Levelling Down: The Distributional Consequences of Public Pay Caps

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August 7, 2025

Strike Action in the UK

11th strike of junior doctor pay dispute begins

Nick Triggle ›
Health correspondent
@nicktriggle ›

Elena Bailey
BBC News

27 June 2024

Strike Action in the UK

Strike Action in the UK

Train drivers in England to hold fresh week of strikes from late January

Operating companies not expected to use new minimum service levels law when Aslef members strike

● Business live - latest updates

A passenger walks past a closed platform at Liverpool Street station in London during a strike by Aslef train drivers in September. Photograph: Tolga Akmen/EPA
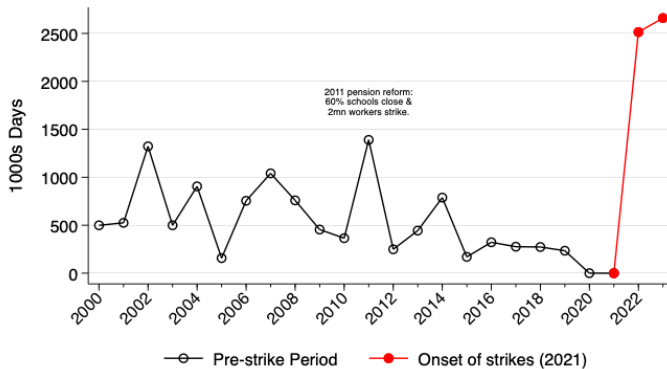
Strike Action in the UK

Figure: Working Days Lost Due to Public Strikes

Source: ONS official statistics
Data annualised based on monthly figures.

Introduction: A Reason to Strike

- Public sector strikes today associated with 15 years of wage decline relative to the private sector, beginning with austerity in 2010

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- Focus on expenditure reduction (90% total consolidation): **Pay caps in the public sector for all workers earning over £21k (median wage)**

Research Questions & Methodology

Using counterfactual distribution analysis (DiNardo et al. 1995), ask how the pay caps ...

1. influenced the overall wage distribution?

2. impacted the composition of public sector workers (alongside other austerity policies)?

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   - Increased gender pay gap by 14.5%
   - Increased the North-South divide by 4.5%.

2. impacted the composition of public sector workers (alongside other austerity policies)?

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   - Increased the North-South divide by 4.5%.

2. impacted the composition of public sector workers (alongside other austerity policies)?
   - Highly skilled male workers left the public sector
   - Workers with fewer outside options suffered larger relative real wage losses

Literature & Contributions

1. **Wage Inequality (in the UK)**: Bell et al. (2022), Giupponi & Machin (2022, 2021), Bell et al. (2021), De Loecker et al. (2022), Blundell et al. (2022)

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3. **Austerity**: Fetzer (2019), Facchetti (2021)

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   - Document reduced form responsiveness of sectoral choice to changes in public wages. Brain drain?

3. **Austerity**: Fetzer (2019), Facchetti (2021)
   - First reduced form paper formally analysing pay caps after 2010 – 50% of OECD countries engaged in similar policies

Roadmap

1. Introducing the Policy

2. Counterfactual: Price Effects

3. Counterfactual: Characteristic Effects

4. Changes to Wage Inequality

The Policy: A Decade of Nominal Wage Caps

- 1997-2010: Government committed to upskilling public sector
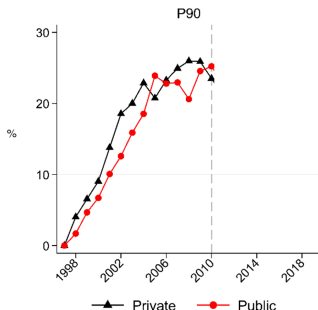

Figure 1: Evolution of log real wages indexed at 1997=0.

Source: ASHE sample of public and private sector workers aged 16 and over.

The figure plots the evolution of real log wages in the public and private sector times 100 at the 25th and 90th percentiles. Wages are normalised at 1997=0 so the year-on-year change represents the percentage increase/decrease in real wages relative to 1997 (deflated by CPI to equal 2019 prices).

