within R^2		0.00979	0.00979

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). Product-year and firm fixed effects are added for the specification of column (3). 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.

C.2.1 Trade Weighted Results

Table 100: 8-Digit - NonEUExp

VARIABLES	(1) UVCM	(2) UVCM	(3) UVCM
Market Drop/ Market Changes (trade weighted)	0.01* (0.00)	0.00 (0.00)	0.01 (0.00)
Constant	0.02*** (0.00)		
Observations	594,068	495,877	577,357
Fixed Effects	No	F-P + T	P-T + F
R^2	5.81e-06	0.219	0.110
Within R^2		6.14e-07	3.32e-06

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). Product-year and firm fixed effects are added for the specification of column (3). 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 101: 2-Digit - NonEUExp

VARIABLES	(1) UVCM	(2) UVCM	(3) UVCM
Market Drop/ Market Changes (trade weighted)	0.02*** (0.01)	0.01** (0.01)	0.01** (0.01)
Constant	0.01*** (0.00)		
Observations	317,303	307,212	307,212
Fixed Effects	No	F-P + T	P-T + F
R^2	4.54e-05	0.0992	0.0992
Within R^2		2.42e-05	2.42e-05

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). Product-year and firm fixed effects are added for the specification of column (3). 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 102: 8-Digit - NonEUExp

VARIABLES	(1) MQCM	(2) MQCM	(3) MQCM
Market Drop/ Market Changes (trade weighted)	-0.36*** (0.01)	-0.34*** (0.01)	-0.33*** (0.01)
Constant	0.16*** (0.00)		
Observations	594,068	495,877	577,357
Fixed Effects	No	F-P + T	P-T + F
R^2	0.00923	0.233	0.120
Within R^2		0.00878	0.00769

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). Product-year and firm fixed effects are added for the specification of column (3). 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 103: 2-Digit - NonEUExp

VARIABLES	(1) MQCM	(2) MQCM	(3) MQCM
Market Drop/ Market Changes (trade weighted)	-0.30*** (0.01)	-0.25*** (0.01)	-0.25*** (0.01)
Constant	0.13*** (0.00)		
Observations	317,303	307,212	307,212
Fixed Effects	No	F-P + T	P-T + F
R^2	0.00622	0.111	0.111
Within R^2		0.00448	0.00448

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). Product-year and firm fixed effects are added for the specification of column (3). 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 104: 8-Digit - AllExp

VARIABLES	(1) UVCM	(2) UVCM	(3) UVCM
Market Drop/ Market Changes (trade weighted)	-0.02*** (0.00)	-0.02*** (0.00)	-0.02*** (0.00)
Constant	0.03*** (0.00)		
Observations	1,330,449	1,165,013	1,315,430
Fixed Effects	No	F-P + T	P-T + F
R^2	5.30e-05	0.211	0.0749
Within R^2		8.38e-05	5.99e-05

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). Product-year and firm fixed effects are added for the specification of column (3). 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 105: 2-Digit - AllExp

VARIABLES	(1) UVCM	(2) UVCM	(3) UVCM
Market Drop/ Market Changes (trade weighted)	0.00 (0.00)	-0.00 (0.00)	-0.00 (0.00)
Constant	0.02*** (0.00)		
Observations	507,605	496,936	496,936
Fixed Effects	No	F-P + T	P-T + F
R^2	1.36e-06	0.0816	0.0816
Within R^2		1.60e-06	1.60e-06

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). Product-year and firm fixed effects are added for the specification of column (3). 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 106: 8-Digit - AllExp

VARIABLES	(1) MQCM	(2) MQCM	(3) MQCM
Market Drop/ Market Changes (trade weighted)	-0.52*** (0.00)	-0.45*** (0.00)	-0.48*** (0.00)
Constant	0.24*** (0.00)		
Observations	1,330,449	1,165,013	1,315,430
Fixed Effects	No	F-P + T	P-T + F
R^2	0.0233	0.242	0.105
Within R^2		0.0190	0.0195

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). Product-year and firm fixed effects are added for the specification of column (3). 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 107: 2-Digit - AllExp

VARIABLES	(1) MQCM	(2) MQCM	(3) MQCM
Market Drop/ Market Changes (trade weighted)	-0.39*** (0.01)	-0.34*** (0.01)	-0.34*** (0.01)
Constant	0.19*** (0.00)		
Observations	507,605	496,936	496,936
Fixed Effects	No	F-P + T	P-T + F
R^2	0.0127	0.106	0.106
Within R^2		0.00923	0.00923

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). Product-year and firm fixed effects are added for the specification of column (3). 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.