Productivity, markups, market power and business dynamism

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Office for National Statistics

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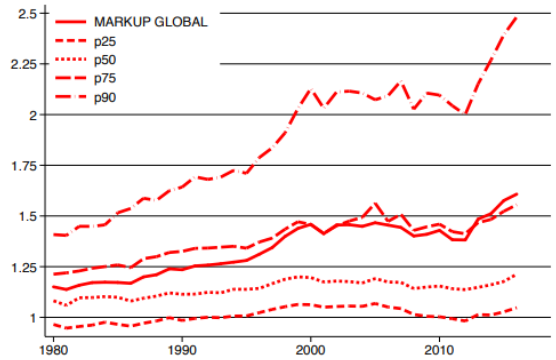
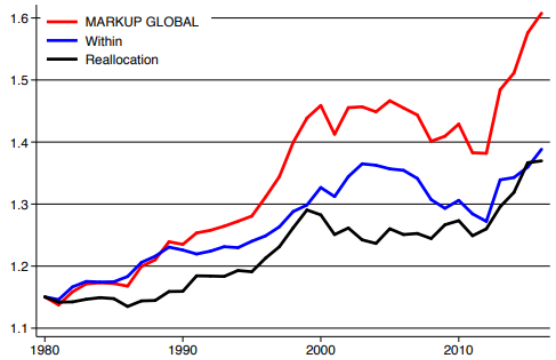
Concern about firms having more market power



(a) Revenue weighted distribution: Percentiles

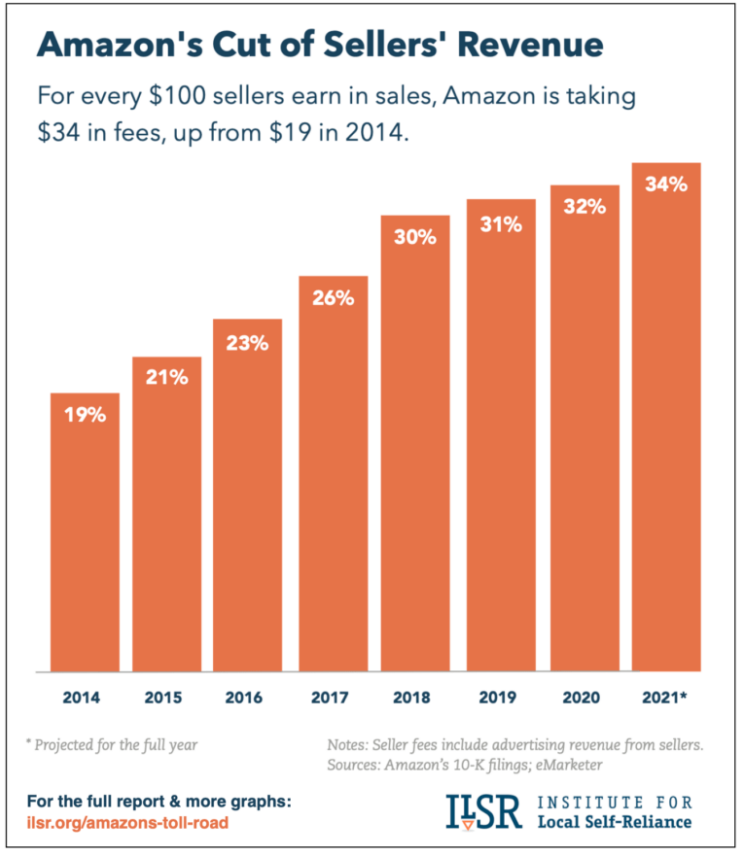


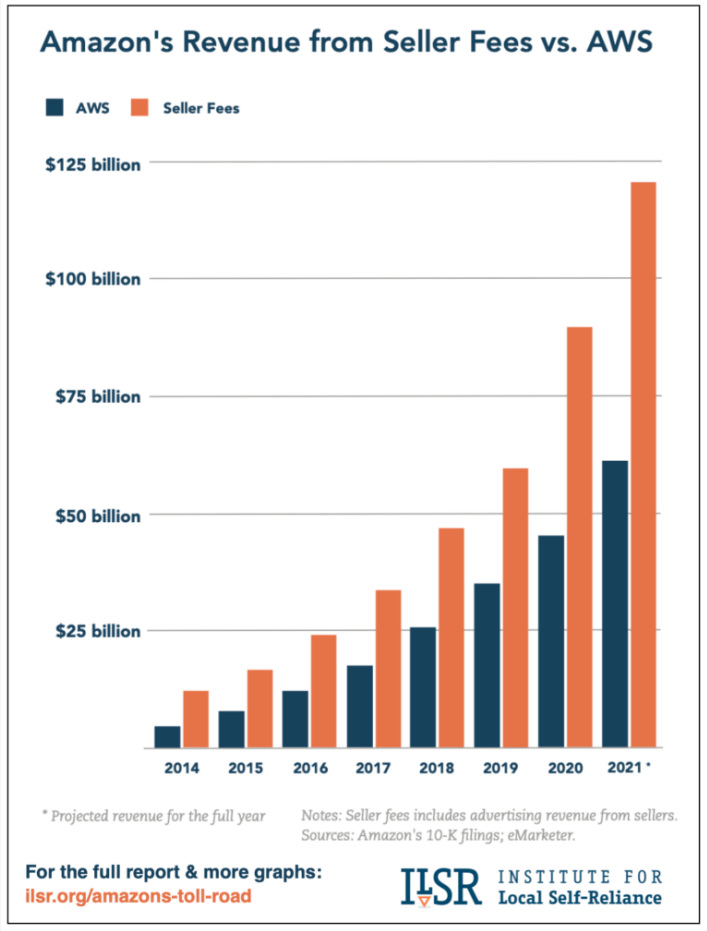
(b) Decomposition of markups

Figure 4: The Change of the Revenue Weighted Distribution of Markups

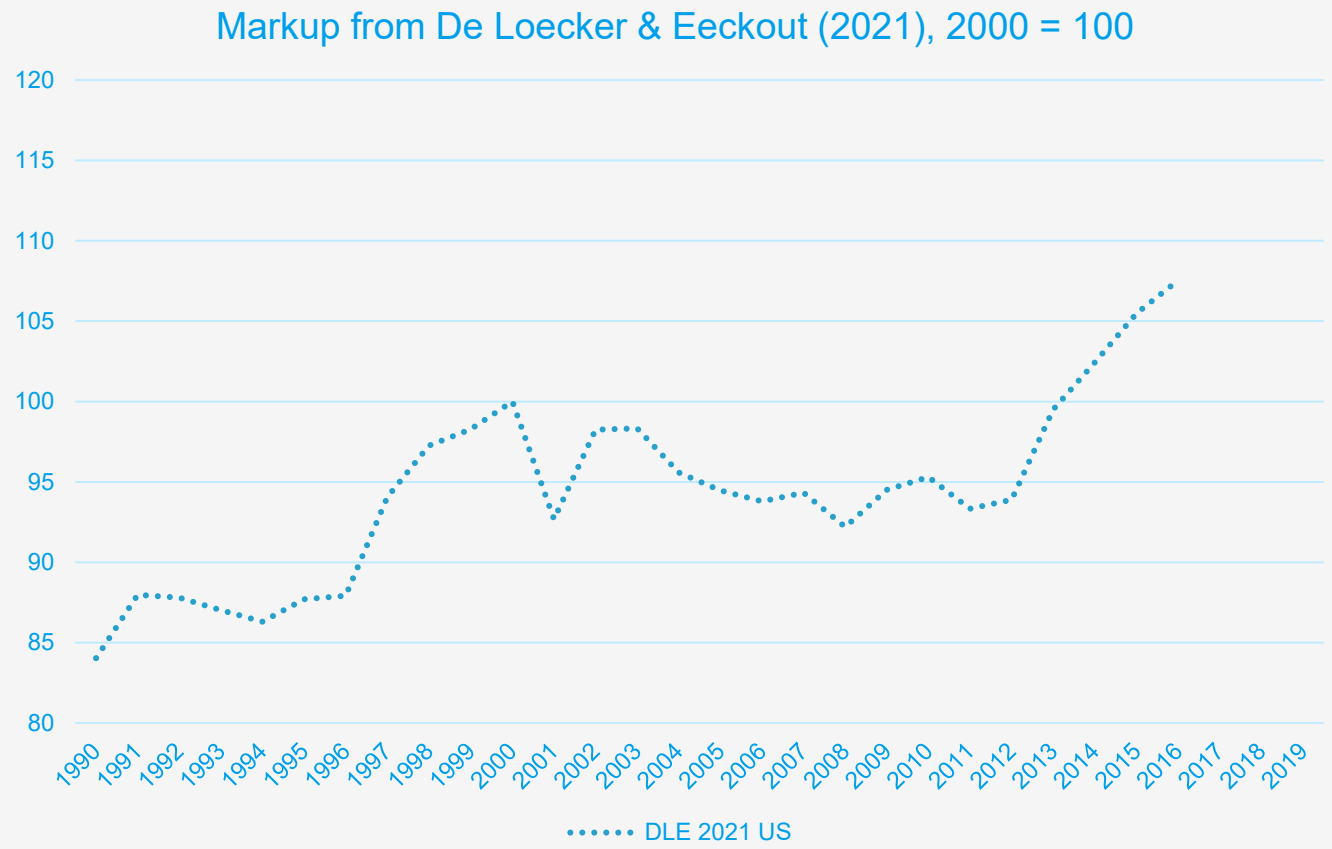
- De Loecker & Eeckout (2021) – business markups increasing globally, based on data on listed companies
- Coinciding with decrease in labour share

Concern about firms having more market power





To what extent is this true for the UK economy?



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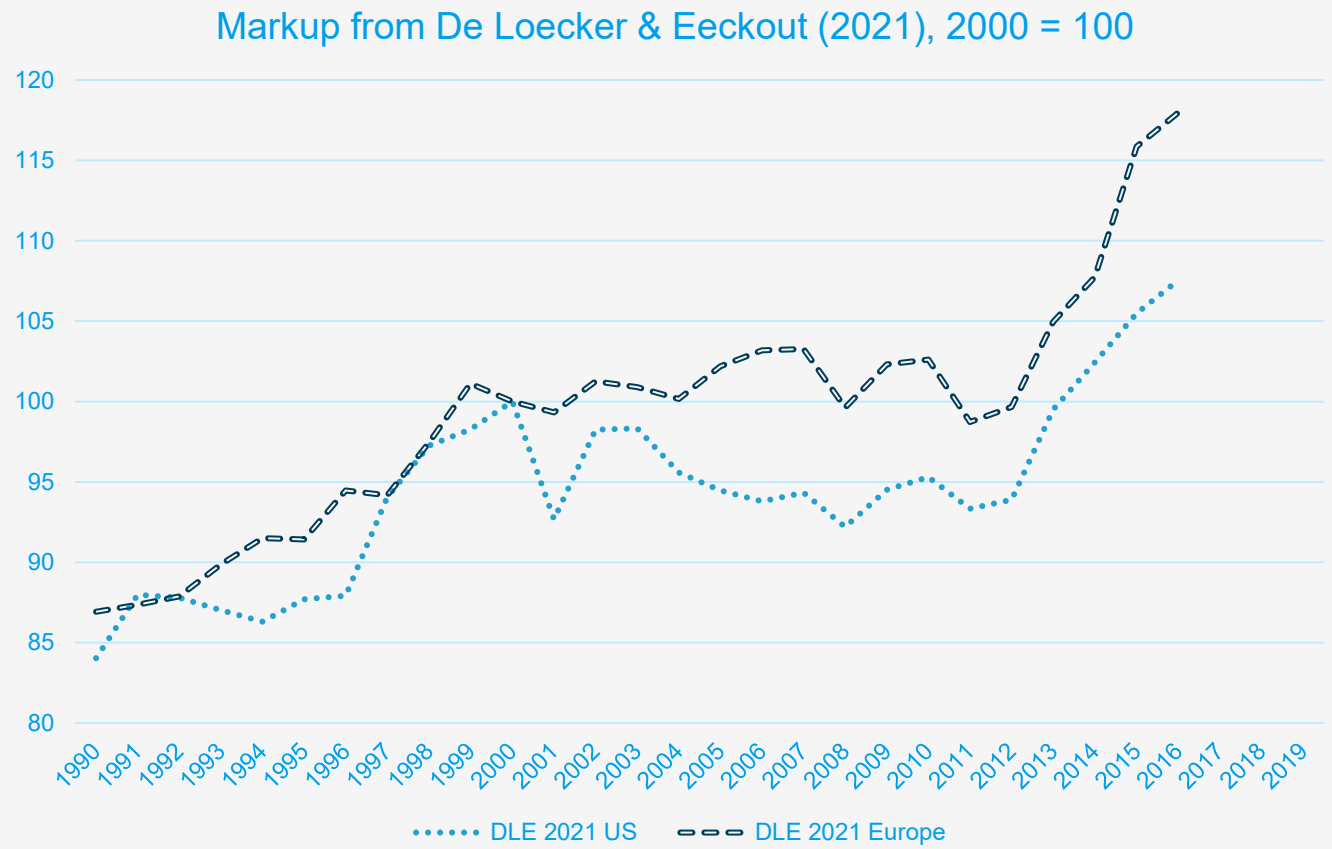

