Mind the Break-Up: When Policy Disrupts Firms' Supply Chains

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Motivation: Policy-Driven GVC Shocks

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  - Existing evidence mostly short-run $\Rightarrow$ less known **post-TCA**

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3. Show a key tension for firms exposed in **both goods and services**

Main Findings (Preview)

1. **Trade:**
   - ↓ in intermediates goods imports from the EU
   - No effects on intermediates services imports from the EU
2. **Firms and workers:**
   - ↓ firm employment and sales
   - ↓ hours worked for professional/technical occupations
   - ↓ pay for lower-skilled occupations
3. **Goods & services firms:**
   - stickier import relationships
   - but larger declines in performance

Related Literature and Contribution

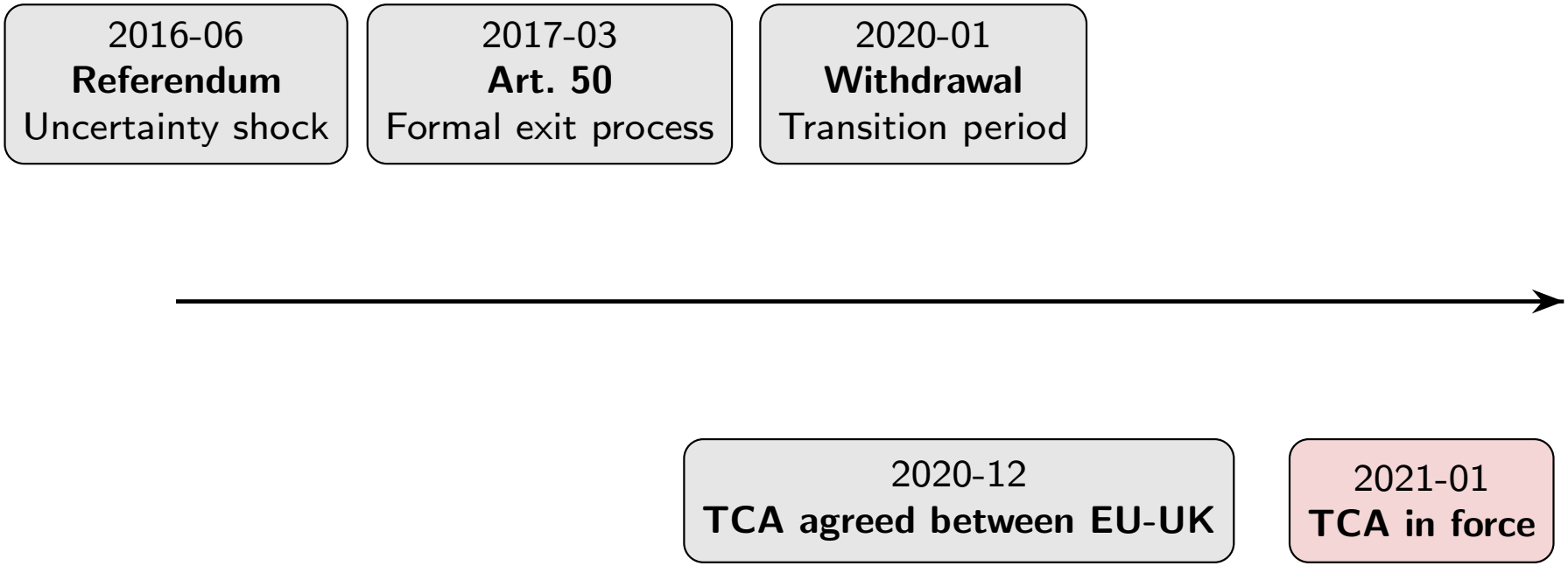
- Supply-chain disruptions: Alfaro and Chor (2023), Antras et al. (2024), 3) Boehm et al. (2019), Bonadio et al. (2021), Bown et al. (2021), Carvalho et al. (2021), Grossman et al. (2023, 2024), Handley and Limao (2022), Lafrogne-Joussier et al. (2022), Martin et al. (2023)

  ▶ Effects of policy-induced changes (NTBs) and accounting the role of services

- Economic effects of Brexit: Arnold et al. (2025), Breinlich et al. (2020), Breinlich et al. (2022), Breinlich and Magli (2024), Javorcik et al. (2022), Crowley et al. (2020), Crowley at al. (2021), Douch and Edwards (2020), Flach et al. (2025), Freeman et al. (2025), Graziano et al. (2024), Jun et al. (2024)

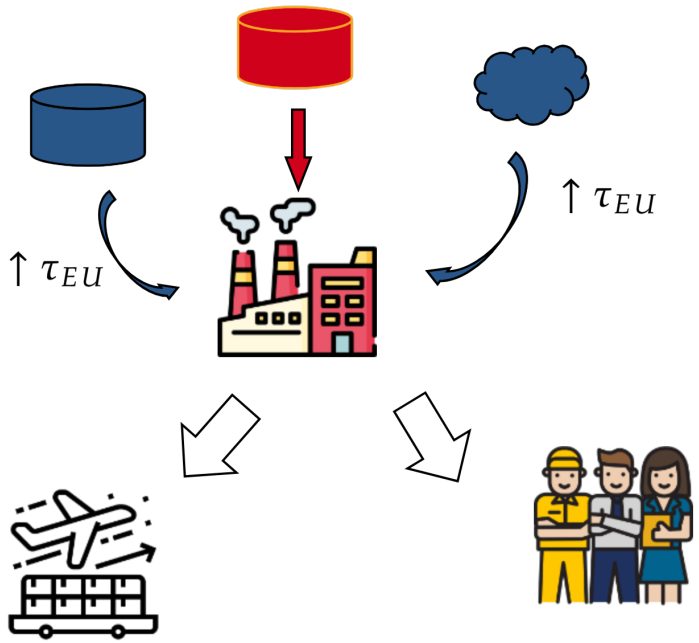
  ▶ TCA effects on UK firms' performances and workers

Brexit Timeline & Policy Implications



- TCA:
  - Ended free movement of goods, services, capital, and people
  - Zero-tariff, zero-quota trade, but **new non-tariff barriers** (rules of origin, customs checks, regulatory divergence)
  - Evidence on lower goods imports [Freeman et al. (2025)]

Mechanism



Heterogeneity / exposure: the increase in the cost of M_i depends on:

- Substitutability between domestic and foreign inputs
- Firm's exposure to the shock (proxied by pre-Brexit EU import shares)

Exposure Measures (fixed in 2014)

- **(1) I/O-weighted input exposure (goods/services separately)**

$$Exposure^{s,g}_{f,2014} = \sum_k \left(\underbrace{\frac{Imported \quad Inputs^k_j}{Inputs_j}}_{\lambda^k_j} \times \underbrace{\sum_{h \in k} \frac{Imports^{h,EU}_{f(j)}}{Imports^h_{f(j)}}}_{\omega^{k,EU}_{f(j)}} \right)$$

Intuition: sector import intensity $\times$ firm EU import share.