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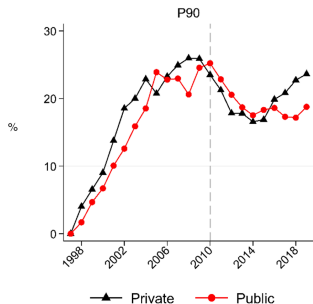- 2010-2012: 0% nominal wage growth for all workers earning above £21k

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P25

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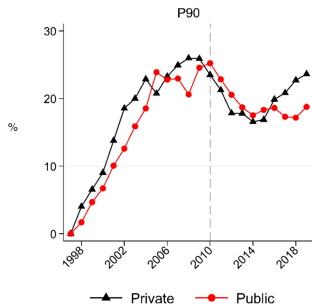- 2013-2017: 1% nominal wage growth (public loses out relative to private)

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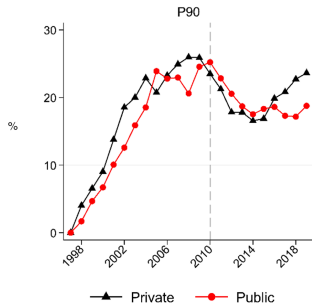- Inflation 1-4% $\implies$ negative real wage growth

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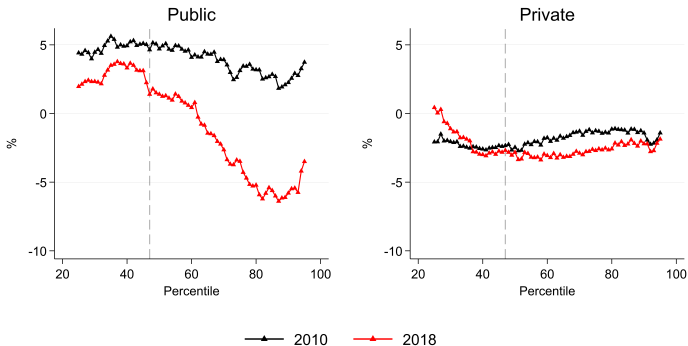# Public Wage Growth Declined Along the Distribution

Figure 2: Wage Growth Along the Distribution Relative to 2004

Source: ASHE sample of public and private sector workers aged 16 and over.

Figure shows wage growth along the wage distribution relative to 2004 at equally
spaced percentiles. The vertical dashed line represents the percentile of the public wage
distribution where the pay caps bind. Percentiles below 25th are dropped to abstract away
from spillover effects of the living wage. Observations above the 95th percentie are omitted.

The Public Sector is More Skilled and Pays More

- A public sector worker refers to any individual whose wage is paid directly by the government

Table 1: Summary Statistics by Sector

Sector	Mean Wage	Wage P10	Wage P90	Emp. Share (%)	Educ > A-level (%)	Age	Female Share (%)	White Collar (%)	North (%)
Private	2.46	1.81	3.26	68.56	47.08	38.39	43.17	43.84	37.29
Public	2.63	2.03	3.24	31.43	67.28	42.13	64.18	63.79	42.52
Overall	2.51	1.86	3.26	100	52.89	39.47	49.21	49.57	38.79

Author's calclations from QLFS pooled from 1992-2020. All wages in 2020 £s. A white collar worker is defined as a worker with an occupation < 4000 according to the SOC 2000 classification.

Pub & Priv Dist
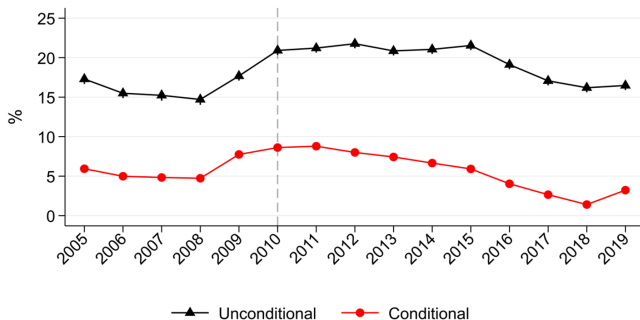
No More Public Sector Premium

Figure 5: Public Sector Wage Premium

Source: ASHE sample of public and private sector workers aged over 16.