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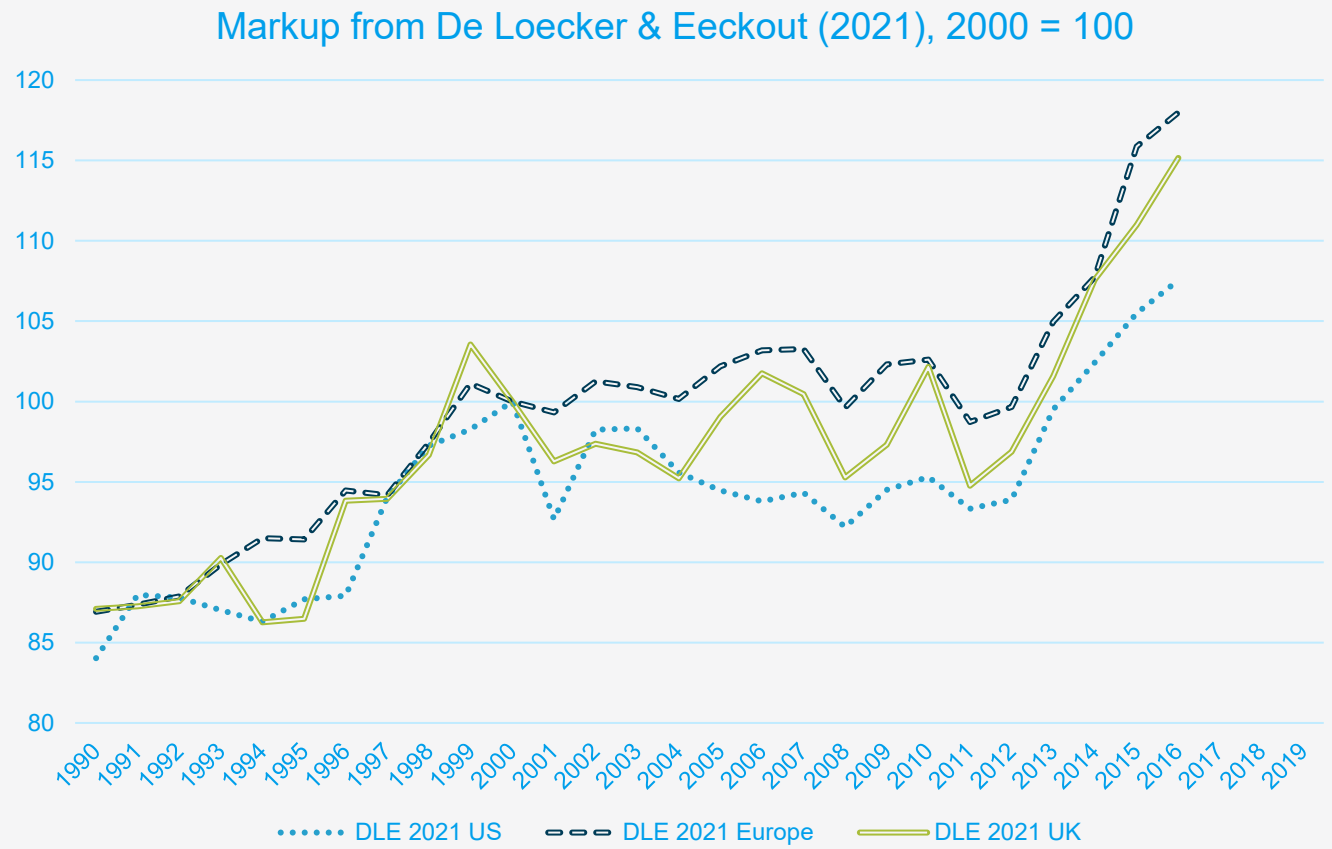

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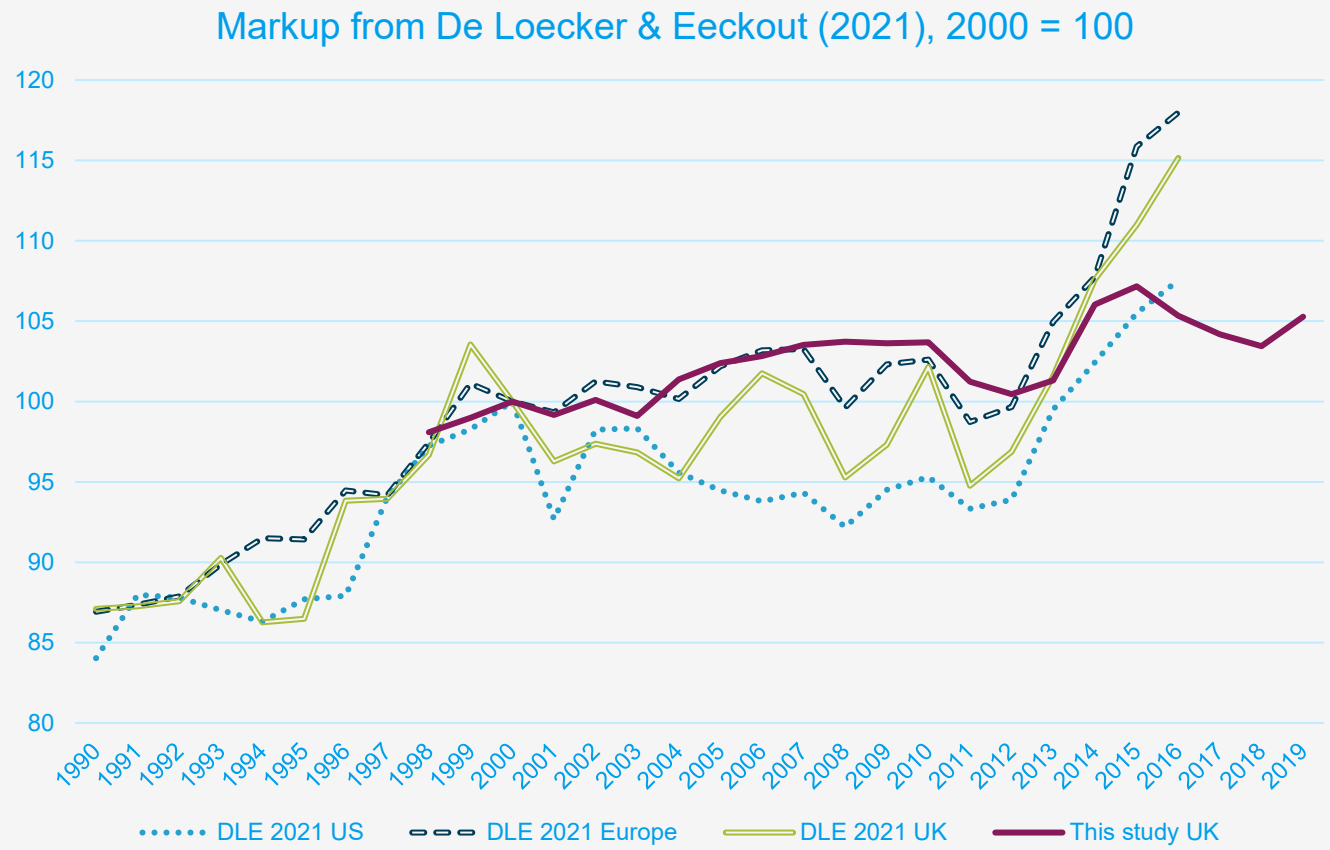


Data

Dataset: Annual Business Survey

- ONS's Structural Business Survey to be representative of the business economy and inform the National Accounts. Annual Business Inquiry (1998-2008) + ABS (2009-2018)
- c.50,000 businesses per year
  - Effectively two surveys: Census of large businesses (employing approximately 10m workers), and stratified survey of smaller businesses

Coverage

- Non-farm, non-finance taxpaying business economy (SIC07)
  - Excludes farms within section A (agriculture, forestry & fishing)
  - Excludes all of section K (finance & insurance)
  - Excludes all of section O (public admin & defence)
  - Excludes government components of P (education) and Q (health), but includes non-profits (e.g. includes universities)
  - Great Britain (excludes NI)

Production function estimation

- Firm-level PIM for all firms at all points in time.
  - Investment, either observed, or imputed based on average investment/worker from industry/size cell, or firm's history, or combination, depending on how many observations we have for the firm
- We estimate production functions at level of availability of deflators from national accounts (mostly 2-digit, with some 3-digit groups):
  - Gross output production function (Cobb-Douglas)
    - ln(GO) = a0 + a1 * ln(K) + a2 * ln(L) + a3 * ln(M)
  - Gross output production function (translog)
    - ln(GO) = a0 + a1 * ln(K) + a2 * ln(L) + a3 * ln(M) + a4 * ln(K)^2 + a5 * ln(L)^2 + a6 * ln(M)^2 + a7 * ln(K) * ln(L) + a8 * ln(K) * ln(M) + a9 * ln(L) * ln(M)
  - Value-added equivalents

Stylised facts about business dynamism

- We have experienced falling business dynamism
- Job destruction and creation are lower in the 2010s than the 2000s

Table 2: Quarterly job creation and destruction rates by intensive and extensive margins

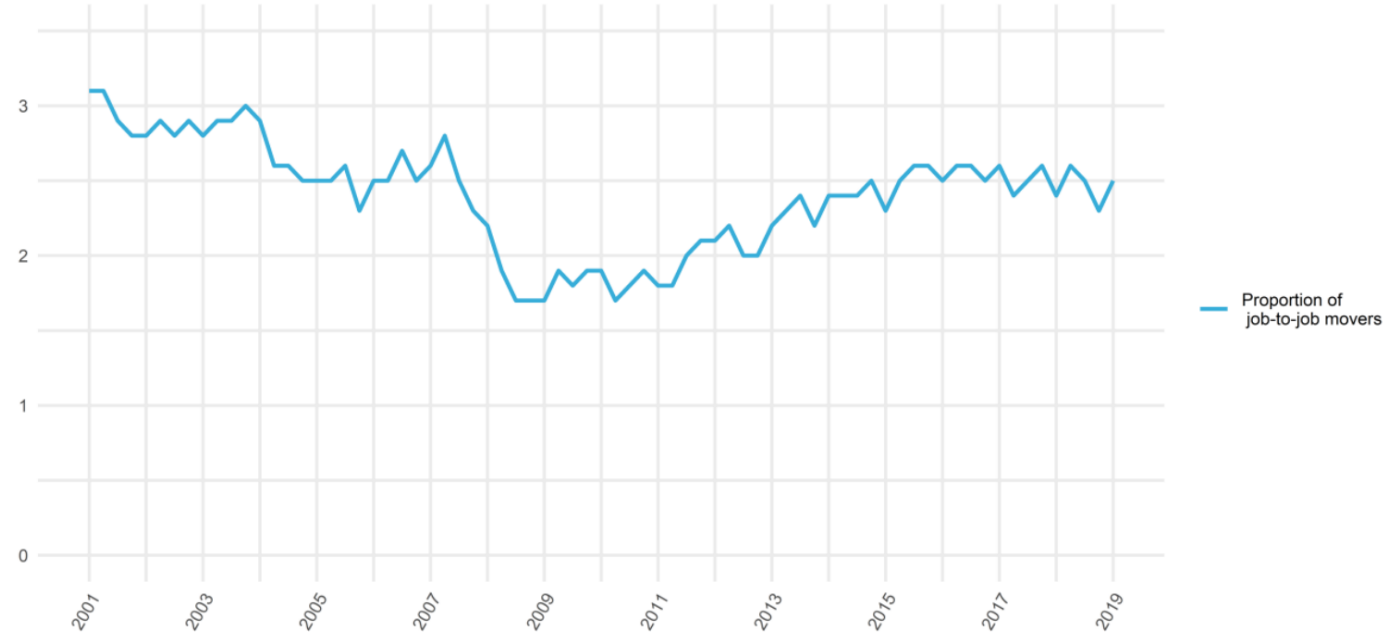
	1999-2007	2011-2019	Change
Job Creation	**5.12%**	**4.82%**	**-0.31%**
Entry	1.31%	1.12%	-0.20%
Continuers, growing	3.81%	3.70%	-0.11%
Job Destruction	**4.71%**	**4.37%**	**-0.34%**
Exit	1.36%	0.74%	-0.62%
Continuers, shrinking	3.35%	3.63%	0.27%
Net Effect	**0.41%**	**0.45%**	**0.04%**