- **(2) EU import exposure scaled by firm size**

$$Exposure\ Share^{s,g}_{f,2014} = \frac{\sum_k Imports^k_{EU,f,2014}}{Sales_{f,2014}} .$$

Intuition: EU intermediate dependence relative to firm activity.

Exposure

f=firm; j=sector; g=goods; s=services; h=HS4 (goods), EBOPS (services); k=CPA

Data and Linking Strategy

- **Trade (2014-2022)**
  - **TiG/IDBR (HMRC):** universe of goods trade at firm level
  - **ITIS (ONS):** services trade (large-firm panel + small-firm repeated cross-section)
- **Firms and workers (2014-2022)**
  - **ABS (ONS):** sales, employment, wage bill, firm location
  - **ASHE (ONS):** 1% worker sample linked to employers (wages, hours)
- **Merge and key objects**
  - Common enterprise identifier $\Rightarrow$ link **goods & services trade** to **firm outcomes** and **worker outcomes**
  - Construct EU import exposure in **goods** and **services**
  - Match quality: $\sim$19m ITIS–TiG observations; 86% of trade value matched to ABS

Stylised Facts

$$lnM_{fct} = \beta_0 + \beta_1 Brexit_t \times EU_c + \beta_2 TCA_t \times EU_c + \beta_3 TCA_t \times EU_c \times Service_{ft} + \gamma_{ft} + \gamma_{fc} + \epsilon_{fct}$$

	(1)	(2)	(3)	(4)
$TCA \times EU$	**-0.1999*** **	-0.1992***	-0.1984***	-0.2074***
	(0.0573)	(0.0575)	(0.0576)	(0.0585)
$Brexit \times EU$	**0.0110**	0.0111	0.0111	0.0110
	(0.0314)	(0.0314)	(0.0314)	(0.0314)
$TCA \times EU \times Service_f$		0.0719*		
		(0.0293)		
$TCA \times EU \times Service_{EU}$			0.0593*	
			(0.0284)	
$TCA \times EU \times Goods_{EU}$				0.1916
				(0.1347)
$Firm \times Year$	Y	Y	Y	Y
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N	2,395,851	2,395,851	2,395,851	2,395,851

Source: Own Computation. Standard errors in parenthesis are clustered at the country level.
$^{+}$ $(p < 0.1)$ * $(p < 0.05)$, ** $(p < 0.01)$, *** $(p < 0.001)$

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- Effects are mitigated if a firm is Importing services

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Services Size

Effects of Brexit and TCA on Firms' Performance

$$\ln(y_{ft}) = \beta_0 + \beta_4\left(Treat_{Pf} \times Brexit_t\right) + \beta_5\left(Treat_{Pf} \times TCA_t\right) + \gamma_f + \gamma_{jt} + \gamma_{rt} + \varepsilon_{ft}$$

f firm; t year; j sector; r region.

- y_{ft}: employment, average wage, sales
- **Treatment:** $Treat_{Pf} = \mathbf{1}\{Exposure^P_{f,2014} > 0\}$; P=Goods, Services, Both
- **Coefficients of interest:**
  - β_4: effect of the referendum on treated firms ($Brexit_t = \mathbf{1}\{t > 2015\}$)
  - β_5: additional effect of the TCA implementation ($TCA_t = \mathbf{1}\{t > 2020\}$)
- **Identifying assumptions:**
  - Control group not exposed (treatment fixed pre-period; robustness: 2015)
  - No differential 2021 shocks (absorbed by γ_{jt} and γ_{rt})
  - Account for pre-trends by controlling for the referendum period ($Brexit_t$)

Summary

Results - Firms' Performance

	Ln Employment		Ln Average Wage		Ln Sales	
	(1)	(2)	(3)	(4)	(5)	(6)
Brexit × sh_tr_G	-0.0720***	-0.0649***	0.0071	0.0048	-0.0937***	-0.0873***
	(0.0088)	(0.0085)	(0.0100)	(0.0100)	(0.0135)	(0.0134)
TCA × sh_tr_G	-0.0508***	-0.0452***	-0.0276*	-0.0319*	-0.0822***	-0.0759***
	(0.0071)	(0.0070)	(0.0127)	(0.0133)	(0.0128)	(0.0129)
Brexit × sh_tr_{both}		-0.0448**		0.0139		-0.0414
		(0.0167)		(0.0166)		(0.0258)
TCA × sh_tr_{both}		-0.0394*		0.0304		-0.0438+
		(0.0178)		(0.0226)		(0.0255)
Firm	Y	Y	Y	Y	Y	Y
Region × *Year*	Y	Y	Y	Y	Y	Y
Sector × *Year*	Y	Y	Y	Y	Y	Y
N	239,666	239,661	235,131	235,126	239,435	239,430

Source: Own Computation. Standard errors in parenthesis are clustered at the firm level.
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- Negative impact of Brexit Referendum and TCA

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- Firms exposed in **both goods and services** experience larger **real performance losses**

