The looming threat of tariff hikes: entry into exporting under trade agreement renegotiation

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Renegotiation of trade agreements

Countries regularly negotiate new, more liberal trade agreements:

- Canada-EU, CP-TPP, KORUS

Recently, several trade agreements have announced renegotiation:

- UK in EU, US in NAFTA, KORUS

with threats that collapse of negotiations will lead to tariff increases.

Research question:
What is the impact of the renegotiation of a trading relationship on firm entry into and exit from exporting?

Summary of results

UK firm entry into the EU in 2016 fell dramatically for products that would face taiff increases under a no deal Brexit.

- The sensitivity of British firm entry at the product level to 'no-deal' tariff rates increased steadily in the six months after the British vote to leave the EU.
- Counterfactual analysis: entry into the EU by UK firms would have been 4.5% (monthly analysis) - 5.0% (annual analysis) higher in 2016 if there had been a guarantee that EU import tariffs on UK exports would remain at zero post-Brexit.

Literature: trade policy uncertainty

Trade policy uncertainty

- Handley (2014), Handley and Limão (2015), Pierce and Schott (2016), Handley and Limão (2017), Crowley, Meng and Song (2018).

Trade agreement design and renegotiation

- Bagwell and Staiger (1999), Maggi and Rodgriguez-Clare (2007), Horn, Maggi and Staiger (2010), Maggi and Staiger (2011), Maggi and Staiger (2015), Limão and Maggi (2015).

Brexit

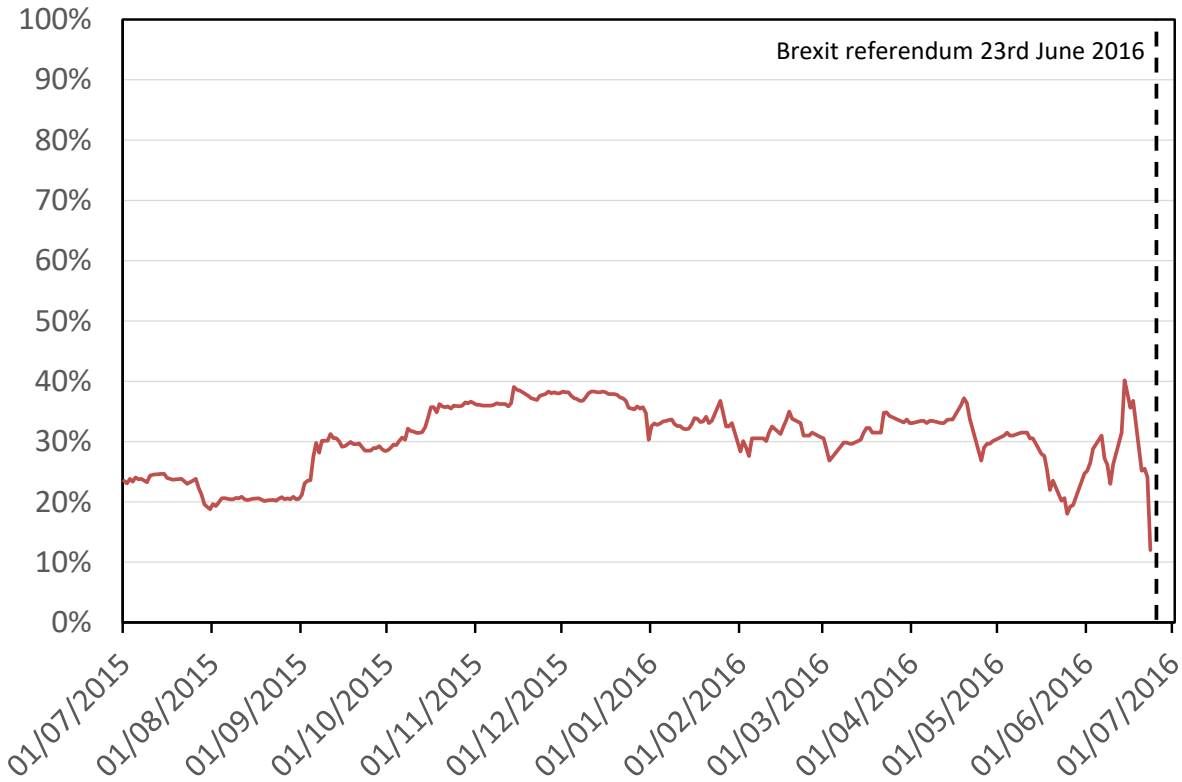
A switch to a less certain trade policy environment