Source: Office for National Statistics – Inter-Departmental Business Register (IDBR)

Stylised facts about business dynamism

- Job movement rate was slower in the 2010s than pre-recession

Figure 8: Job-to-job movers as percentage of total workers in Labour Force Survey

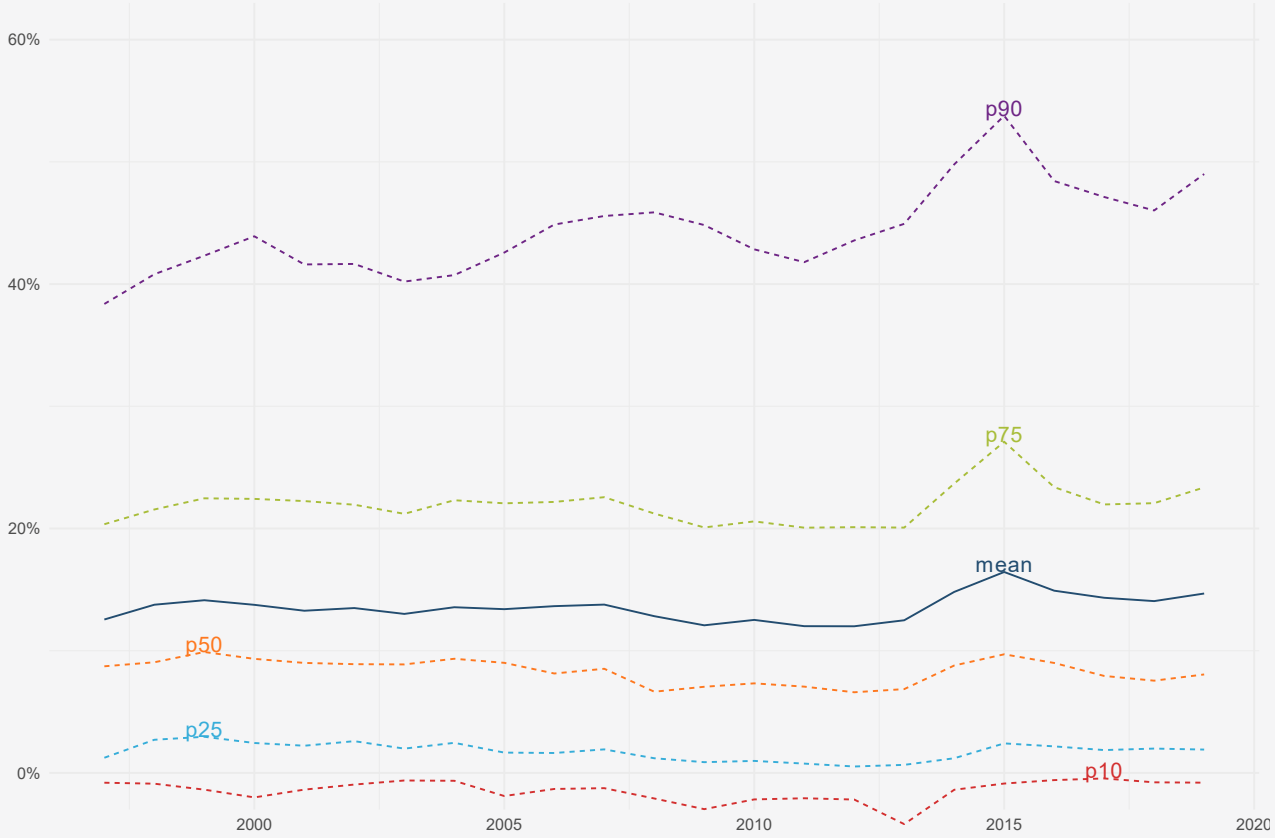


Source: Office for National Statistics – Labour Force Survey (LFS)

Results – profits and markups

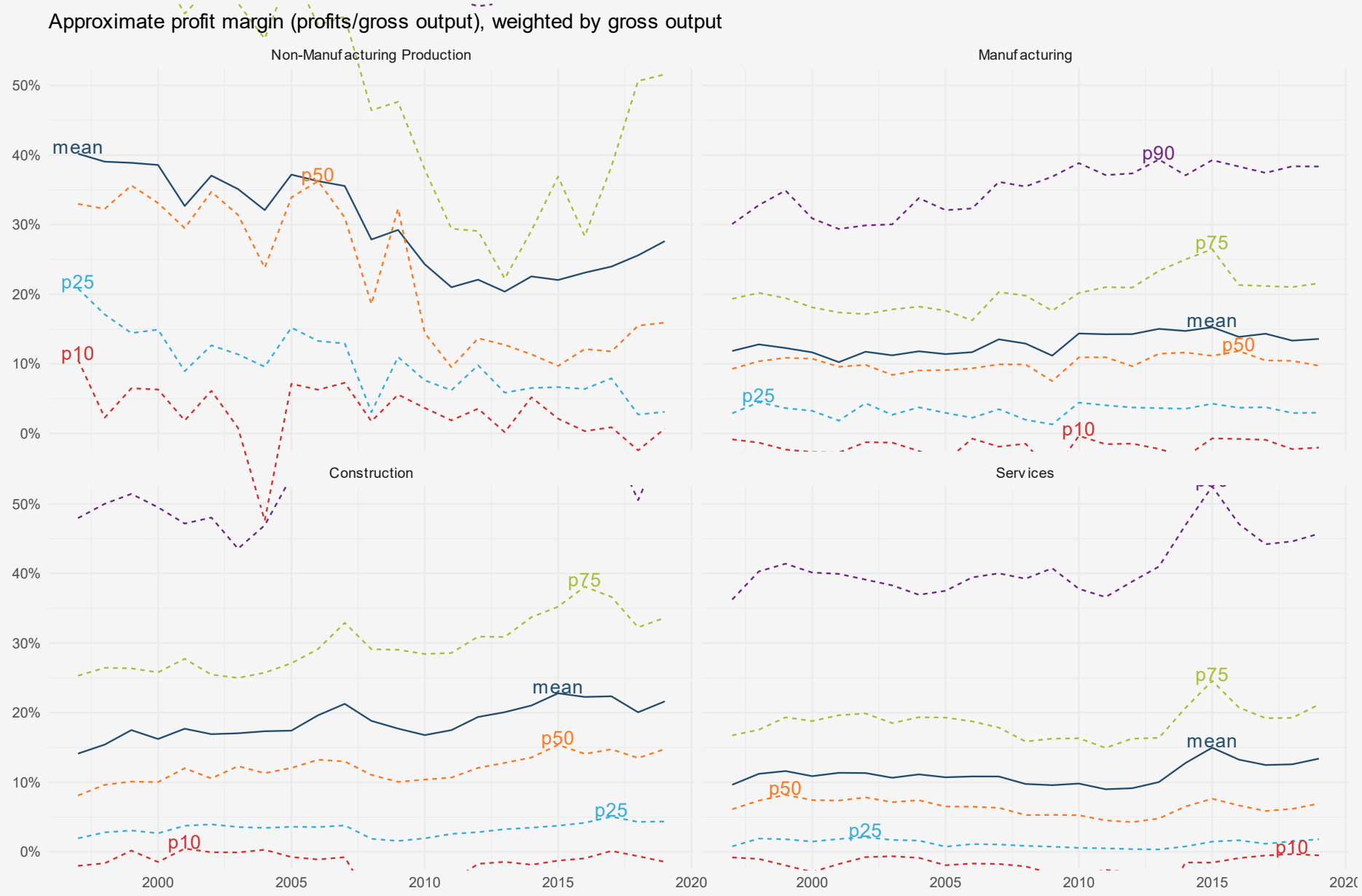
Profit margins

Approximate profit margin (profits/gross output), weighted by gross output



Mean						
Level			Average annual growth rate			
1998	2018		1998-2007	2008-2010	2011-2019	*1998-2019*
13.6%	14.4%		0.0%	-2.9%	2.0%	*0.9%*
Median						
Level			Average annual growth rate			
1998	2018		1998-2007	2008-2010	2011-2019	*1998-2019*
9.2%	7.8%		-0.6%	-4.0%	1.6%	*0.1%*

Profit margins



Profit margins

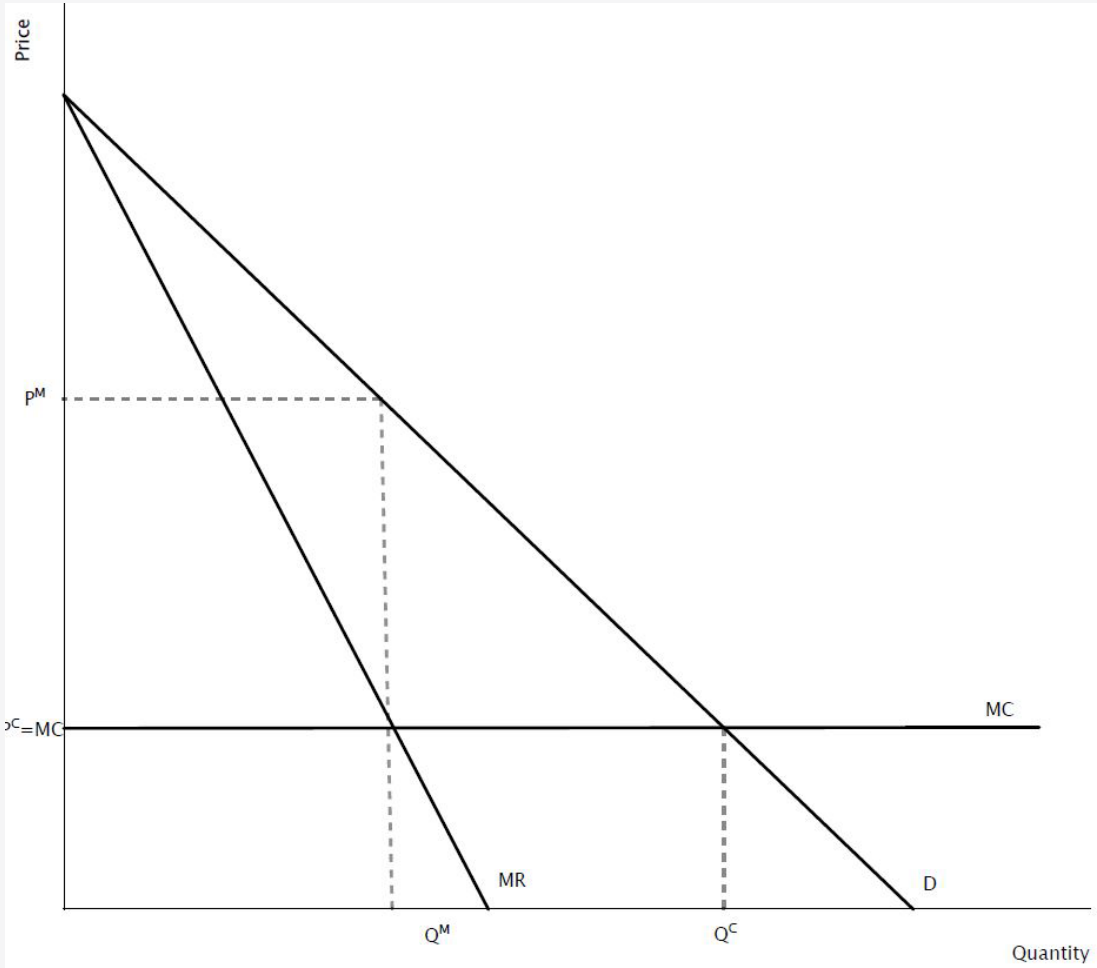
	Mean						
	Level			Average growth rate			
	1997-1999	2017-2019		1998-2007	2008-2010	2011-2019	*1998-2019*
All	13.9%	14.7%		0.0%	-2.9%	2.0%	*0.9%*
Non-manufacturing production	33.8%	27.7%		0.3%	-6.1%	-0.2%	*-1.4%*
Manufacturing	13.5%	13.6%		0.5%	2.9%	-0.7%	*0.4%*
Construction	16.1%	21.6%		3.1%	-7.1%	3.0%	*2.0%*
Non-financial services	12.6%	13.5%		-0.9%	-3.1%	3.4%	*1.5%*
	Median						
	Level			Average growth rate			
	1997-1999	2017-2019		1998-2007	2008-2010	2011-2019	*1998-2019*
All	9.1%	8.0%		-0.6%	-4.0%	1.6%	*0.1%*
Non-manufacturing production	25.9%	15.9%		0.7%	-6.7%	-0.1%	*-1.7%*
Manufacturing	12.0%	9.7%		-1.0%	3.4%	-1.0%	*-0.2%*
Construction	9.4%	14.8%		3.6%	-5.3%	4.3%	*3.3%*
Non-financial services	7.9%	6.9%		-1.7%	-3.8%	2.8%	*0.8%*