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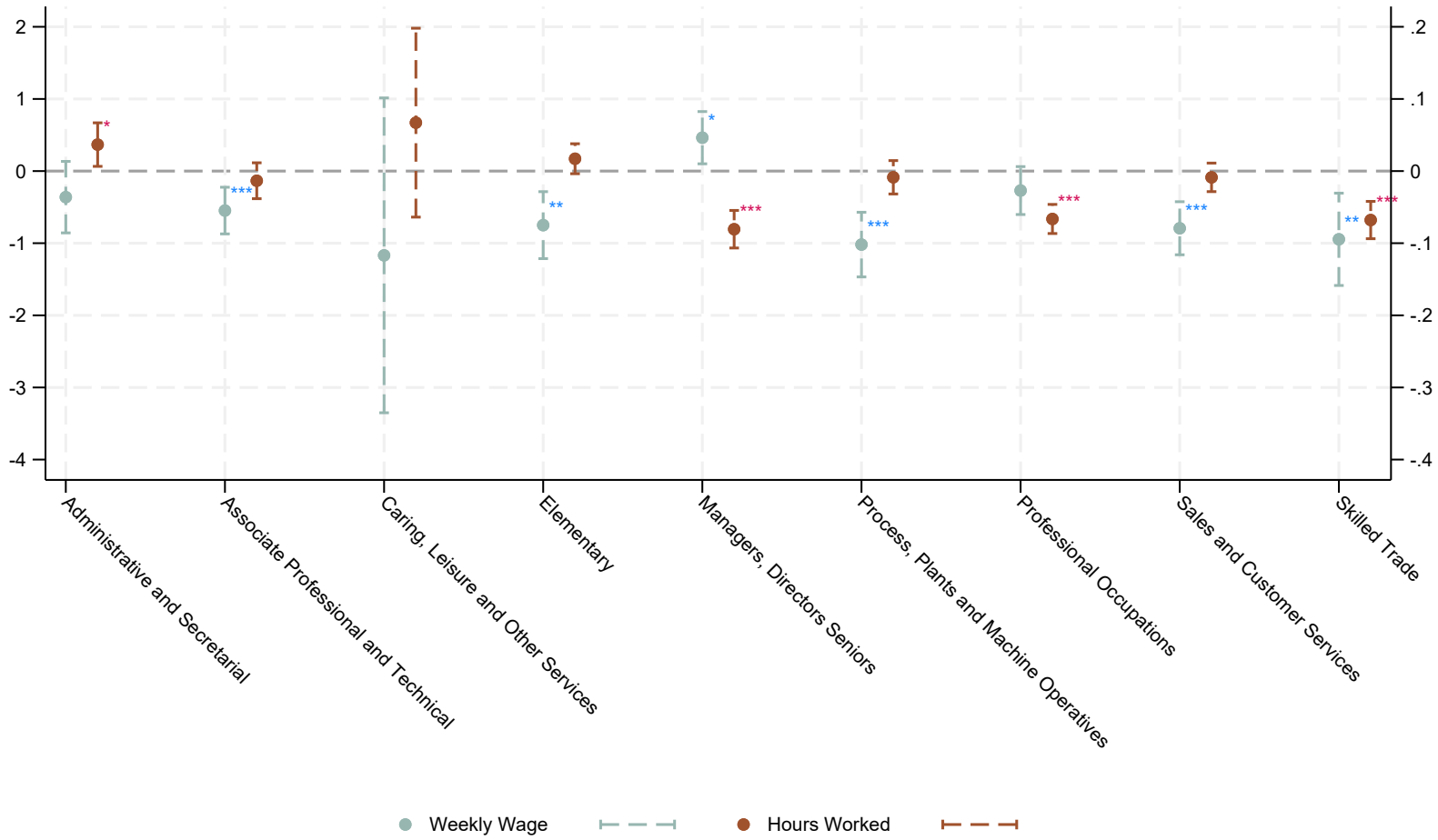
IO All Heterogeneity Region

Effects of TCA on Workers

$$y_{it} = \gamma_0 + \gamma_1(Treat_{Pf} \times Brexit_t) + \gamma_2(Treat_{Pf} \times \text{TCA}_t) + \Gamma\Lambda_{it} + \delta_f + \delta_i + \delta_t + \eta_{it}$$

- y_{it}: log weekly gross pay; total weekly hours initemize
- i=worker; f=firm; j=sector; P=goods (G), services (S), goods & services (GS); t=time
- $Treat_{Pf}$: $Exposure^{P}_{f,2014} > 0$, $Brexit : t > 2015$, $TCA : t > 2020$
- Λ_{it} includes time-varying worker characteristics:
  - age, occupation (proxy for education)
  - tenure in the same firm and its square
  - dummies for being in the same firm as in 2016 and as in 2020

Occupation Level - Goods and Services Exposure



Source: Own Computation. Regression coefficients. Errors clustered at the worker level.

Overall Demographic Goods

Conclusion

Takeaway

Policy-driven GVC shocks (TCA) reduce EU input sourcing and generate sizable **real effects** on firms and workers

- **Firms:** Performance declines after the referendum and further after the TCA:
  - ↓ employment and sales
  - strongest losses for firms exposed in **both goods and services**
- **Workers:** Effects are heterogeneous across occupations:
  - ↓ hours for professional/technical occupations
  - ↓ pay for lower-skilled occupations
- **Policy implications:**
  - Services links can preserve trade relationships, but do not necessarily prevent **real adjustment costs**

Thank you!

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elsa.leromain@uantwerpen.be

Exposure Summary Statistics, 2014

	(1)	(2)	(3)	(4) No 0s	(5) No 0s
λ_j^k	0.0024				
	(0.0157)				
$\omega_{f(j)}^{k,EU}$ Goods	0.03405				
	(0.1377)				
$\omega_{f(j)}^{k,EU}$ Services	0.0085				
	(0.0766)				
Firm exposure Goods (I/O)		0.0014		0.0102	
		(0.0112)		(0.0286)	
Firm exposure Services (I/O)		0.0002			0.0035
		(0.0031)			(0.0147)
Firm exposure Goods (Share)			0.0175	0.1557	
			(0.0811)	(0.1926)	
Firm exposure Services (Share)			0.0007		0.0397
			(0.0119)		(0.0792)
Firm exposure Goods and Services (Share)			0.0181		
			(0.0828)		

Source: Own Computation. The reference year is 2014.

Summary Statistics Trade

	(1) TiG-ITIS	(2) ABS-TiG-ITIS
Goods Exports from the EU (%)	0.1424	0.3077
	(0.3123)	(0.3891)
Goods Imports from the EU (%)	0.0948	0.2462
	(0.2706)	(0.3792)
Services Imports from the EU (%)	0.0254	0.1005
	(0.1418)	(0.2667)
Services Exports from the EU (%)	0.0274	0.0892
	(0.1441)	(0.2468)
Manufacturing Firms (%)	0.0350	0.0192
	(0.0732)	(0.0261)
Wholesale and Retails Firms (%)	0.0771	0.0078
	(0.1248)	(0.0151)
Services Firms (%)	0.1002	0.2532
	(0.1474)	(0.3948)
Observation	1,267,977	125,459

Source: TiG, ITIS and ABS (ONS).

Summary Statistics Workers

Panel A: Worker and Firm Characteristics		
	Mean	SD
Employment (Enterprise)	12,275.7	(33,649.6)
Gross Weekly Pay (£)	633.335	(536.053)
Total Hours Worked	39.1478	(6.92947)
Worker Age	41.0004	(12.3749)
Female Workers (%)	0.17708	(0.20779)
Workers in Manufacturing (%)	0.01384	(0.03793)
Workers in Wholesale and Retail (%)	0.00535	(0.01908)
Workers in Services (%)	0.44648	(0.31468)
Panel B: Occupational Composition		
Managers, Directors and Seniors (%)	0.01073	(0.03164)
Professional Occupations (%)	0.04048	(0.08103)
Associate Professional and Technical (%)	0.02245	(0.05352)
Administrative and Secretarial (%)	0.01713	(0.04416)
Skilled Trade (%)	0.00664	(0.02230)
Caring, Leisure and Other Services (%)	0.00574	(0.02009)
Sales and Customer Services (%)	0.00481	(0.01765)
Process, Plant and Machine Operatives (%)	0.00621	(0.02124)
Elementary Occupations (%)	0.01215	(0.03466)
Observations	989,196	
Unweighted Number of Workers	325,810	

Source: ABS and ASHE(ONS).