The unconditional premium is calculated as the coefficient on a public sector binary variable regressed on log real hourly wages. The conditional specification also controls for age (squared), occupation, union status and their interactions. The model also accounts for individual and time fixed effects. Vertical lines represent 95% confidence intervals. The dashed lines represent the start date of the austerity period.

$$ln(w_{it}) = \alpha_i + \beta_t public_{it} * 1\{year = t\} + \beta_1 X_{it} + e_{it} \qquad (1)$$

Roadmap

1. Introducing the Policy

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3. Counterfactual: Characteristic Effects

4. Changes to Wage Inequality

Decomposing Changes to the Wage Distribution

- Mental model of public log wages:

$$w_{it} = \beta_t^s X_{it} + e_{it} \tag{2}$$

- $X_{it} = \{$age (squared), sex, union status, tenure, occupation$\}$
- $s \in \{$public, private$\}$

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- A two-period Oaxaca Blinder decomposition says:

$$\underbrace{f_s(w_{i2}|X_{i2}, \beta_2^s) - f_s(w_{i1}|X_{i1}, \beta_1^s)}_{\Delta f_s(\beta, X)} = \underbrace{f_s(w_{i2}|X_{i2}, \beta_2^s) - f_s(w_{i1}|X_{i2}, \beta_1^s)}_{\Delta f_s(\beta) = \text{price effect} = \text{pay caps}} \qquad (3)$$

$$+ \underbrace{f_s(w_{i2}|X_{i2}, \beta_1^s) - f_s(w_{i1}|X_{i1}, \beta_1^s)}_{\Delta f_s(X) = \text{characteristic effect} = \text{catchall}} \qquad (4)$$

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- **Assumption**: β_ts in the public sector only change due to government policy

Counterfactual distributions of interest:

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Counterfactual distributions of interest:

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$$\beta_t^{publicCF} = \beta_{10}^{public} \tag{5}$$

2. What wage distribution would have prevailed in 2018 if public prices had followed private prices?

$$\beta_t^{publicCF} = \beta_{10}^{public} + (\beta_t^{private} - \beta_{10}^{private}) \tag{6}$$

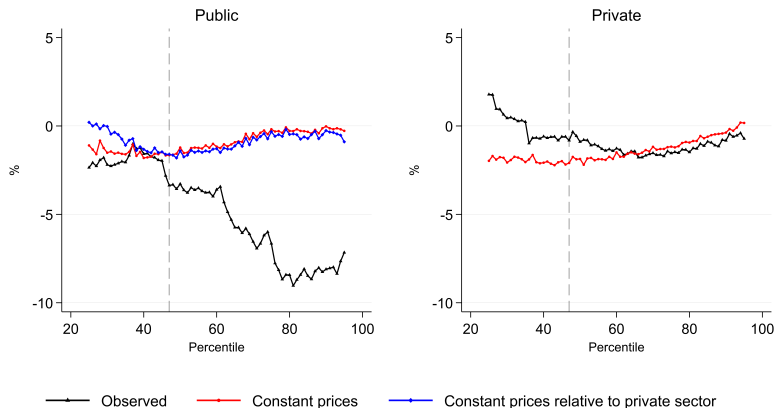# Price Effect: Caps Compressed Wages from the Top

Figure 9a: Price Counterfactual

Source: ASHE sample of public and private sector workers aged over 16.

Figure shows the observed and counterfactual wage growth between 2010 and 2018. The black line represents the observed wage growth, the red line represents the wage growth that would have occurred given that skills were priced as in 2010 and characteristics were distributed as in 2018. The blue line represents the wage growth that would have prevailed in the public sector if skill prices changed in line with the private sector. Counterfactuals calculated via a DiNardo, Fortin & Lemieux decomposition where wages are generated according to linear specification including sex, age (squared), union status, hours worked, and region & occupation fixed effects. Vertical line represents bite point of pay caps.