De Loecker & Warczynski (2012)

- For a cost-minimising firm,

$$\underbrace{\frac{\partial F}{\partial X^V}\frac{X^V}{Q}}_{\text{Output elasticity}} = \mu \cdot \underbrace{\frac{P^V X^V}{PQ}}_{\text{Inverse revenue share}}$$

- $\mu = \frac{P}{MC} > 1$ if firm has market power
- Firms with market power face downward-sloping demand curve, restrict production to increase price
- Wedge between output elasticity and revenue share therefore useful measure of market power



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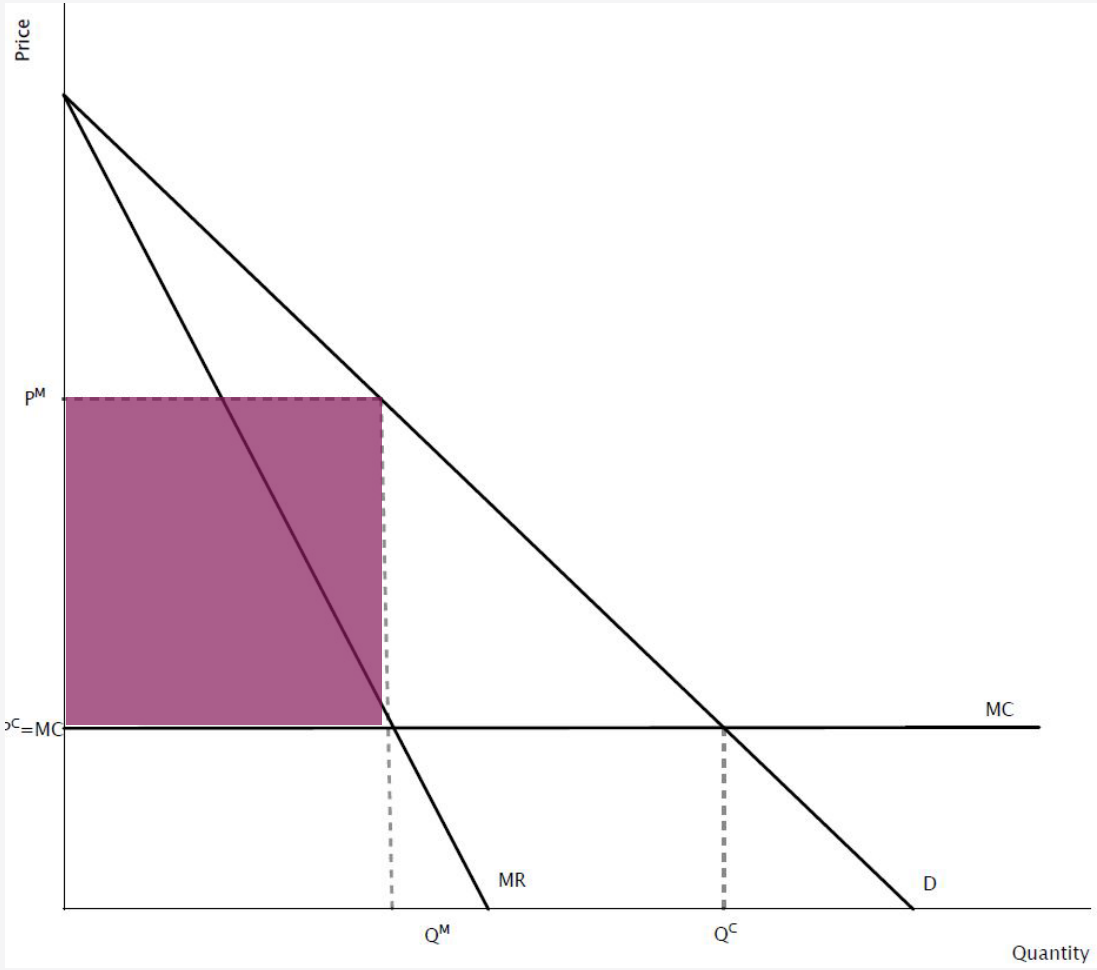
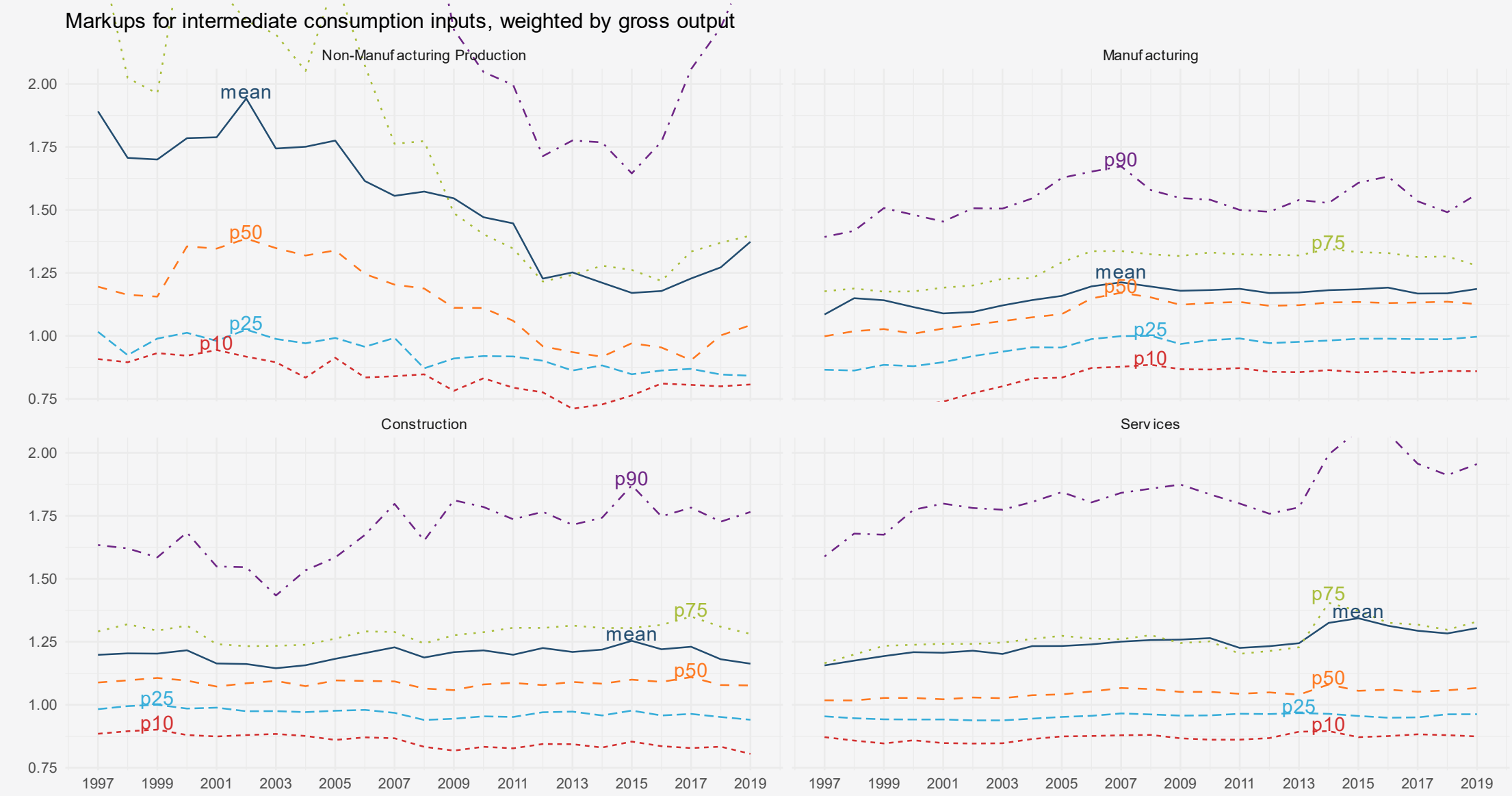


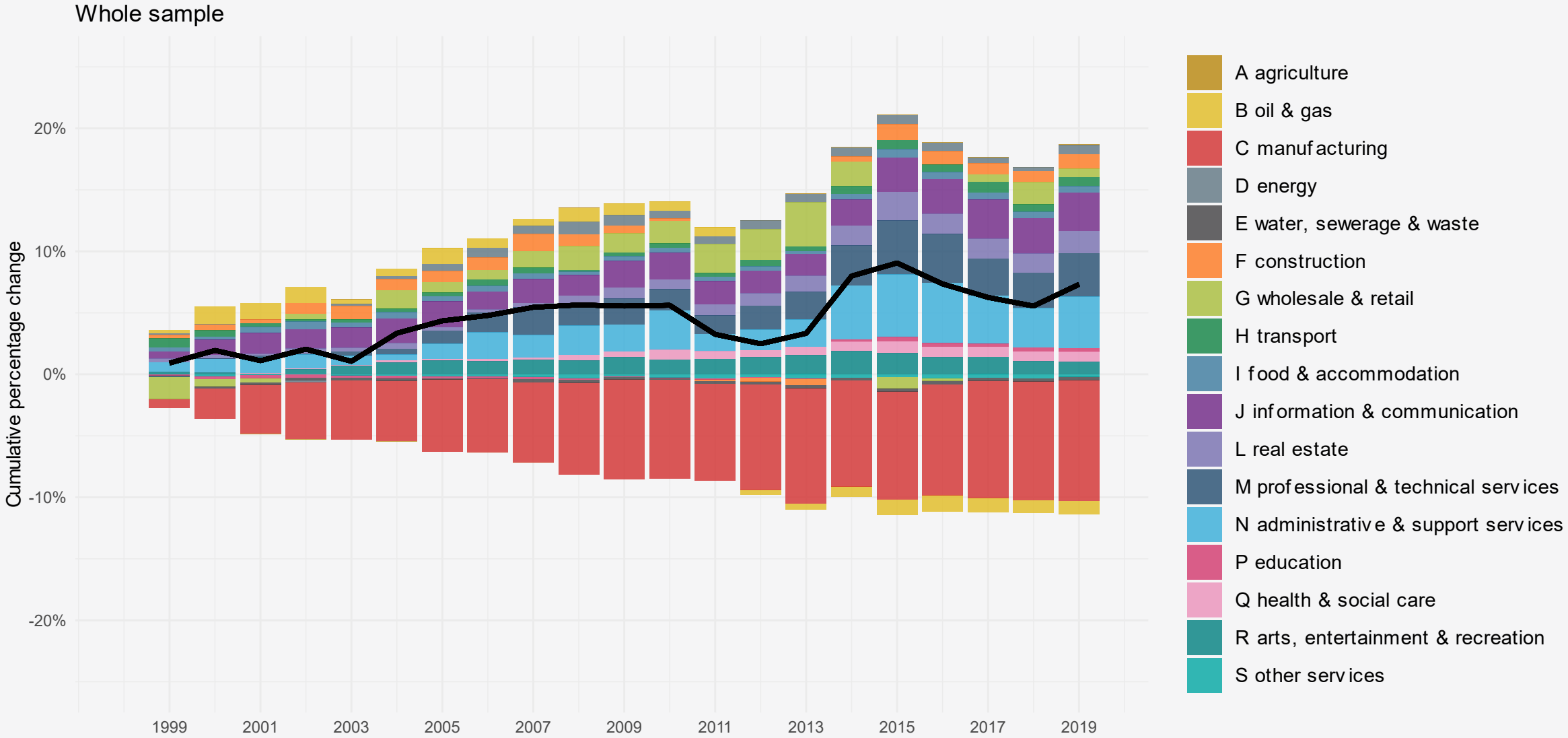
Intermediate consumption markup

- Elasticity of gross output wrt intermediate consumption calculated using a gross output translog production function in OLS
- Is a firm producing too little turnover because it could afford to buy more inputs (capital and labour fixed)