On 23rd June 2016 the British electorate voted to 'Leave' the European Union:

- Government announced that UK would leave Customs Union.
- UK began negotiations with the EU with aims to ensure continued tariff free access to EU markets.
- Outside option or threat point (if no deal is reached) is for UK-EU bilateral trade to be conducted under WTO rules.
- Under WTO rules, UK exports to EU would be charged EU's external tariff rates (defined by EU's WTO tariff schedule).

The vote to leave the EU was unexpected

Market implied probability that the UK would leave the EU



UK-based firms engaged in exporting to the EU

- Information on the universe of firm exporting decisions is obtained from the UK HMRC Overseas Trade Statistics databases.

	Export value (£mil.)	Firms	Firm-product exporters	Firm-product entrants	Firm-product exiters
2013	146	21,263	337,072	96,328	87,407
2014	142	20,884	350,259	98,180	84,993
2015	129	21,092	367,107	102,002	85,154
2016	139	21,074	383,669	105,862	89,300

Source: Calculations based on HMRC administrative datasets.

Tariff rates under the EU's WTO commitments

Threat point tariffs that UK-based firms face on exports to the EU are defined by the EU's WTO commitments and WTO tariff schedule.

Classify the 8,500 products exported from the UK to the EU into discrete tariff categories.

Table 1: Discrete tariff categories

Category	Tariff rate	Share of firm-products (2015)
Quota/TRQ	**	1.8 %
Specific duty	**	3.1 %
Extreme	$\geq 15\%$	1.8%
High	$10 - 15\%$	12.0%
Medium	$5 - 10\%$	21.4%
Low	$0 - 5\%$	39.4%
Zero	0	20.0%