Roadmap

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3. Counterfactual: Characteristic Effects

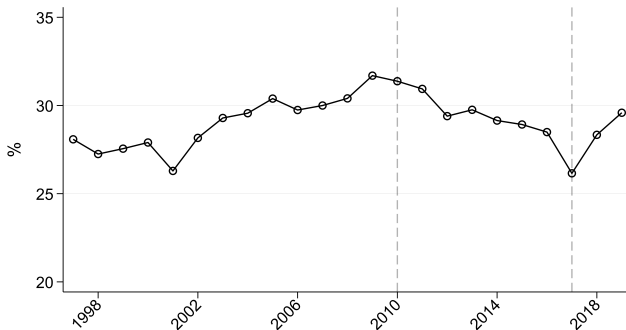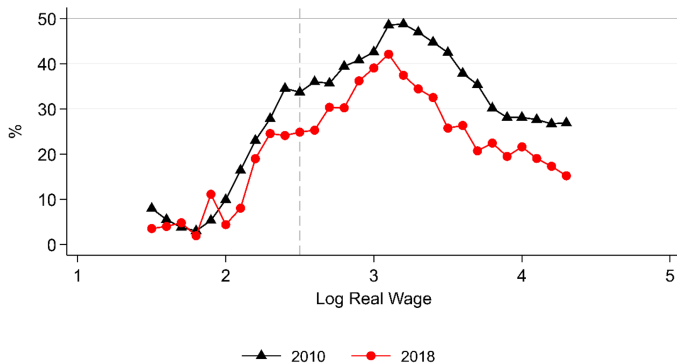4. Changes to Wage Inequality

Public Sector Share Fell

Figure 6: Public Sector Share of Employment

Source: LFS sample of public and private sector workers aged 16 or over

This figure plots the share of public sector workers as a fraction of total employment.
The dashed vertical lines represent the onset and end of the pay cap policy respectively.

Back to Policy

Public Share Declined Most at the Top End

Figure 7: Public Share Along the Wage Distribution

Source: ASHE sample of public and private sector workers aged 16 or over.

Figure takes the unconditional distribution of wages in 2010 and 2018 and calculates
the public sector share along the wage distribution at 0.1 log intervals. Wages are hourly and
deflated to 2019 prices. The vertical line represents the bite point of the pay caps.

Transition Matrices

Table 1: Transition Matrices

		Public	Private	t+1 Self Emp	Unemp	Retired	Inactive
	Panel A: 2004-2009						
t	Public	88.0	5.0	0.9	1.0	1.9	3.3
	Private	2.6	87.0	2.9	2.4	1.6	3.5
	Self Employment	1.5	11.7	81.4	1.5	1.7	2.1
	Unemployment	6.8	27.5	5.5	32.9	3.5	23.9
	Retired	0.3	0.8	0.2	0.2	95.6	2.9
	Inactive	5.3	12.4	1.5	5.0	5.3	70.5
	Panel B: 2011-2018						
t	Public	79.9	12.1	1.1	1.2	2.9	2.8
	Private	5.8	83.0	3.5	2.4	1.9	3.5
	Self Employment	1.5	12.7	78.7	1.3	3.5	2.3
	Unemployment	4.4	21.9	4.1	42.9	3.5	23.3
	Retired	0.3	0.6	0.5	0.2	96.8	1.6
	Inactive	4.2	12.6	1.7	8.4	4.3	68.9

Table of labor market transitions constructed using UKLS data. Workers are split into six cells based on status: public, private (employee), private (self-employed), unemployed, retired and inactive. The cells in the top panel represent the probability of locating in state, s', in year t+1, conditional on being employed in state, s, in year t. This implies that any given row will sum to 100. The bottom panel represents the percentage point change in probability between the pre- and post- 2010 period. 2010 corresponds to the year when the BHPS converts to USoC, so we drop this sample year.