IC markup	Mean					
	Level		Average growth rate			
	1997-1999	2017-2019	1998-2007	2008-2010	2011-2019	*1998-2019*
All	115.7%	126.3%	0.8%	0.2%	0.1%	*0.5%*
Non-manufacturing production	162.3%	136.5%	-0.2%	1.8%	-1.3%	*-0.7%*
Manufacturing	108.4%	117.1%	1.1%	-0.7%	0.0%	*0.6%*
Construction	122.9%	120.0%	0.2%	-0.4%	-0.3%	*-0.1%*
Non-financial services	114.7%	128.1%	0.8%	0.3%	0.4%	*0.5%*
	Median					
	Level		Average growth rate			
	1997-1999	2017-2019	1998-2007	2008-2010	2011-2019	*1998-2019*
All	103.4%	107.1%	0.4%	-0.7%	0.3%	*0.3%*
Non-manufacturing production	114.0%	101.5%	0.0%	-0.6%	-0.7%	*-0.4%*
Manufacturing	98.8%	113.1%	1.8%	-1.1%	0.1%	*0.7%*
Construction	114.1%	109.1%	-0.3%	-0.3%	-0.1%	*-0.2%*
Non-financial services	103.8%	106.9%	0.2%	-0.7%	0.4%	*0.3%*

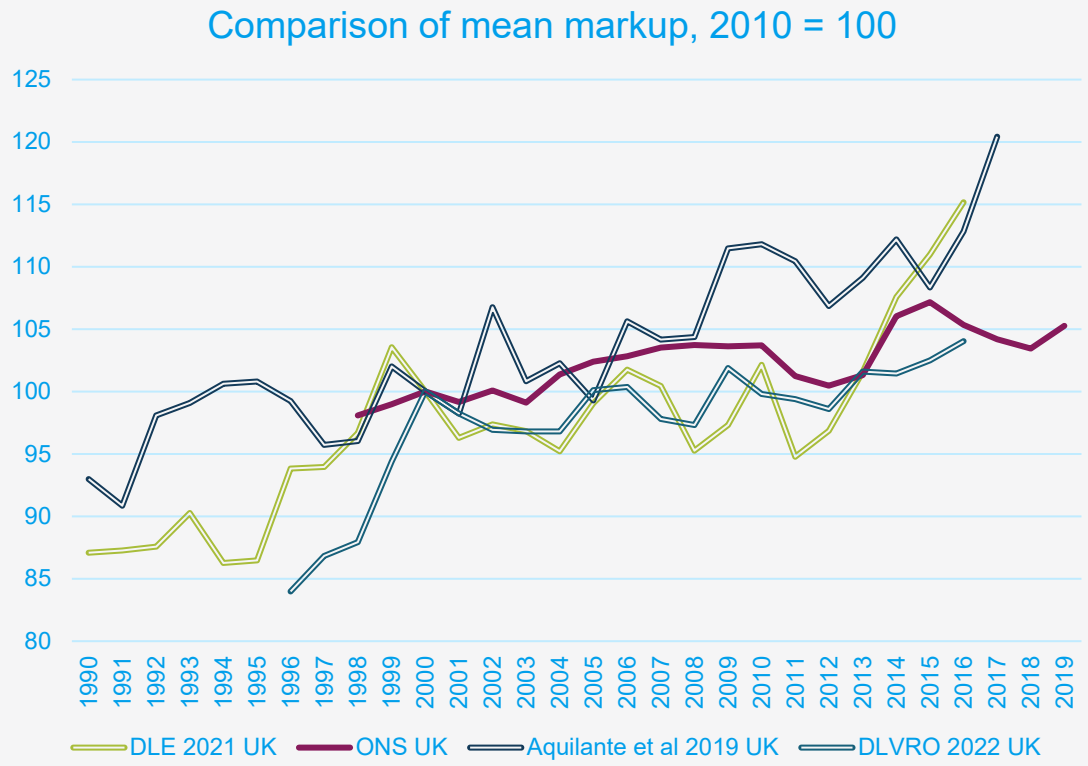

Markups for intermediate consumption inputs, weighted by gross output
Non-Manufacturing Production
Manufacturing
Construction
Services
mean
p50
p25
p10
p90
p75
2.00
1.75
1.50
1.25
1.00
0.75
1997
1999
2001
2003
2005
2007
2009
2011
2013
2015
2017
2019

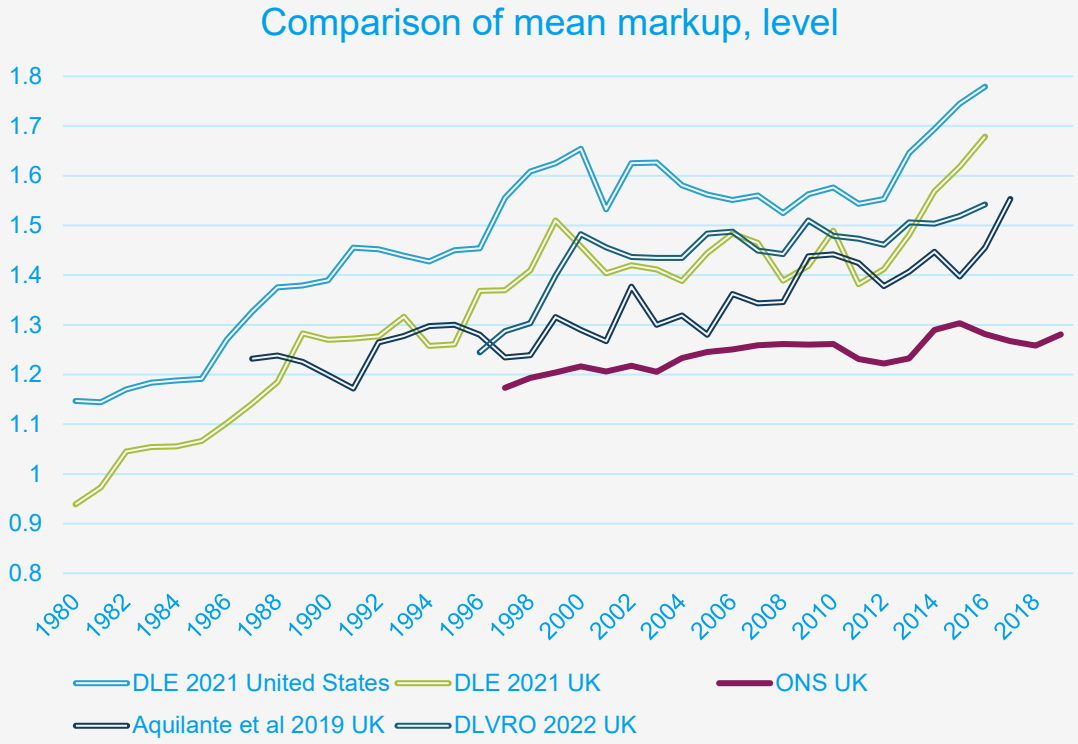
Industry contributions to average markup growth



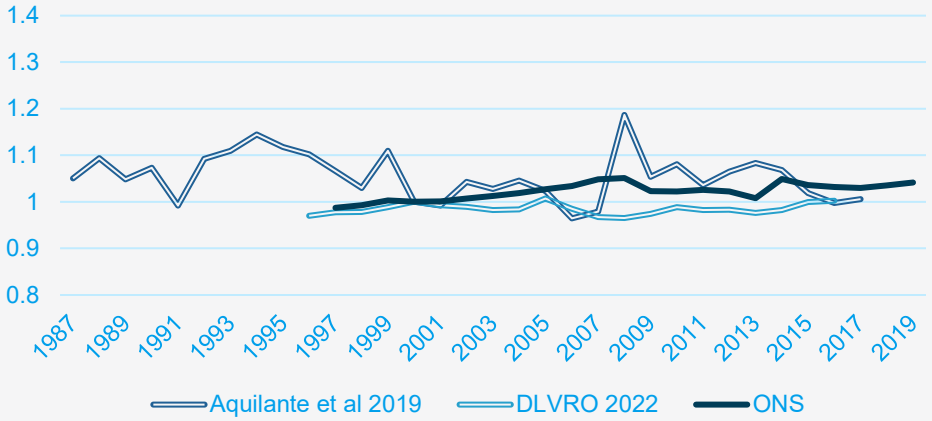
Comparisons with other studies

- With De Loecker & Eeckout 2021, Aquilante et al 2019 and De Loecker, Van Reenen and Obermeier (2020)
- The comparison is not strict – we are using intermediate consumption, rather than cost of goods sold