Tariff exposure across product categories of UK-EU exports

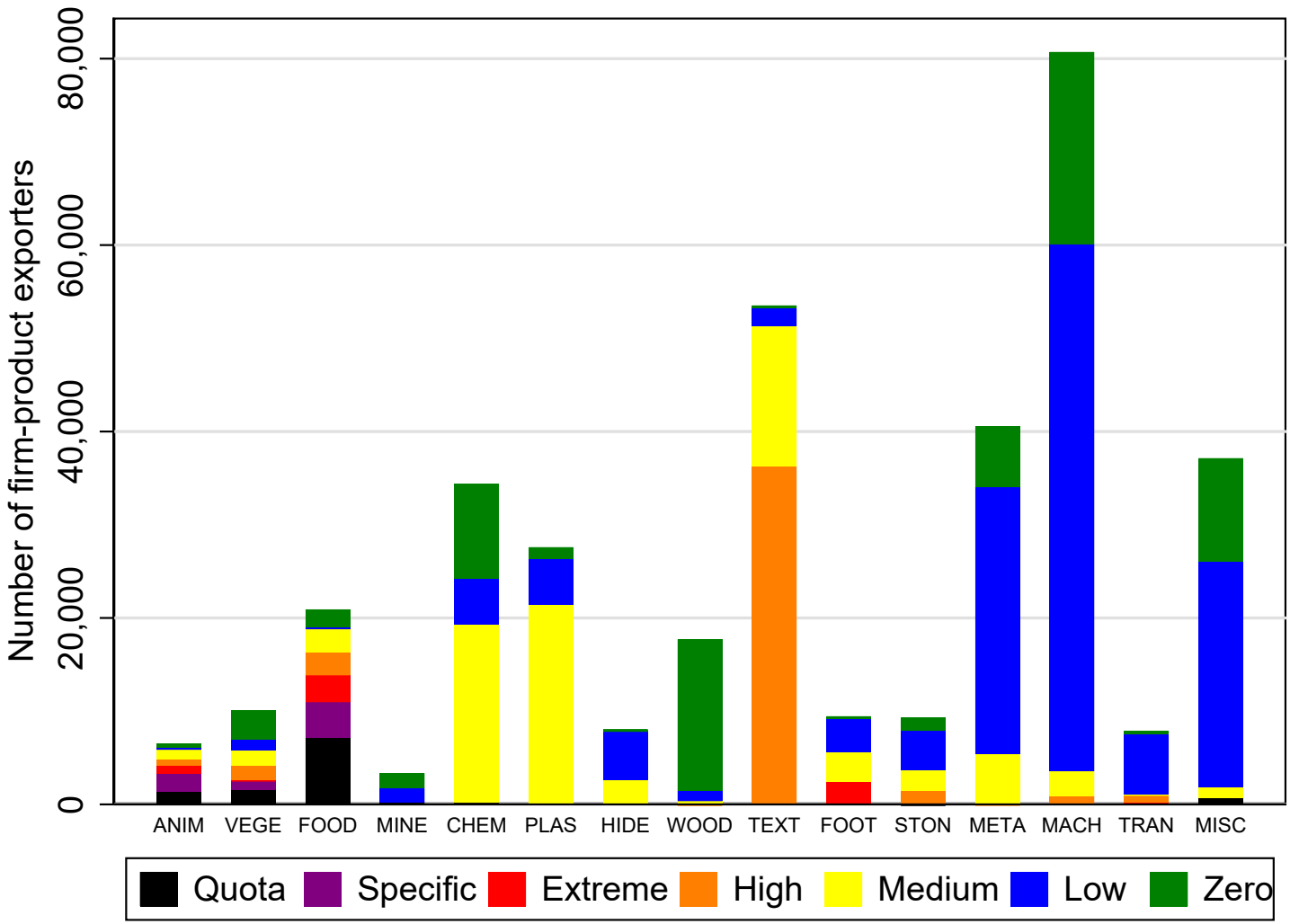


Figure 1: No. of UK firm-products in 2015 exporting to EU by HS industry and exposure to EU tariffs