Increased Outflow to Private and Retirement

Table 1: Transition Matrices

		Public	Private	t+1 Self Emp	Unemp	Retired	Inactive
	Panel C: Difference						
t	Public	-8.1	7.1	0.2	0.2	1.0	-0.5
	Private	3.2	-4.0	0.6	0.0	0.2	0.0
	Self Employment	0.0	1.0	-2.7	-0.2	1.8	0.2
	Unemployment	-2.4	-5.6	-1.4	10	0.0	-0.6
	Retired	0.0	-0.2	0.3	0.0	1.2	-1.3
	Inactive	-1.1	0.2	0.2	3.4	-1.0	-1.6

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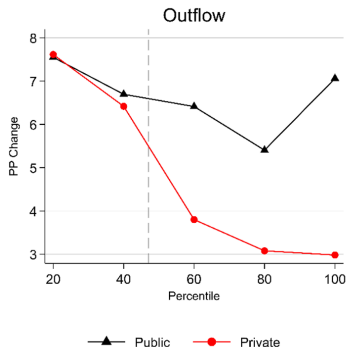
Driven by Outflow at the Top End

Figure 7: Change in Transition Rate Along the Wage Distribution After 2010.

Source: ASHE sample of public and private sector workers aged 16 or over.

The figure plots the percentage point change in the inflow and outflow rate along the respective public and private wage distribution. The initial period pools 2008-2009 and second period pools 2017-2018. Wages are deflated to 2019 prices. The vertical lines represent the binding point of the pay caps in the public distribution.

Inflow Triple Diff Redundancies

Changes to Core Observable Characteristics

Table 1: Public and Private Summary Statistics

	Public			Private		
	(1) 2010 Mean	(2) 2018 Mean	(3) % Chg	(4) 2010 Mean	(5) 2018 Mean	(6) % Chg
Degree[+]	57.0	64.9	14.0***	32.9	41.9	27.3***
Male	34.1	30.1	-11.9***	57.1	55.3	-3.1***
Age ≤ 25	6.6	6.6	-0.4	16.8	16.2	-3.9***
(26,55]	78.1	75.0	-4.0***	69.8	67.9	-2.7***
55+	15.3	18.4	20.3***	13.4	15.9	18.9***
North	43.8	45.2	3.2***	35.3	35.6	0.7
Observations	46883	36167	83050	102001	113633	215634

Author's calculation from ASHE sample of workers aged 16 or over. Figure shows a selection of summary statistics for all individuals decomposed into those in the public and private sector. Hourly wage is deflated to 2019 prices. Workers in the North are defined at the government office region level and includes the North East, North West, Yorkshire and the Humber, Wales, Scotland and Northern Ireland. [+] Degree share is calculated using the UKLS and a degree educated worker is defined as anyone who has education beyond A-levels.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$
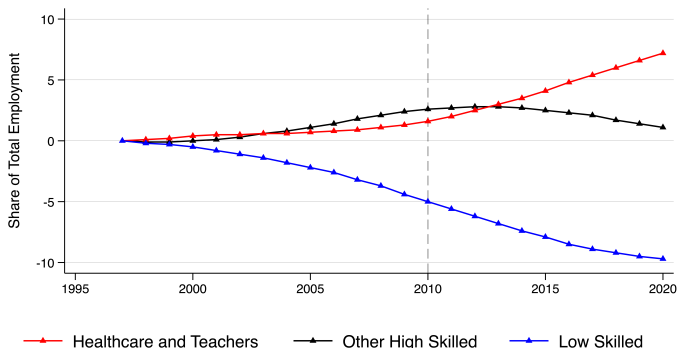
Occupational Consolidation

Figure 7: Share of Public Employment

Source: LFS sample of public sector workers aged 16 and over

Figure shows the chabge in the share of total sectoral employment over time.
The vertical dashed line in 2010 represents the onset of the pay caps.
The series are smoothed using local linear regressions.
A high skilled worker is defined as any occupation with SOC code < 4000.

Private Occupation Shares   DFL

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Overall Counterfactual Wage Inequality

- What overall distribution of wages would have prevailed under the public sector counterfactuals defined above?