Summary Statistics Treated-Control

	(1) Exposed (Goods)	(2) Non Exposed (Goods)	(3) Exposed (Services)	(4) Non Exposed (Services)
Panel A: Exposure using I/O table				
Employment	855.034	200.78	1258.222	245.8911
	(5566.118)	(1420.752)	(7796.894)	(1915.583)
Wage Bill	31334.92	6799.228	57996.94	8142.837
	(136411)	(46885.57)	(199148.8)	(54678.8)
Sales	245658.4	39138.44	427134.7	51743.02
	(1351008)	(644138.6)	(2424996)	(645272.6)
N	50,767	393,560	13010	431,317
Panel B: Exposure using share of EU imports on total sales				
Employment	828.6495	187.58	1044.824	240.4199
	(5142.521)	(1401.277)	(6482.046)	(1915.787)
Wage Bill	31999.13	6041.254	48867.64	7810.417
	(129281.3)	(45181.08)	(170475.1)	(54062.63)
Sales	244259.8	33869.86	367997.3	48801.59
	(1588303)	(515208.8)	(2482674)	(566650.7)
N	60,960	383,367	19,395	424,932

Source: Own Computation.

Results - Firms' Performance, I/O Exposure

	Ln Employment		Ln Average Wage		Ln Sales	
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: I/O exposure measure						
Brexit × tr_G	-0.0691***	-0.0619***	0.0107	0.0077	-0.0853***	-0.0781***
	(0.0087)	(0.0083)	(0.0097)	(0.0103)	(0.0145)	(0.0141)
TCA × tr_G	-0.0485***	-0.0430***	-0.0262*	-0.0313*	-0.0737***	-0.0647***
	(0.0069)	(0.0066)	(0.0126)	(0.0129)	(0.0138)	(0.0137)
Brexit × tr_{both}		-0.0500**		0.0204		-0.0487
		(0.0182)		(0.0202)		(0.0315)
TCA × tr_{both}		-0.0440**		0.0415+		-0.0726*
		(0.0169)		(0.0241)		(0.0285)
Firm	Y	Y	Y	Y	Y	Y
Region × *Year*	Y	Y	Y	Y	Y	Y
Sector × *Year*	Y	Y	Y	Y	Y	Y
N	250,382	250,382	245,710	245,710	249,977	249977

Source: Own Computation. Standard errors in parenthesis are clustered at the firm level.

$^{+}$ $(p < 0.1)$ * $(p < 0.05)$, ** $(p < 0.01)$, *** $(p < 0.001)$

Stylised Facts - Services Imported Inputs

	(1)	(2)
$TCA \times EU$	0.0014	
	(0.0249)	
$Brexit \times EU$	0.0156	
	(0.0292)	
$Goods\ Imports, Log$		0.0283^{**}
		(0.0098)
$TCA \times EU = 1 \times Goods\ Imports, Log$		-0.0135
		(0.0110)
$Firm \times Year$	Y	Y
$Firm \times Country$	Y	Y
$Country \times Year$		Y
N	382,160	36,382

Source: Own Computation. Standard errors in parenthesis are clustered at the country level.
$^{+}$ $(p < 0.1)$ * $(p < 0.05)$, ** $(p < 0.01)$, *** $(p < 0.001)$

Stylised Facts - Large Firms

	(1)	(2)
$TCA \times EU$	-0.2019***	-0.1992***
	(0.0580)	(0.0585)
$Brexit \times EU$	0.0110	0.0111
	(0.0314)	(0.0314)
$TCA \times EU \times Large\ (Employment)$	0.0656	
	(0.0890)	
$TCA \times EU \times Large\ (Turnover)$		-0.0200
		(0.0839)
$Firm \times Year$	Y	Y
$Firm \times Country$	Y	Y
N	2,395,851	2,395,851

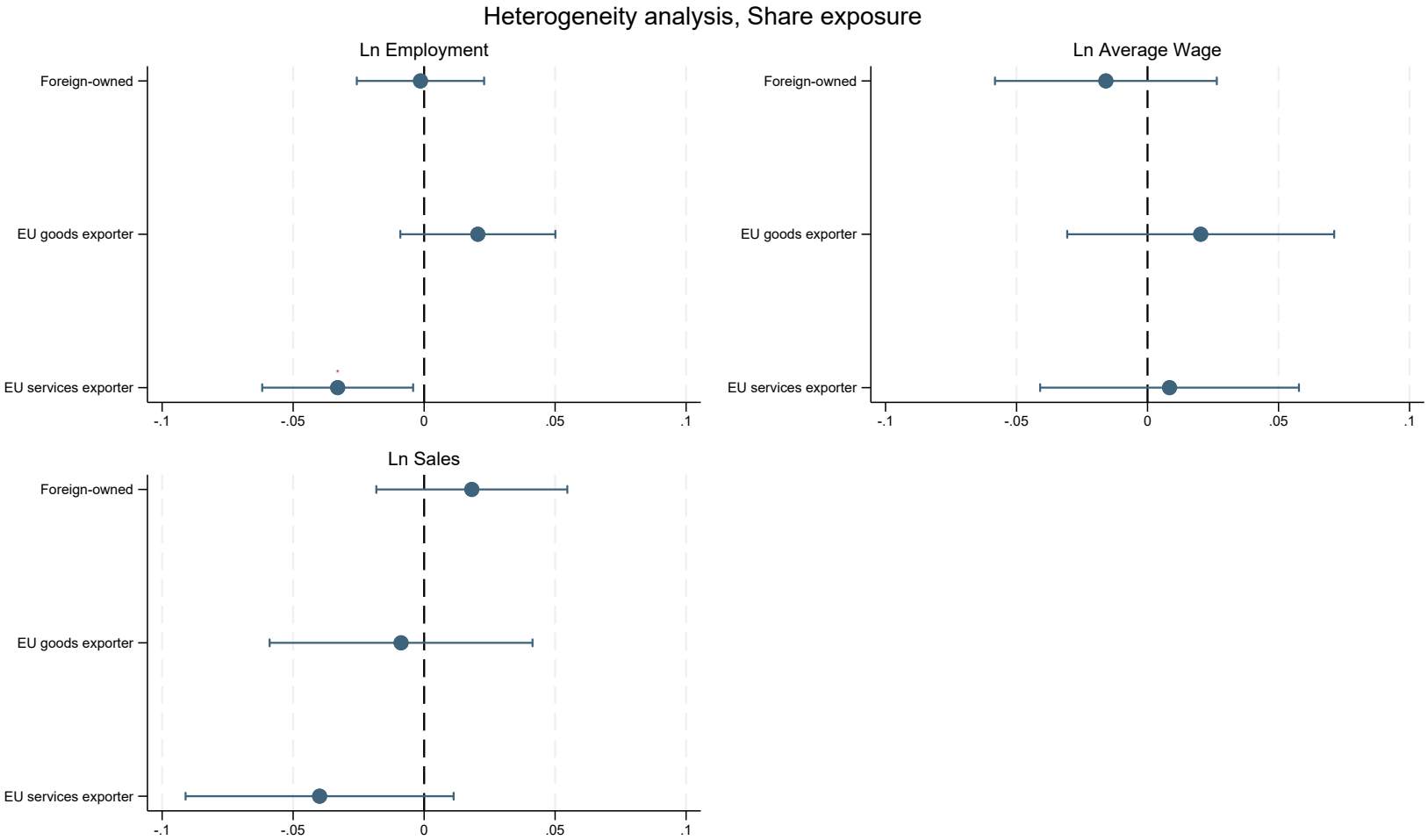
Source: Own Computation. Standard errors in parenthesis are clustered at the country level.
$^{+}$ $(p < 0.1)$ * $(p < 0.05)$, ** $(p < 0.01)$, *** $(p < 0.001)$