Tariff exposure across product categories of UK-EU exports

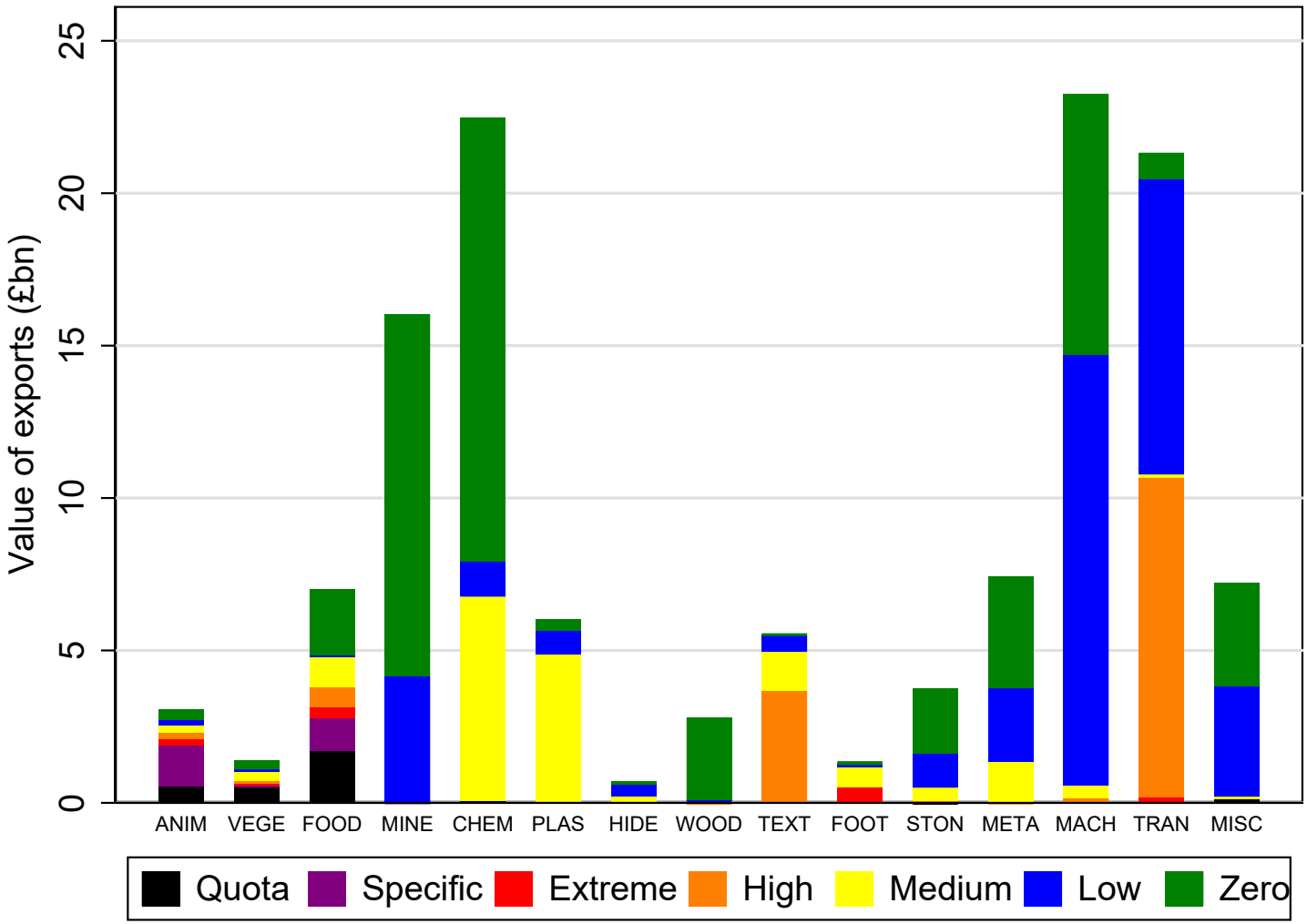


Figure 2: Value of exports in 2015 to EU by HS industry and exposure to EU tariffs

Empirical model: Monthly evolution of entry

$$\Delta Y_{hm,t} = \alpha_{m,t} + \sum_{m,t=0}^{M,T} \beta_{m,t}\left(\alpha_{m,t} * \tau_h\right) + \eta_{hm,t}$$

$\Delta Y_{hm,t}$ is the growth rate of new British entrants into the EU over a one year period ending in month m of year t.