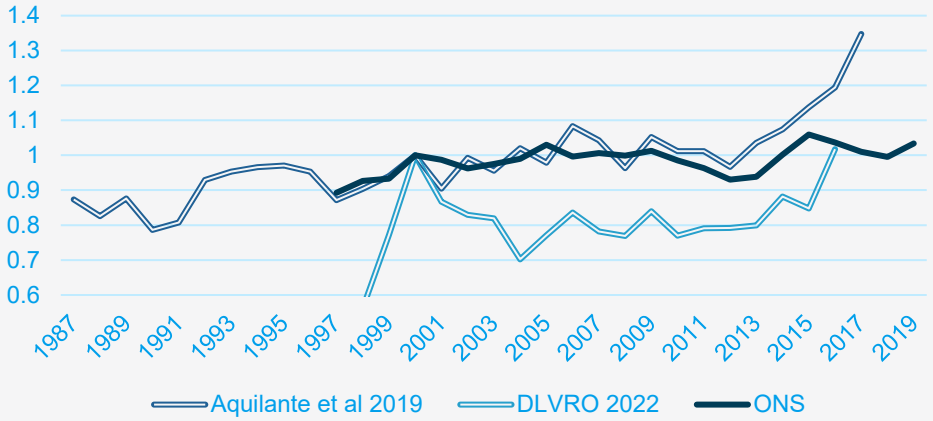




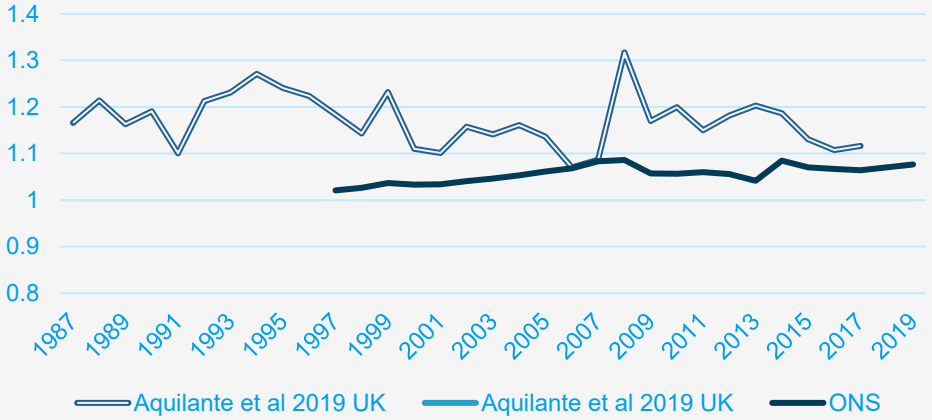
Comparison of median markup, 2010 = 100



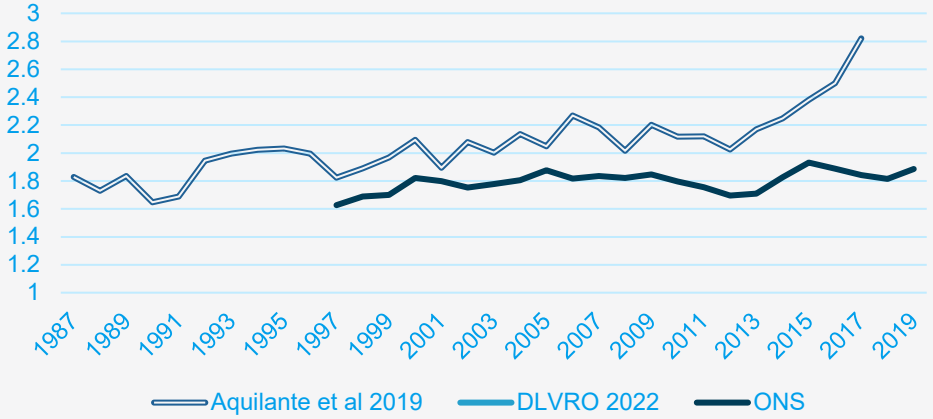
Comparison of p90 markup, 2010 = 100



Comparison of median markup, level



Comparison of p90 markup, level

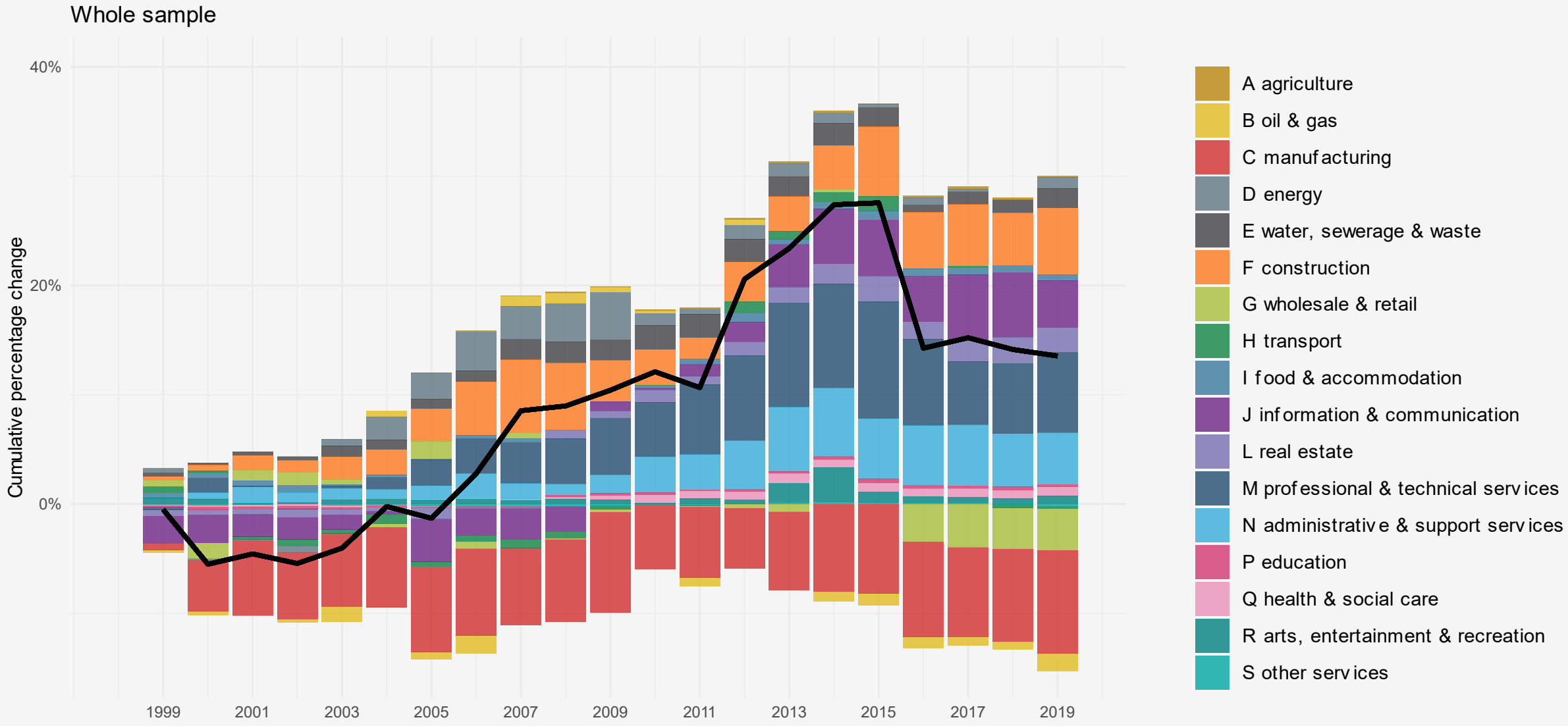


Labour markups

- “To what extent could firms afford to employ more workers and increase production, if they didn’t want to cannibalise their monopolistic pricing power?”
- For this, we use value-added production function (reduces noise)
- (If there were no adjustment costs, labour markup in a gross output production function should be the same as intermediate consumption markup)

		IC			Labour	
		Mean			Mean	
		Level			Level	
		1998	2019		1998	2018
All		115.7%	126.3%		168.4%	186.5%
Non-manufacturing production		162.3%	136.5%		215.6%	227.6%
Manufacturing		108.4%	117.1%		158.9%	175.6%
Construction		122.9%	120.0%		219.7%	287.6%
Non-financial services		114.7%	128.1%		162.6%	175.0%
		Median			Median	
		Level			Level	
		1998	2019		1998	2018
All		103.4%	107.1%		132.4%	129.4%
Non-manufacturing production		114.0%	101.5%		221.3%	177.2%
Manufacturing		98.8%	113.1%		135.6%	145.6%
Construction		114.1%	109.1%		136.4%	200.0%
Non-financial services		103.8%	106.9%		127.1%	121.8%

Industry contributions to the average labour markup growth



Results - growth

Relationship between markups and dynamism

- What are the correlates of growth in size?
- Are higher markup firms less likely to grow and cause positive reallocation?
- Is it more difficult to grow and cause positive reallocation if it's a high markup industry?
- The evidence is still a bit mixed

Dependent variable: log employment growth over next 3 years

- 1-3 & 5-6, main variables
- 4, 8, including variables asked on the long ABS form, but fewer observations
- Observations weighted by workforce represented

	1999-2005				2011-2016			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Industry IC markup	-0.08*		-0.10*	0.05	-0.09		-0.11*	-0.14*
Ln(IC markup)	-0.01		0.05	0.24***	0.03		0.08*	0.12
Ln(OPW)	0.18***	0.28***	0.27***	0.23***	0.11***	0.16***	0.15***	0.13***
Ln(IC markup)*Ln(OPW)	0.01		-0.01	-0.06**	-0.00		-0.02*	-0.02
Industry Labour Markup		0.02	0.02	0.08		-0.00	0.00	0.00
Ln(Labour Markup)		-0.22***	-0.23***	-0.22***		-0.12***	-0.14***	-0.12***
Ln(Labour Markup)*Ln(OPW)		0.02***	0.02***	0.03***		0.01***	0.02***	0.01**
Ln(Capital stock)	-0.02***	-0.03***	-0.03***	-0.02***	-0.00**	-0.01***	-0.01***	-0.01**
EU-owned	-0.06**	-0.07***	-0.07***	-0.03	-0.03*	-0.05***	-0.05**	-0.04*
Non-EU-owned	-0.04*	-0.05*	-0.06*	-0.02	-0.07***	-0.08***	-0.07***	-0.06***
Solely or predominantly North East	0.02	0.01	0.01	0.05	-0.02	-0.02	-0.02	-0.03
... North West	-0.01	-0.01	-0.01	0.05*	-0.04*	-0.05**	-0.04*	-0.07*
... Yorkshire & Humber	-0.01	-0.01	-0.01	-0.02	0.01	0.01	0.01	0.00
... East Midlands	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
... West Midlands	-0.01	-0.00	-0.00	-0.01	-0.02	-0.02	-0.02	-0.03
... East England	-0.03***	-0.03***	-0.03***	0.02	-0.00	-0.00	-0.00	0.00
... London	-0.11***	-0.13***	-0.12***	-0.10***	-0.04***	-0.05***	-0.04***	-0.03*
... South East	-0.04***	-0.05***	-0.05***	-0.04	-0.03***	-0.04***	-0.04***	-0.04**
... South West	-0.01	-0.00	-0.00	0.04	-0.01	-0.00	-0.01	-0.00
... Wales	-0.00	-0.01	-0.01	0.02	0.01	0.01	0.01	0.02
... Scotland	0.01	0.00	0.00	0.02	-0.02*	-0.03**	-0.03*	-0.03
Cross-UK	0.02	0.04**	0.04**	0.01	-0.03*	-0.02	-0.02	-0.04*
Services trader				0.00				-0.02*
IT intensity				-0.13				-0.10
Advertising intensity				0.09				0.04
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2-digit industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	276,423	257,667	247,767	24,305	194,375	191,035	174,528	77,047
R^2	0.093	0.130	0.123	0.122	0.043	0.055	0.054	0.050

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Dependent variable: log employment growth over next 3 years

- 1-3 & 5-6, main variables
- 4, 8, including variables asked on the long ABS form, but fewer observations
- Observations weighted by workforce represented

	1999-2005				2011-2016			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Industry IC markup	-0.08*		-0.10*	0.05	-0.09		-0.11*	-0.14*
Ln(IC markup)	-0.01		0.05	0.24***	0.03		0.08*	0.12
Ln(OPW)	0.18***	0.28***	0.27***	0.23***	0.11***	0.16***	0.15***	0.13***
Ln(IC markup)*Ln(OPW)	0.01		-0.01	-0.06**	-0.00		-0.02*	-0.02
Industry Labour Markup		0.02	0.02	0.08		-0.00	0.00	0.00
Ln(Labour Markup)		-0.22***	-0.23***	-0.22***		-0.12***	-0.14***	-0.12***
Ln(Labour Markup)*Ln(OPW)		0.02***	0.02***	0.03***		0.01***	0.02***	0.01**
Ln(Capital stock)	-0.02***	-0.03***	-0.03***	-0.02***	-0.00**	-0.01***	-0.01***	-0.01**
EU-owned	-0.06**	-0.07***	-0.07***	-0.03	-0.03*	-0.05***	-0.05**	-0.04*
Non-EU-owned	-0.04*	-0.05*	-0.06*	-0.02	-0.07***	-0.08***	-0.07***	-0.06***
Solely or predominantly North East	0.02	0.01	0.01	0.05	-0.02	-0.02	-0.02	-0.03
... North West	-0.01	-0.01	-0.01	0.05*	-0.04*	-0.05**	-0.04*	-0.07*
... Yorkshire & Humber	-0.01	-0.01	-0.01	-0.02	0.01	0.01	0.01	0.00
... East Midlands	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
... West Midlands	-0.01	-0.00	-0.00	-0.01	-0.02	-0.02	-0.02	-0.03
... East England	-0.03***	-0.03***	-0.03***	0.02	-0.00	-0.00	-0.00	0.00
... London	-0.11***	-0.13***	-0.12***	-0.10***	-0.04***	-0.05***	-0.04***	-0.03*
... South East	-0.04***	-0.05***	-0.05***	-0.04	-0.03***	-0.04***	-0.04***	-0.04**
... South West	-0.01	-0.00	-0.00	0.04	-0.01	-0.00	-0.01	-0.00
... Wales	-0.00	-0.01	-0.01	0.02	0.01	0.01	0.01	0.02
... Scotland	0.01	0.00	0.00	0.02	-0.02*	-0.03**	-0.03*	-0.03
Cross-UK	0.02	0.04**	0.04**	0.01	-0.03*	-0.02	-0.02	-0.04*
Services trader				0.00				-0.02*
IT intensity				-0.13				-0.10
Advertising intensity				0.09				0.04
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2-digit industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	276,423	257,667	247,767	24,305	194,375	191,035	174,528	77,047
R^2	0.093	0.130	0.123	0.122	0.043	0.055	0.054	0.050