Correlation Matrix

	Goods&Services Importer	*Large Firm (Employment)*	*Large Firm (Sales)*
Goods&Services Importer	1.0		
Large Firm (Employment)	0.0055	1.0	
Large Firm (Sales)	-0.0091	0.4413	1.0

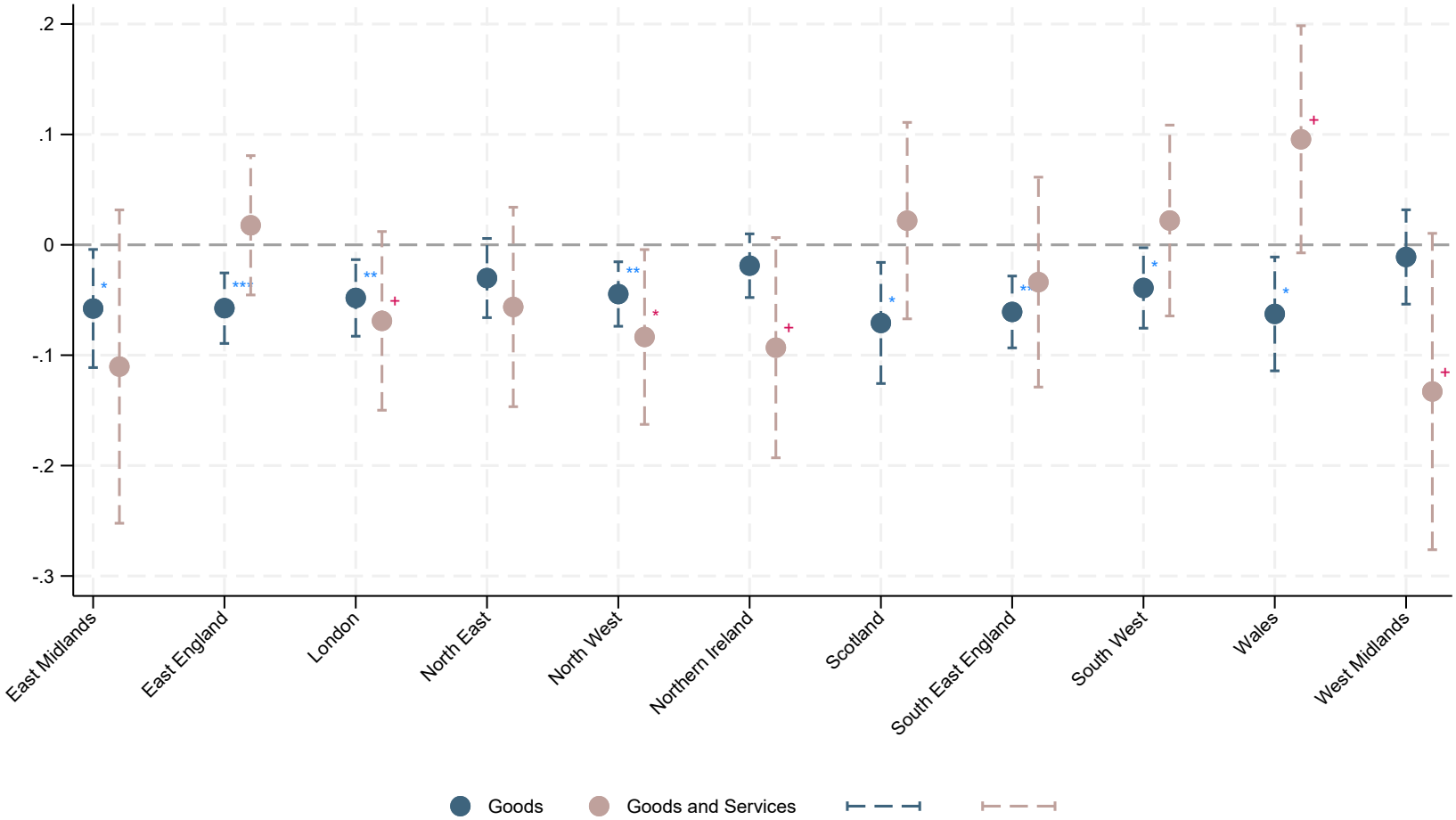
Source: Own Computation.