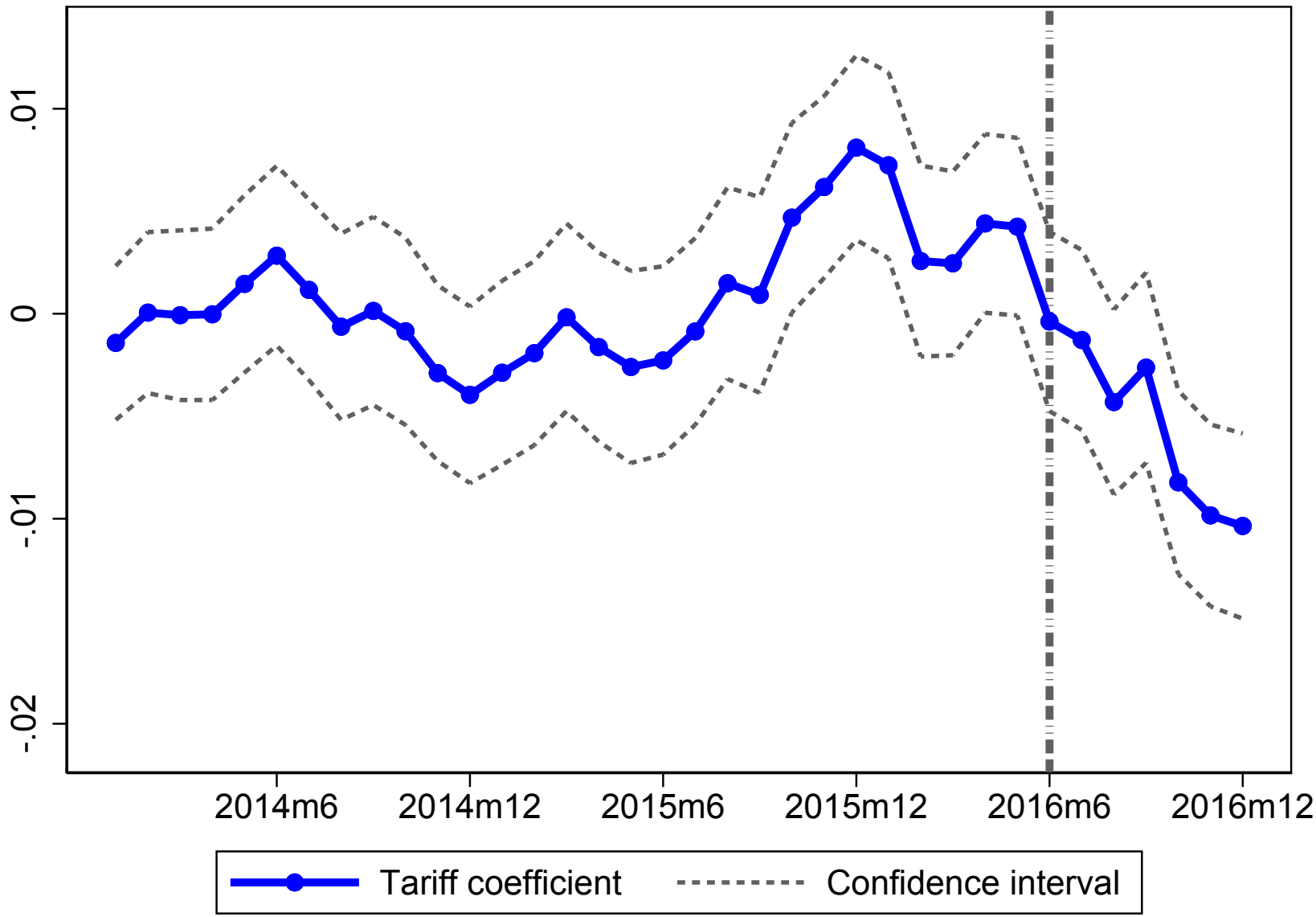
h refers to the 8062 CN08 product categories subject to an ad valorem import tariff.

$\alpha_{m,t}$ are monthly time dummies.