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Dependent variable: log GVA growth over next 3 years

- Fewer observations where we also survey the firm 3 years later – but these heavily skew to larger firms
- 1-3 & 5-6, main variables
- 4, 8, including variables asked on the long ABS form, but fewer observations
- Observations weighted by workforce represented

	1999-2005				2011-2016			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Industry IC markup	-0.16		-0.21**	-0.29	-0.06		-0.08	-0.06
Ln(IC markup)	-0.35***		-0.07	0.17	-0.60***		-0.41***	-0.41***
Ln(OPW)	-0.19***	-0.11***	-0.08***	-0.00	-0.26***	-0.17***	-0.16***	-0.17***
Ln(IC markup)*Ln(OPW)	0.08***		0.01	-0.06	0.13***		0.08**	0.09**
Industry Labour Markup		0.01	0.03	0.13		-0.02	-0.01	-0.01
Ln(Labour Markup)		-0.29***	-0.31***	-0.41***		-0.34***	-0.29***	-0.26***
Ln(Labour Markup)*Ln(OPW)		0.04***	0.04***	0.06**		0.04***	0.03**	0.03*
Ln(Capital Stock)	-0.01	-0.01	-0.02*	-0.01	-0.01	-0.01*	-0.02**	-0.01*
EU-owned	-0.01	-0.02	-0.02	-0.06	-0.02	-0.04	-0.03	-0.04
Non-EU-owned	0.04	0.04	0.02	-0.11*	-0.00	0.00	-0.01	-0.01
Solely or predominantly North East	-0.03	-0.02	-0.02	-0.02	0.05	0.06	0.05	0.06
... North West	-0.01	-0.01	-0.01	-0.00	0.02	0.02	0.01	-0.00
... Yorkshire & Humber	-0.02	-0.01	-0.01	0.03	0.02	0.03	0.03	0.04
... East Midlands	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
... West Midlands	-0.05	-0.04	-0.04	-0.08	0.04	0.04	0.04	0.06
... East England	-0.00	0.00	-0.00	0.05	0.04	0.04	0.04	0.04
... London	0.08**	0.04	0.04	0.10	0.11***	0.08**	0.07*	0.07*
... South East	0.01	0.01	0.00	0.04	0.03	0.01	0.01	0.01
... South West	0.02	0.04	0.04	0.13	0.03	0.03	0.03	0.03
... Wales	-0.07*	-0.05	-0.06	0.10	0.03	0.04	0.03	0.04
... Scotland	-0.00	-0.00	-0.01	0.08	-0.06	-0.07*	-0.08*	-0.07
Cross-UK	-0.00	-0.01	-0.00	0.02	-0.05	-0.06*	-0.05	-0.05
Services trader				0.07				0.02
IT intensity				-0.28				-0.29*
Advertising intensity				0.32				0.13
Year	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2-digit industry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	68,891	69,391	68,159	8,256	51,364	52,226	50,698	40,276
R^2	0.097	0.101	0.097	0.129	0.176	0.170	0.178	0.183

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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Dependent variable: log GVA growth over next 3 years

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Ln(IC markup)*Ln(OPW)	0.08***		0.01	-0.06	0.13***		0.08**	0.09**
Industry Labour Markup		0.01	0.03	0.13		-0.02	-0.01	-0.01
Ln(Labour Markup)		-0.29***	-0.31***	-0.41***		-0.34***	-0.29***	-0.26***
Ln(Labour Markup)*Ln(OPW)		0.04***	0.04***	0.06**		0.04***	0.03**	0.03*
Ln(Capital Stock)	-0.01	-0.01	-0.02*	-0.01	-0.01	-0.01*	-0.02**	-0.01*
EU-owned	-0.01	-0.02	-0.02	-0.06	-0.02	-0.04	-0.03	-0.04
Non-EU-owned	0.04	0.04	0.02	-0.11*	-0.00	0.00	-0.01	-0.01
Solely or predominantly North East	-0.03	-0.02	-0.02	-0.02	0.05	0.06	0.05	0.06
... North West	-0.01	-0.01	-0.01	-0.00	0.02	0.02	0.01	-0.00
... Yorkshire & Humber	-0.02	-0.01	-0.01	0.03	0.02	0.03	0.03	0.04
... East Midlands	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
... West Midlands	-0.05	-0.04	-0.04	-0.08	0.04	0.04	0.04	0.06
... East England	-0.00	0.00	-0.00	0.05	0.04	0.04	0.04	0.04
... London	0.08**	0.04	0.04	0.10	0.11***	0.08**	0.07*	0.07*
... South East	0.01	0.01	0.00	0.04	0.03	0.01	0.01	0.01
... South West	0.02	0.04	0.04	0.13	0.03	0.03	0.03	0.03
... Wales	-0.07*	-0.05	-0.06	0.10	0.03	0.04	0.03	0.04
... Scotland	-0.00	-0.00	-0.01	0.08	-0.06	-0.07*	-0.08*	-0.07
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* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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Thank you for listening

Next steps

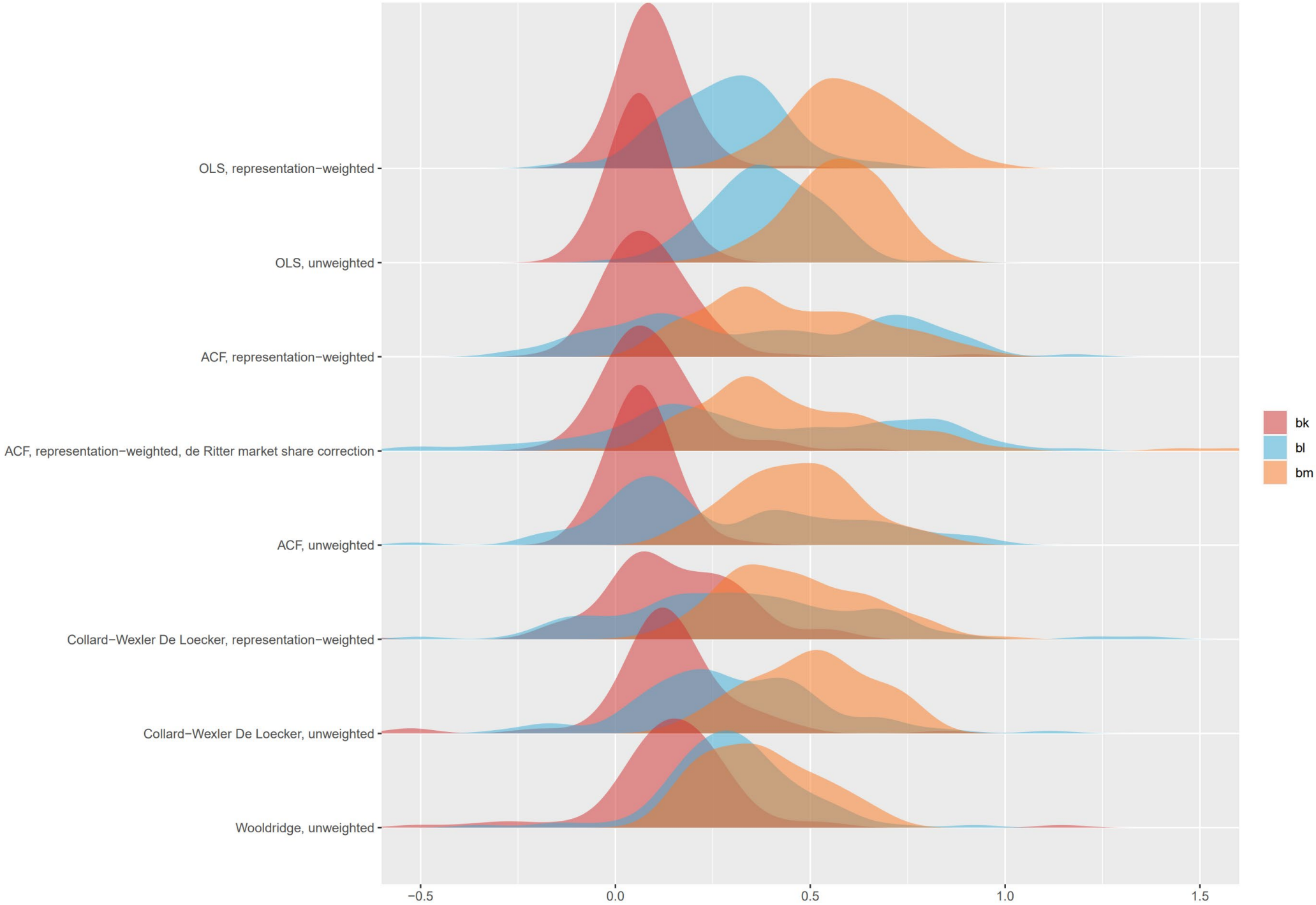
- Updating datasets in the secure services
- Incorporating more data sources
- Bringing up to the present

Elasticity estimation

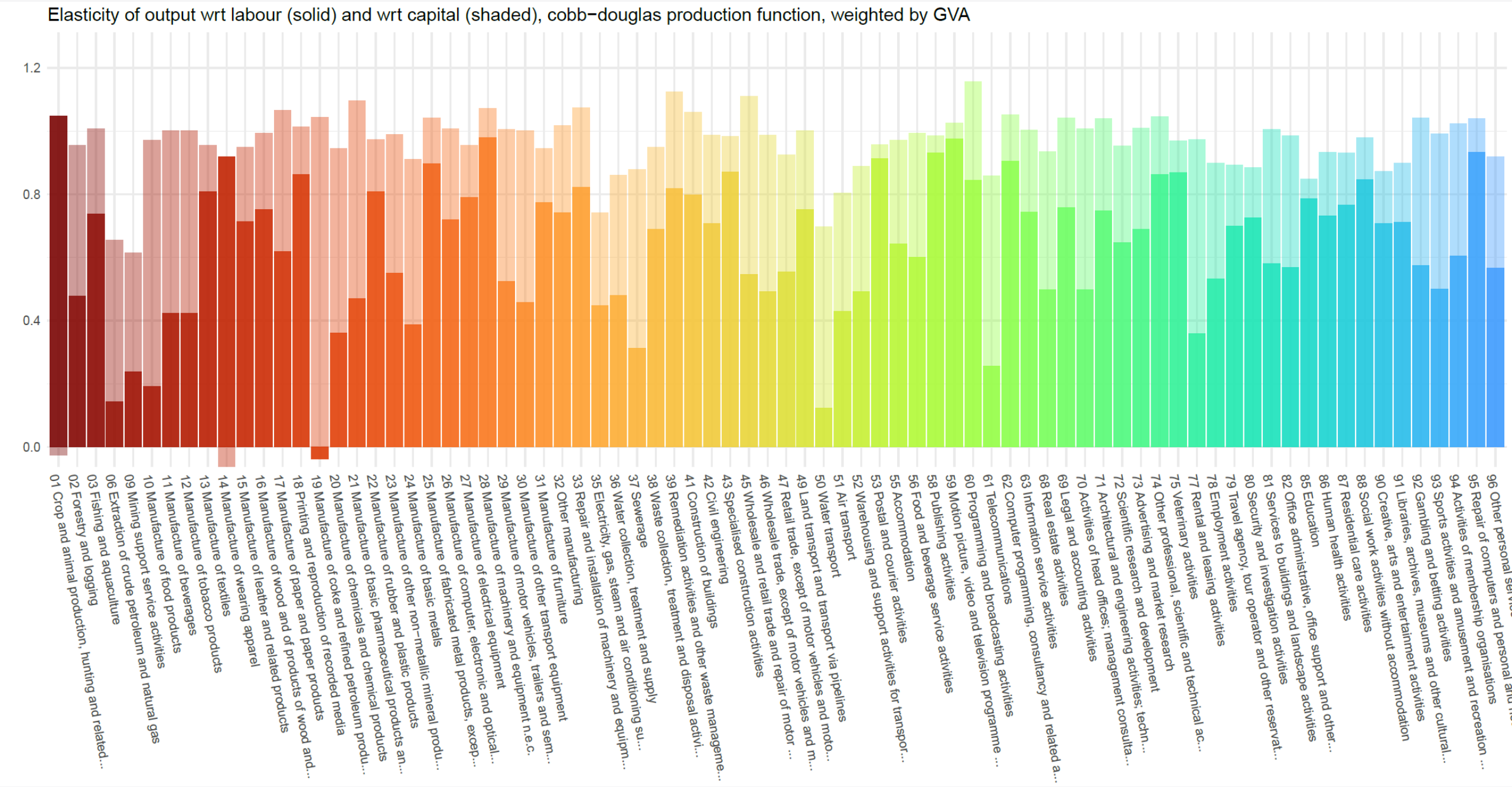
Production function estimation

- Wooldridge (2009) one-step estimator
- ACF (2015) GMM procedure
- Collard-Wexler & De Loecker (2016), add IV to first stage to control for imperfectly-measured capital stocks
- De Ridder et al (2021), add control for market power (4-digit market share)