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$$\Delta f_{tot}(\beta, X) = \alpha(w) \underbrace{\Delta f_{pub}(\beta, X)}_{\Delta f_{pub}(\beta) \ + \ \Delta f_{pub}(X)} + [1 - \alpha(w)]\Delta f_{priv}(\beta, X) \qquad (7)$$

- where $\alpha(w)$ is the share of workers in the public sector earning w

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- where $\alpha(w)$ is the share of workers in the public sector earning w

- **Assumption:** partial equilibrium – no private sector spillovers
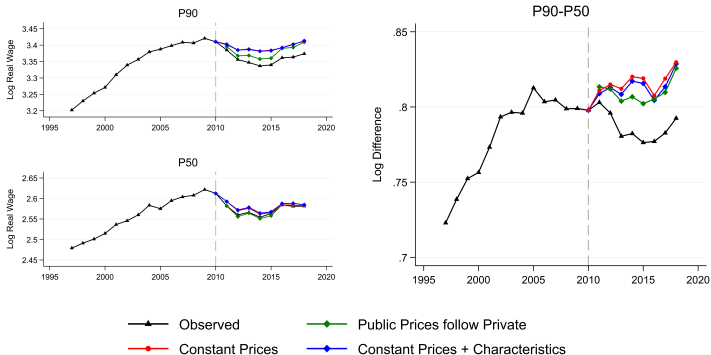
Overall Inequality

Figure 10: Overall Counterfactual Inequality.

Source: ASHE sample of public and private sector workers aged over 16.

Figure shows observed and counterfactual inequality as measured by the difference between the 50th and 90th percentiles of the distribution. The counterfactuals should be read sequentially. The difference between the black and the green line indicates the wage distribution that would have prevailed if public sector prices had risen in line with private sector prices. The difference between the red and green line is the additional effect of public sector prices being held constant at 2010 levels. The difference between the red and the blue line captures the effect of changes to public sector characteristics between 2010 and 2018. The total difference between the black and blue line is the overall wage distribution that would have prevailed if the public sector wage distribution was mapped back to 2010. Counterfactuals are calculated via a DiNardo, Fortin & Lemieux decomposition where wages are generated according to a linear specification including sex, age (squared), union status, hours worked and region & occupation fixed effects.

Pub/Priv Densities

The Gender Pay Gap

Table 1: Summary Statistics by Sector

Sector	Mean Wage	Wage P10	Wage P90	Emp. Share (%)	Educ > A-level (%)	Age	Female Share (%)	White Collar (%)	North (%)
Private	2.46	1.81	3.26	68.56	47.08	38.39	43.17	43.84	37.29
Public	2.63	2.03	3.24	31.43	67.28	42.13	64.18	63.79	42.52
Overall	2.51	1.86	3.26	100	52.89	39.47	49.21	49.57	38.79

Author's calclations from QLFS pooled from 1992-2020. All wages in 2020 £s. A white collar worker is defined as a worker with an occupation < 4000 according to the SOC 2000 classification.
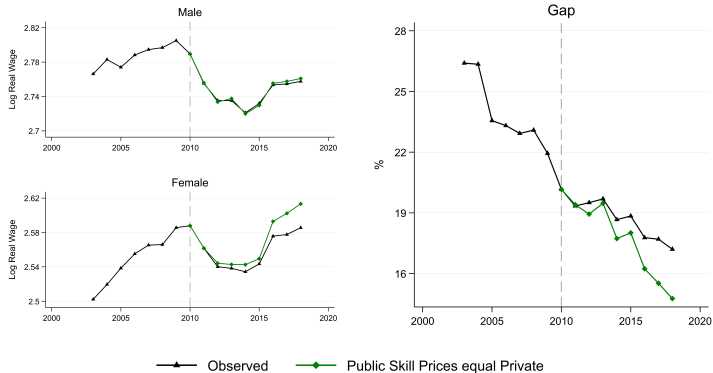
The Gender Pay Gap

Figure 11: Counterfactual Gender Gap

Source: ASHE sample of public and private sector workers aged over 16.

Figure shows observed and counterfactual gender gap as measured by the difference betweenthe mean of the male and femal wage distribution. The black line represents the observed data and the green line represents how earnings by sex (and the gender wage gap) would have evolved if public skill prices had changed in line with private skill prices. Counterfactuals are calculated via a DiNardo, Fortin & Lemieux decomposition where wages are generated according to a linear specification including sex, age (squared), union status, hours worked, and region & occupation fixed effects.
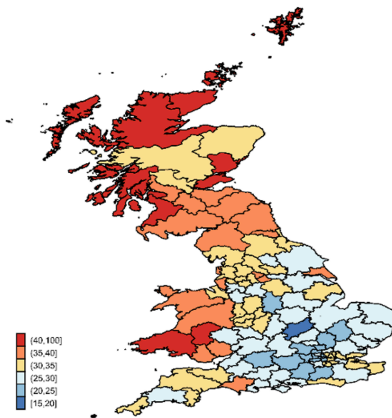
Figure 11: Public Share by Region

Source: ASHE sample of public sector workers aged over 16.