τ_h are product-level "threatened" tariffs

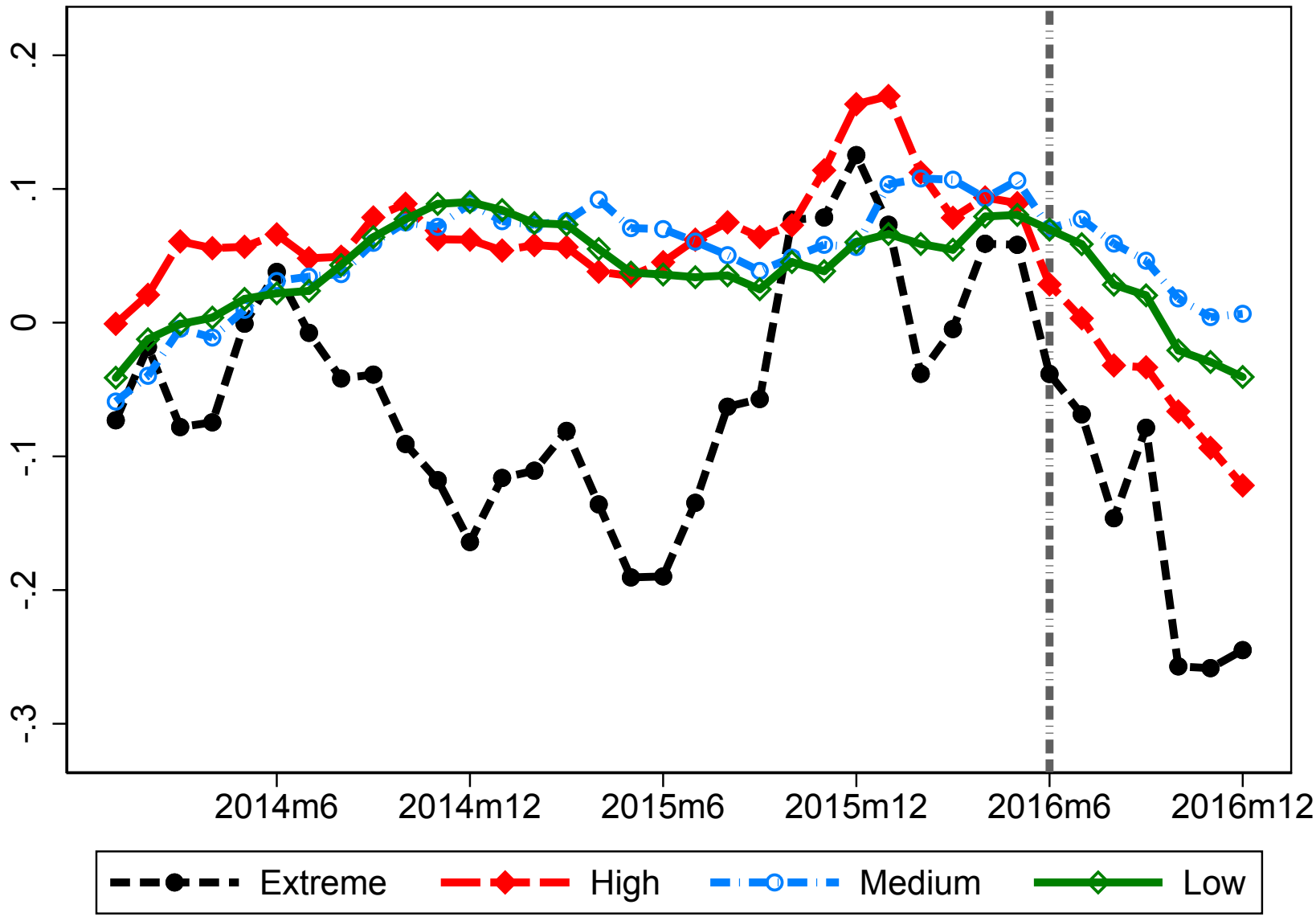
Responsiveness of Firm Entry to Tariff Rates:

2014m1 to 2016m12



Responsiveness of Firm Entry to Discrete Tariff Categories:

2014m1 to 2016m12



Empirical model: Annual Dif-in-Dif

$$\Delta Y_{h,t} = b_0 + b_1 \tau_h + \eta_{h,t}$$

$\Delta Y_{h,t}$ is the annual growth rate of new British entrants and exits for product h into the EU in year t.