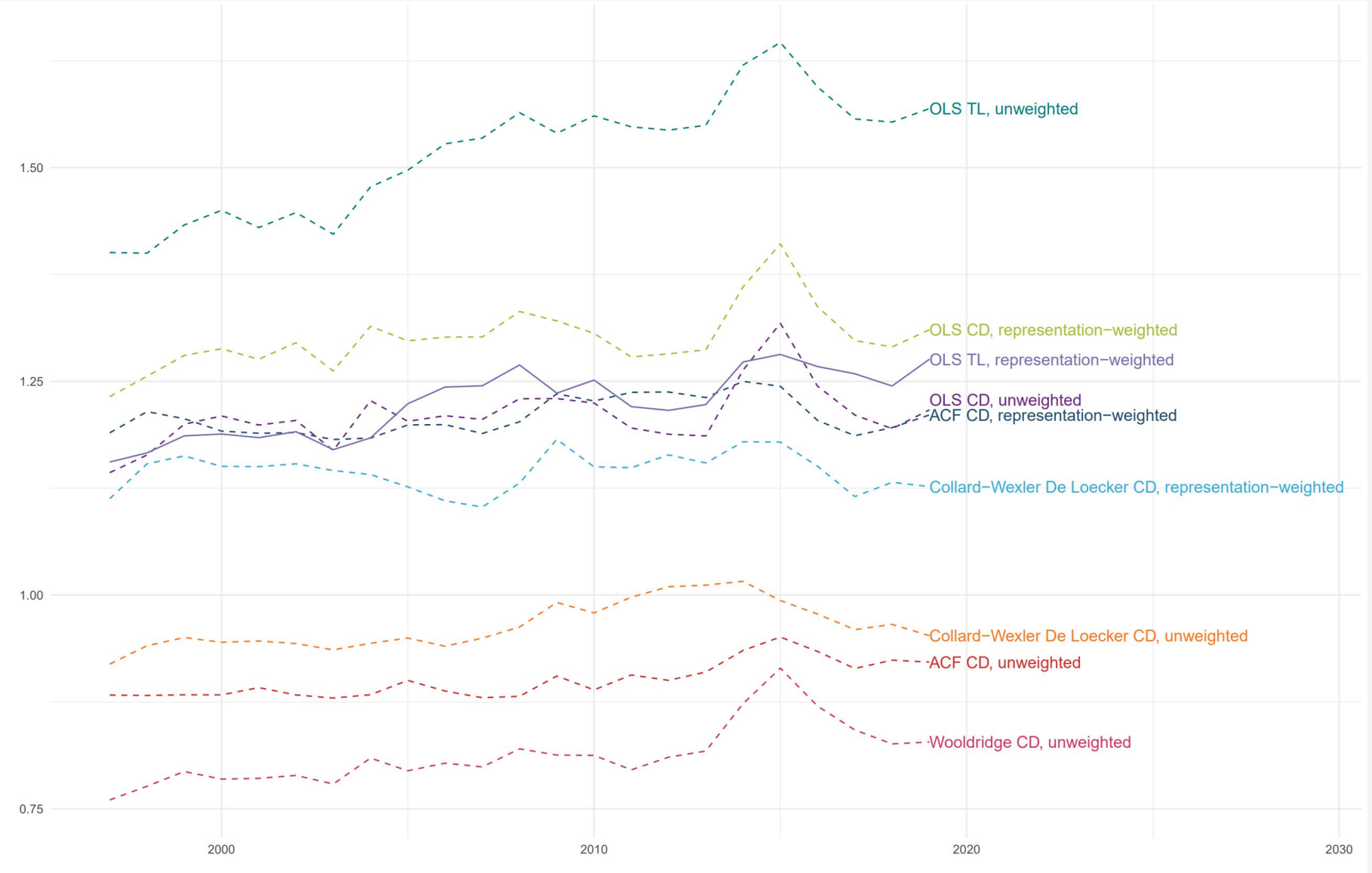
- Survey is stratified by size (and the strata size varies depending on ONS's policy at the time). From the perspective of estimating regressions, the data fed in has an arbitrary number of small and large firms each year => run with weights in the regression and GMM for amount of turnover or GVA represented by the observation


OLS, representation−weighted
OLS, unweighted
ACF, representation−weighted
ACF, representation−weighted, de Ritter market share correction
ACF, unweighted
Collard−Wexler De Loecker, representation−weighted
Collard−Wexler De Loecker, unweighted
Wooldridge, unweighted
−0.5
0.0
0.5
1.0
1.5
bk
bl
bm

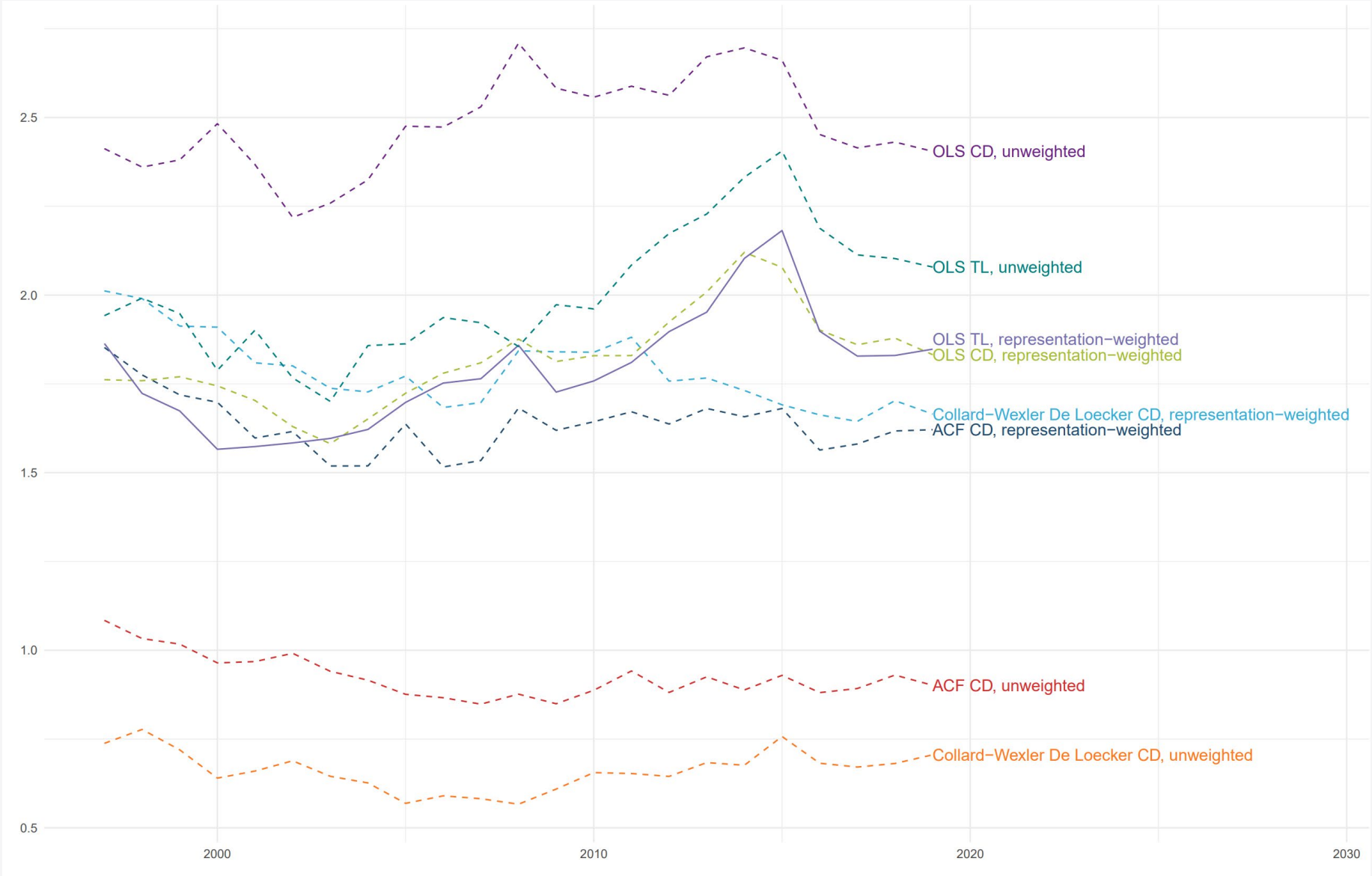
- We take the OLS elasticity of output
- Concern that the other estimation methods give too high or too negative values for coefficients
- Concern that the other estimation methods give too low returns to scale
- Correcting output for the ACF first stage is often too blunt, too many firms have implausibly high “shocks” compared to reasonable changes in turnover and value-added


Elasticity of output wrt labour (solid) and wrt capital (shaded), cobb−douglas production function, weighted by GVA
1.2
0.8
0.4
0.0
01 Crop and animal production, hunting and related...
02 Forestry and logging
03 Fishing and aquaculture
06 Extraction of crude petroleum and natural gas
09 Mining support service activities
10 Manufacture of food products
11 Manufacture of beverages
12 Manufacture of tobacco products
13 Manufacture of textiles
14 Manufacture of wearing apparel
15 Manufacture of leather and related products
16 Manufacture of wood and of products of wood and...
17 Manufacture of paper and paper products
18 Printing and reproduction of recorded media
19 Manufacture of coke and refined petroleum produ...
20 Manufacture of chemicals and chemical products
21 Manufacture of basic pharmaceutical products an...
22 Manufacture of rubber and plastic products
23 Manufacture of other non−metallic mineral produ...
24 Manufacture of basic metals
25 Manufacture of fabricated metal products, excep...
26 Manufacture of computer, electronic and optical...
27 Manufacture of electrical equipment
28 Manufacture of machinery and equipment n.e.c.
29 Manufacture of motor vehicles, trailers and sem...
30 Manufacture of other transport equipment
31 Manufacture of furniture
32 Other manufacturing
33 Repair and installation of machinery and equipm...
35 Electricity, gas, steam and air conditioning su...
36 Water collection, treatment and supply
37 Sewerage
38 Waste collection, treatment and disposal activi...
39 Remediation activities and other waste manageme...
41 Construction of buildings
42 Civil engineering
43 Specialised construction activities
45 Wholesale and retail trade and repair of motor ...
46 Wholesale trade, except of motor vehicles and m...
47 Retail trade, except of motor vehicles and moto...
49 Land transport and transport via pipelines
50 Water transport
51 Air transport
52 Warehousing and support activities for transpor...
53 Postal and courier activities
55 Accommodation
56 Food and beverage service activities
58 Publishing activities
59 Motion picture, video and television programme ...
60 Programming and broadcasting activities
61 Telecommunications
62 Computer programming, consultancy and related a...
63 Information service activities
68 Real estate activities
69 Legal and accounting activities
70 Activities of head offices; management consulta...
71 Architectural and engineering activities; techn...
72 Scientific research and development
73 Advertising and market research
74 Other professional, scientific and technical ac...
75 Veterinary activities
77 Rental and leasing activities
78 Employment activities
79 Travel agency, tour operator and other reservat...
80 Security and investigation activities
81 Services to buildings and landscape activities
82 Office administrative, office support and other...
85 Education
86 Human health activities
87 Residential care activities
88 Social work activities without accommodation
90 Creative, arts and entertainment activities
91 Libraries, archives, museums and other cultural...
92 Gambling and betting activities
93 Sports activities and amusement and recreation ...
94 Activities of membership organisations
95 Repair of computers and personal and ho...
96 Other personal service

Different results for mean IC markup (turnover weighted)



Different results for mean labour markup (value-added weighted)



Different results for mean labour markup, estimated from gross output and weighted by turnover