Results - Firms' Performance, Heterogeneity



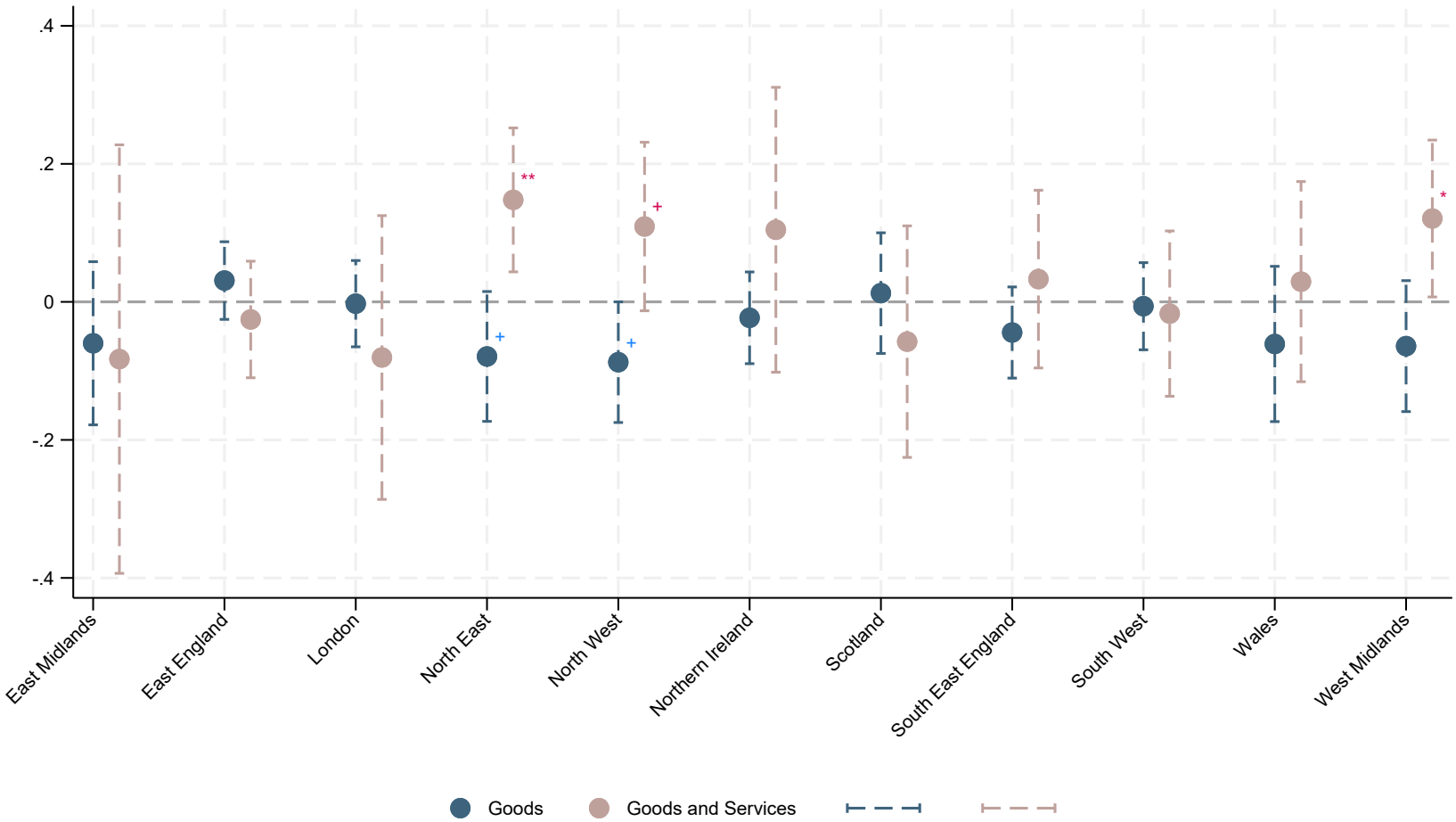
Source: Own Computation.

Results - Firms' Employment, Regional Impact



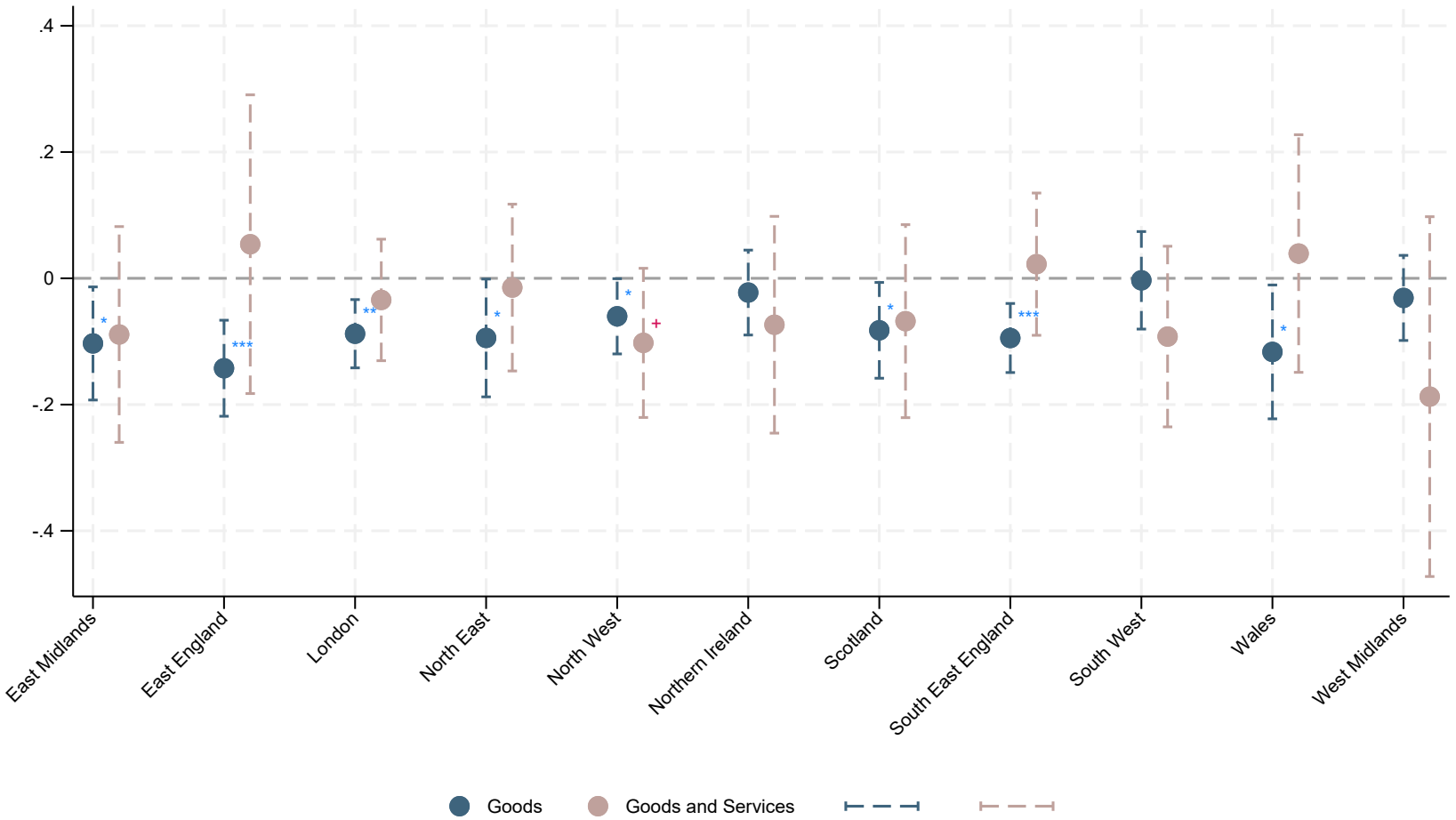
Source: Own Computation.

Results - Firms' Average Wage, Regional Impact



Source: Own Computation.

Results - Firms' Sales, Regional Impact



Source: Own Computation.