τ_h are product-level "threatened" tariffs

TPU and growth of entrants into and exiters from the EU

	(1) Firm-product exporters	(2) Firm-product entrants	(3) Firm-product exiters
Tariff rate	-0.00344***	-0.0105***	0.00459**
	(0.00127)	(0.00238)	(0.00217)
Quota	-0.0770**	-0.169***	0.189***
	(0.0303)	(0.0651)	(0.0612)
Specific duty	-0.0538**	-0.204***	0.0451
	(0.0244)	(0.0494)	(0.0488)
Constant	0.0519***	0.0813***	-0.00160
	(0.00815)	(0.0155)	(0.0144)
Observations	8,804	8,464	8,140
R-squared	0.002	0.005	0.002

Notes: Std errors in parens. ***, **, and * indicate statistically diff from 0 at the 1%, 5% and 10% level. All estimates from HMRC administrative datasets.

Decline in entry Increase in exit

Interpretation: Products facing a 10 ppt "threat" tariff have 10.5ppt lower growth of entry into exporting than the 8.1% growth of entry in the zero tariff group,⇒ overall growth of -2.4%.

Robustness: Triple Dif – exporting to EU rel. to non-EU

Control for product-level demand and/or cost shocks

In the UK, there was no change in expectations about trade policy for non-EU countries in June 2016:

$$\Delta E\tau_h^{non-EU} = 0$$

Brexit-induced supply shocks in UK could affect entry, but would affect EU and non-EU markets equally: $S_{ht}^{EU} = S_{ht}^{non-EU}$.

$$\begin{aligned}\Delta Y_{ht}^{EU} - \Delta Y_{ht}^{non-EU} = b_0 + b_1(\Delta E\tau_h^{EU} - \Delta E\tau_h^{non-EU}) \\ + b_s(S_{ht}^{EU} - S_{ht}^{non-EU}) + \eta_{ht}\end{aligned}$$

$$\Rightarrow \Delta Y_{ht}^{EU} - \Delta Y_{ht}^{non-EU} = b_0 + b_1 E\Delta\tau_h^{EU} + \eta_{ht}$$