Figure shows the public sector share at the postcode region level. The public share refers to the percentage of employed workers in the public sector in a given year in 2010.
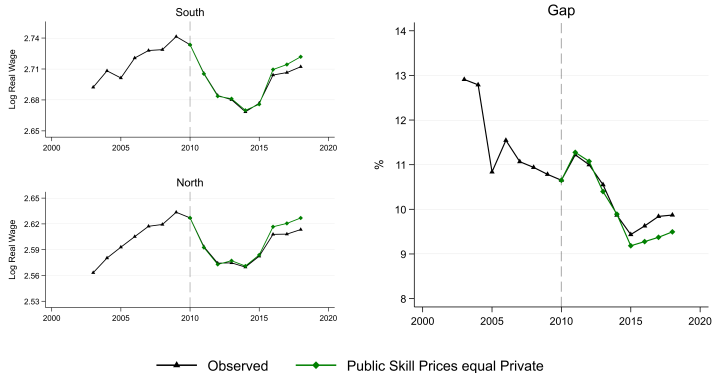
Levelling Down

Figure 13: Counterfactual North-South Gap

Source: ASHE sample of public and private sector workers aged over 16.

Figure shows observed and counterfactual North-South gap as measured by the difference between the mean of the male and femal wage distribution. The black line represents the observed data and the green line represents how earnings by region (and the wage gap) would have evolved if public skill prices had changed in line with private skill prices. Counterfactuals are calculated via a DiNardo, Fortin & Lemieux decomposition where wages are generated according to a linear specification including sex, age (squared), union status, hours worked, and region & occupation fixed effects.

Conclusion

The public pay caps from 2010-18 were associated with a...

1. brain drain in terms of observable characteristics as skilled workers transitioned out of the public sector

2. decrease in the IQR of earnings by **3.5**%

3. increase in the North-South wage divide of **4.5**%

4. increase in the gender pay gap by **14.5**%

Bibliography I

Bell, B., Bloom, N. & Blundell, J. (2021), Income dynamics in the united
kingdom 1975-2020, Technical report.

Bell, B., Bloom, N. & Blundell, J. (2022), 'Income dynamics in the united
kingdom and the impact of the covid-19 recession', *Quantitative Economics*
13(4), 1849–1878.

Blundell, R., Green, D. A. & Jin, W. (2022), 'The uk as a technological follower:
Higher education expansion and the college wage premium', *The Review of
Economic Studies* **89**(1), 142–180.

Bibliography II

Bradley, J., Postel-Vinay, F. & Turon, H. (2017), 'Public sector wage policy and labor market equilibrium: a structural model', *Journal of the European Economic Association* **15**(6), 1214–1257.

De Loecker, J., Obermeier, T. & Van Reenen, J. (2022), 'Firms and inequality'.

DiNardo, J., Fortin, N. & Lemieux, T. (1995), 'Labor market institutions and the distribution of wages, 1973-1992: A semiparametric approach'.

Evans, J., Jung, C., Parkes, H. & Narayanan, P. (2023), 'The public sector needs a real pay rise'.

Facchetti, E. (2021), 'Police infrastructure, police performance, and crime: Evidence from austerity cuts', *Job Market Paper* .

Bibliography III

Fetzer, T. (2019), 'Did austerity cause brexit?', *American Economic Review* **109**(11), 3849–3886.

Garibaldi, P., Gomes, P. & Sopraseuth, T. (2021), 'Public employment redux', *Journal of Government and Economics* **1**, 100003.

Giupponi, G. & Machin, S. (2021), 'Minimum wages and the wage policy of firms'.

Giupponi, G. & Machin, S. (2022), 'Labour market inequality'.