Effects of TCA on Firm Employment

	(1)	(2)	(3)	(4)	(5)	(6)
$Brexit \times tr_G$	-0.0691***	-0.0679***			-0.0619***	-0.0611***
	(0.0087)	(0.0086)			(0.0083)	(0.0083)
$TCA \times tr_G$	-0.0485***	-0.0518***			-0.0430***	-0.0467***
	(0.0069)	(0.0069)			(0.0066)	(0.0066)
$Brexit \times tr_{both}$			-0.0849***	-0.0816***	-0.0500**	-0.0471**
			(0.0188)	(0.0187)	(0.0182)	(0.0181)
$TCA \times tr_{both}$			-0.0731***	-0.0729***	-0.0440**	-0.0412*
			(0.0173)	(0.0172)	(0.0169)	(0.0168)
$Exporter_{EU,G} = 1$		0.0646***		0.0632***		0.0645***
		(0.0067)		(0.0068)		(0.0068)
$Exporter_{EU,S} = 1$		0.0370***		0.0331***		0.0350***
		(0.0082)		(0.0082)		(0.0081)
Firm	Y	Y	Y	Y	Y	Y
Region × *Year*	Y	Y	Y	Y	Y	Y
Sector × *Year*	Y	Y	Y	Y	Y	Y
N	250,382	250,382	250,382	250,382	250,382	250,382

Source: Own Computation. Standard errors are clustered at the industry level.

$^{+}$ $(p < 0.1)$ * $(p < 0.05)$, ** $(p < 0.01)$, *** $(p < 0.001)$

Effects of TCA on Firm Wage Bill

	(1)	(2)	(3)	(4)	(5)
			log(Wage bill)		
Brexit × Treat_G	-0.0558***		-0.0524***	-0.0538***	
	(0.0105)		(0.0107)	(0.0110)	
TCA × Treat_G	-0.0717***		-0.0684***	-0.0720***	
	(0.0136)		(0.0135)	(0.0138)	
Brexit × Treat_S		-0.0484**	-0.0361+		
		(0.0186)	(0.0191)		
TCA × Treat_S		-0.0542**	-0.0365+		
		(0.0206)	(0.0205)		
Brexit × Treat_both				-0.0140	-0.0425*
				(0.0221)	(0.0174)
TCA × Treat_both				0.0023	-0.0458*
				(0.0268)	(0.0230)
Firm FE	Y	Y	Y	Y	Y
Sector × Year FE	Y	Y	Y	Y	Y
Local Area × Year FE	Y	Y	Y	Y	Y
N	223,644	223,644	223,644	223,644	223,644
Adj. R^2	1	1	1	1	1

Source: Own Computation. Standard errors are clustered at the industry level.

$^{+}$ $(p < 0.1)$ * $(p < 0.05)$, ** $(p < 0.01)$, *** $(p < 0.001)$

Effects of TCA on Firm Average Wage

	(1)	(2)	(3)	(4)	(5)	(6)
$Brexit \times tr_G$	0.0107	0.0105			0.0077	0.0074
	(0.0097)	(0.0098)			(0.0103)	(0.0103)
$TCA \times tr_G$	-0.0262*	-0.0258*			-0.0313*	-0.0310*
	(0.0126)	(0.0126)			(0.0129)	(0.0129)
$Brexit \times tr_{both}$			0.0256	0.0261	0.0204	0.0210
			(0.0192)	(0.0193)	(0.0202)	(0.0204)
$TCA \times tr_{both}$			0.0205	0.0214	0.0415^{+}	0.0421^{+}
			(0.0239)	(0.0238)	(0.0241)	(0.0240)
$Exporter_{EU,G} = 1$		-0.0064		-0.0074		-0.0063
		(0.0092)		(0.0092)		(0.0091)
$Exporter_{EU,S} = 1$		0.0072		0.0085		0.0086
		(0.0109)		(0.0109)		(0.0109)
Firm	Y	Y	Y	Y	Y	Y
Region $\times$ *Year*	Y	Y	Y	Y	Y	Y
Sector $\times$ *Year*	Y	Y	Y	Y	Y	Y
N	245,710	245,710	245,710	245,710	245,710	245,710

Source: Own Computation. Standard errors are clustered at the industry level.

$^{+}$ $(p < 0.1)$ * $(p < 0.05)$, ** $(p < 0.01)$, *** $(p < 0.001)$

Effects of TCA on Firm Sales

	(1)	(2)	(3)	(4)	(5)	(6)
$Brexit \times tr_G$	-0.0853***	-0.0841***			-0.0781***	-0.0774***
	(0.0145)	(0.0144)			(0.0141)	(0.0140)
$TCA \times tr_G$	-0.0737***	-0.0773***			-0.0647***	-0.0687***
	(0.0138)	(0.0138)			(0.0137)	(0.0138)
$Brexit \times tr_{both}$			-0.0927**	-0.0887**	-0.0487	-0.0451
			(0.0321)	(0.0320)	(0.0315)	(0.0315)
$TCA \times tr_{both}$			-0.1164***	-0.1157***	-0.0726*	-0.0691*
			(0.0290)	(0.0289)	(0.0285)	(0.0285)
$Exporter_{EU,G} = 1$		0.0703***		0.0682***		0.0702***
		(0.0112)		(0.0111)		(0.0112)
$Exporter_{EU,S} = 1$		0.0472***		0.0423**		0.0447***
		(0.0129)		(0.0130)		(0.0130)
Firm	Y	Y	Y	Y	Y	Y
Region $\times$ *Year*	Y	Y	Y	Y	Y	Y
Sector $\times$ *Year*	Y	Y	Y	Y	Y	Y
N	249,977	249,977	249,977	249,977	249,977	249,977

Source: Own Computation. Standard errors are clustered at the industry level.