TPU and growth in the EU vs non-EU markets

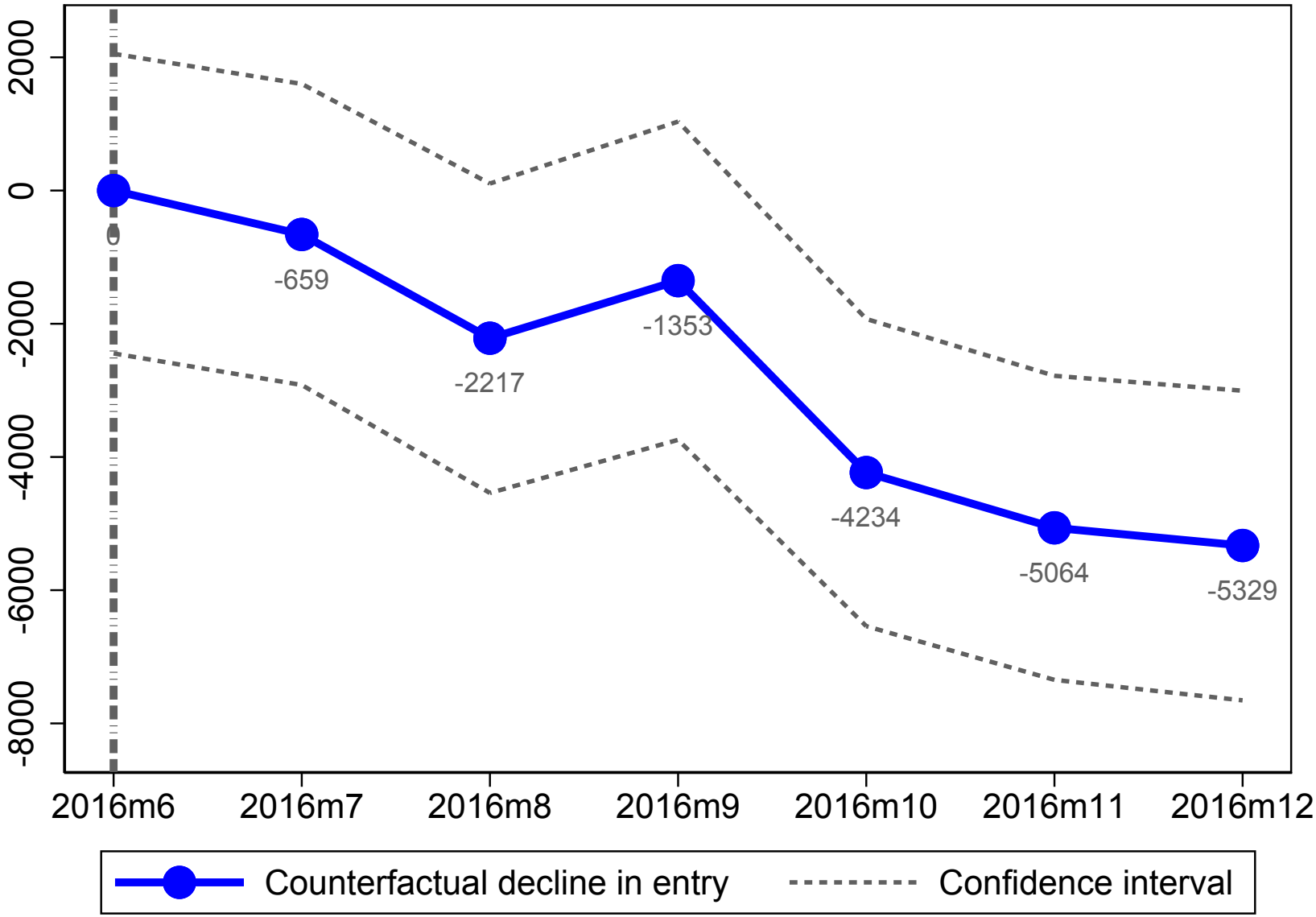
	(1) Firm-product exporters	(2) Firm-product entrants	(3) Firm-product exiters
Tariff rate	-0.00591***	-0.0128***	0.00383
	(0.00201)	(0.00323)	(0.00291)
Quota	-0.148**	-0.304***	0.105
	(0.0614)	(0.0950)	(0.0950)
Specific duty	-0.174***	-0.316***	-0.00677
	(0.0417)	(0.0679)	(0.0688)
Constant	0.0440***	0.0736***	-0.00874
	(0.0115)	(0.0190)	(0.0176)
Observations	8,341	8,027	7,445
R-squared	0.005	0.007	0.001

Notes: Std errors in parens. ***, **, and * indicate statistically diff from 0 at the 1%, 5% and 10% level. All estimates from HMRC administrative datasets.

The decline in entry to the EU relative to non-EU is larger than in the dif-in-dif $\Rightarrow$ suggests a larger uncertainty effect.

Quantifying the cost of uncertainty:

Counterfactual decline in accumulated firm-product entry from monthly model



Note:

Quantifying the cost of uncertainty:

Counterfactual estimates of firm-product entry and from annual model

Firm-product entry in 2016 would have been 5.0% if UK firms were guaranteed zero tariffs on exports to EU.

- Use regression coefficients and firm-product exporter statistics.
- Aggregating over categories finds 5,344 firm-products did not enter into the EU in 2016 relative to counterfactual.
- Using the average value of entrants (exporters) in 2015, reduced entry accounts for a £201 million (£1.5bn) loss of export value in 2016. [Aggregate exports to the EU were £140bn in 2016.]

Number of exiters would have been 6.1% lower in counterfactual with a lost trade value of £193 million (£1.4 bn).

Conclusion

We exploit the natural experiment of the leave vote of the Brexit referendum on 23rd June 2016 to estimate how trade policy uncertainty affects the extensive margin of trade.

- Firm entry into the EU significantly declined (increases) for those products facing the risk of higher tariffs in the six months after the Brexit referendum.
- Magnitudes are economically significant - aggregate entry would have been 4.5 - 5.0% higher and exit 6.1% lower in 2016 if UK firms were guaranteed zero tariffs on exports to EU.