$^{+}$ $(p < 0.1)$ * $(p < 0.05)$, ** $(p < 0.01)$, *** $(p < 0.001)$

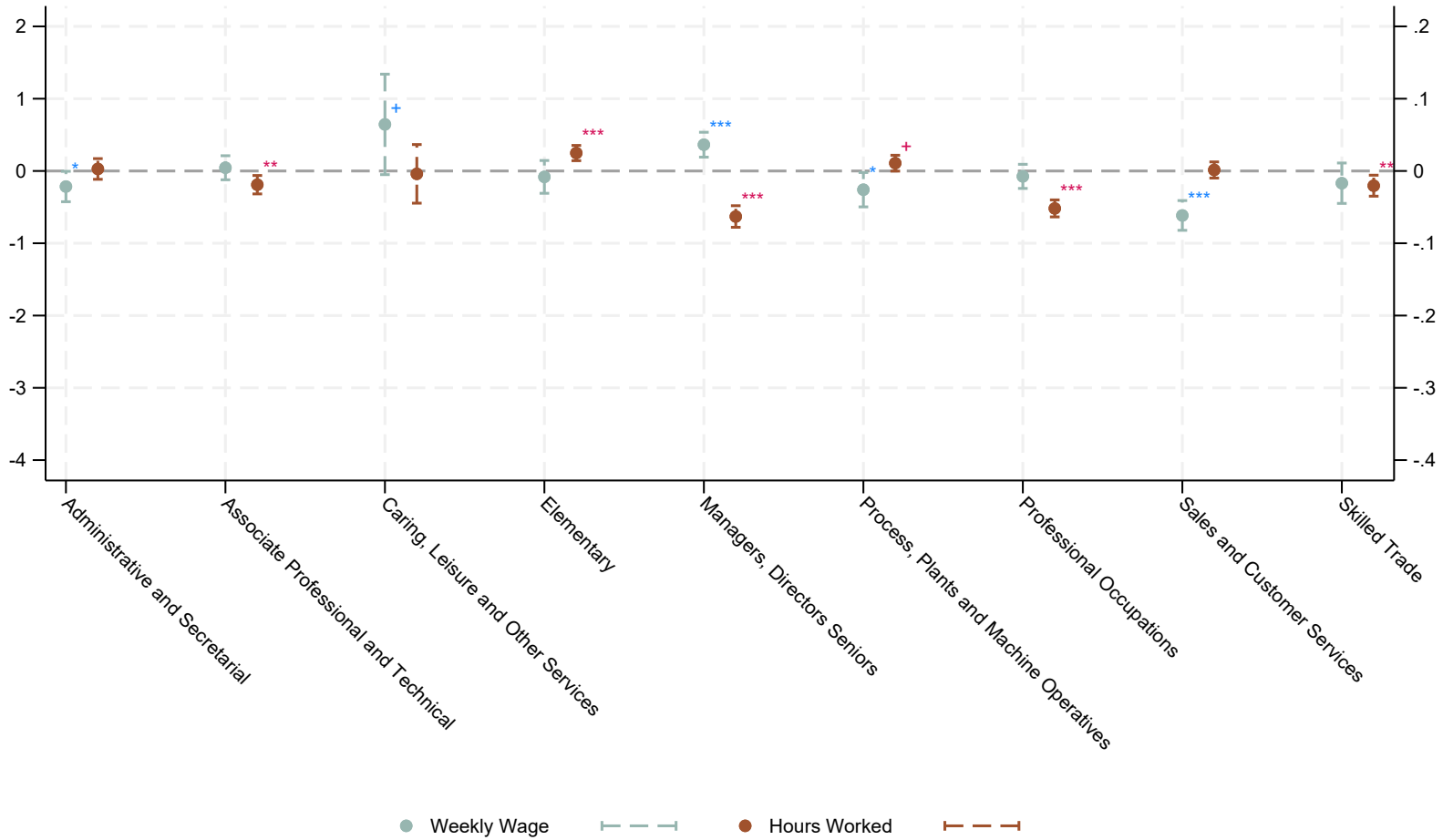
Effects of TCA on Workers

	(1)	(2)	(3)	(4)	(5)	(6)
	Total hours worked			Weekly gross wage, log		
Brexit x tr_G	-0.0432	-0.2264***		0.0077***	0.0080***	
	(0.0353)	(0.0374)		(0.0019)	(0.0021)	
TCA x tr_G	-0.1241**	-0.0036		-0.0147***	-0.0111***	
	(0.0467)	(0.0495)		(0.0027)	(0.0030)	
Brexit x tr_both		0.7883***			-0.0018	
		(0.1064)			(0.0040)	
TCA x tr_both		-0.5082***			-0.0161**	
		(0.1242)			(0.0058)	
Brexit x tr_S			0.3907***			0.0015
			(0.0685)			(0.0031)
TCA x tr_S			-0.3550***			-0.0254***
			(0.0821)			(0.0045)
Worker age	-0.0083***	-0.0083***	-0.0083***	0.0041***	0.0041***	0.0041***
	(0.0009)	(0.0009)	(0.0009)	(0.0000)	(0.0000)	(0.0000)
Years in the same firm	0.0066*	0.0066*	0.0067*	0.0150***	0.0150***	0.0150***
	(0.0031)	(0.0031)	(0.0031)	(0.0002)	(0.0002)	(0.0002)
Years in the same firm, square	-0.0002**	-0.0002**	-0.0002**	-0.0003***	-0.0003***	-0.0003***
	(0.0001)	(0.0001)	(0.0001)	(0.0000)	(0.0000)	(0.0000)
Same firm as in 2016	0.0960	0.0730	0.0750	0.0722+	0.0727+	0.0729+
	(0.5662)	(0.5663)	(0.5661)	(0.0389)	(0.0389)	(0.0389)
Same firm as in 2021	-0.1576	-0.1674	-0.1729	-0.0040	-0.0046	-0.0058
	(0.6452)	(0.6469)	(0.6466)	(0.0386)	(0.0385)	(0.0384)
Individual FE	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y
Enterprise FE	Y	Y	Y	Y	Y	Y
Occupation FE	Y	Y	Y	Y	Y	Y
N	1,012,104	1,012,104	1,012,104	1,011,809	1,011,809	1,011,809

Source: Own Computation. Standard errors are clustered at the worker level.

$^{+}$ $(p < 0.1)$ * $(p < 0.05)$, ** $(p < 0.01)$, *** $(p < 0.001)$

Occupation Level - Goods Exposure



Source: Own Computation.

Demographic

	(1)	(2)	(3)	(4)
	Goods		Goods & Services	
Panel A: Total hours worked				
TCA × *sh_treat*#*Male*	-0.0897^{+}		-0.5008***	
	(0.0537)		(0.1190)	
TCA × *sh_treat*#*Female*	-1.0248***		-1.3060***	
	(0.0650)		(0.1340)	
TCA × *sh_treat*#*Old*		-0.0720		-0.4040***
		(0.0532)		(0.1148)
TCA × *sh_treat*#*Young*		-0.2920***		-0.7298***
		(0.0706)		(0.1469)
N	962,991	962,991	962,991	962,991
Panel B: Weekly gross wage, log				
TCA × *sh_treat*#*Male*	-0.0153***		-0.0325***	
	(0.0030)		(0.0055)	
TCA × *sh_treat*#*Female*	-0.1214***		-0.1286***	
	(0.0042)		(0.0086)	
TCA × *sh_treat*#*Old*		-0.0224***		-0.0294***
		(0.0031)		(0.0057)
TCA × *sh_treat*#*Young*		-0.0850***		-0.1134***
		(0.0042)		(0.0078)
N	962,704	962,704	962,704	962,704
Individual FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Enterprise FE	Y	Y	Y	Y
Occupation FE	Y	Y	Y	Y
Worker controls	Y	Y	Y	Y

Source: Own Computation. Standard errors are clustered at the worker level.

$^{+}$ $(p < 0.1)$ * $(p < 0.05)$, ** $(p < 0.01)$, *** $(p < 0.001)$