Gomes, P. (2018), 'Heterogeneity and the public sector wage policy', *International Economic Review* **59**(3), 1469–1489.
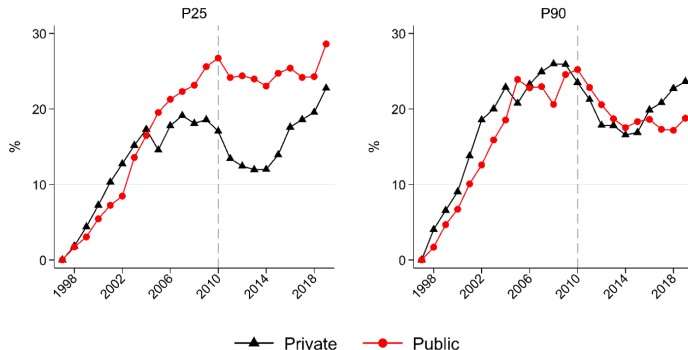
Figure 1: Evolution of log real wages indexed at 1997=0.

Source: ASHE sample of public and private sector workers aged 16 and over.

The figure plots the evolution of real log wages in the public and private sector times 100
at the 25th and 90th percentiles. Wages are normalised at 1997=0 so the year-on-year change
represents the percentage increase/decrease in real wages relative to 1997 (deflated by CPI to
equal 2019 prices).

P90

Triple Difference Approach

- Leverage a **triple difference estimator**
- Compare worker transitions ($Flow_{it} = 1$ if worker transitions) for
  1. those earning above/below the threshold ($Treat$, $w_{it} \in \{uncapped, capped\}$)
  2. before and after 2010 ($Time$, $t \in \{pre-2010, post-2010\}$)
  3. between the public and private sector ($Sector$, $s_{it} \in \{Pub, Priv\}$)
  4. Earning between £17k-£25k

$$
\begin{aligned}
Flow_{it} = \alpha_i &+ \beta_1 1\{t = post-2010\}_t + \beta_2 1\{s = Pub\}_{it} + \beta_3 1\{w = capped\}_{it} \\
&+ \beta_4 1\{t = post2010\}_t * 1\{s = Pub\}_{it} \\
&+ \beta_5 1\{s = Pub\}_{it} * 1\{w = capped\}_{it} \\
&+ \beta_6 1\{t = post2010\}_t * 1\{w = capped\}_{it} \\
&+ \underbrace{\beta_7}_{\text{Coefficient of Interest}} 1\{t = post2010\}_t * 1\{s = Pub\}_{it} * 1\{w = capped\}_{it} + e_{it} \quad (8)
\end{aligned}
$$

Triple Difference Results

Table 2: Triple Difference Flow Estimates: Wages

	(1) Outflow	(2) Inflow
Public × Post-2010=1 × Pay Capped=1	2.269***	0.281***
	(0.364)	(0.0898)
Individual FE	Y	Y
R2	0.274	0.196
N	1538674	1538674

Results from a triple difference estimator. The outcome variable of interest is a binary varaible which takes a value of one if a given individual separated from a specific sector at time t. The first difference is the pre vs post 2010 period. The second difference compares public and private sector workers. The third difference compares workers earning above and below the £21k pay cap. Only the triple difference paramter estimates are reported in the above table, which identify the average treatment effect on the treated.
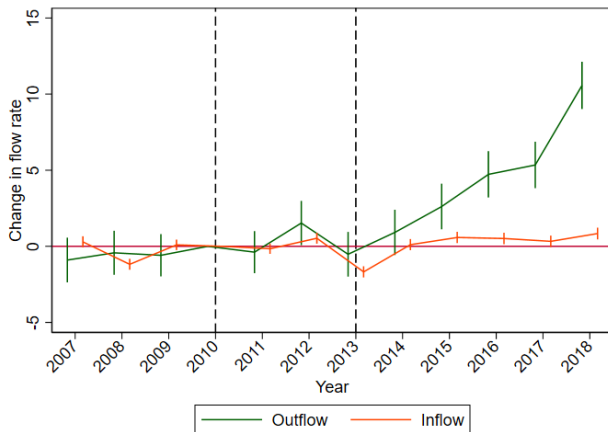
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

- Both outflow and inflow are increasing above the cap threshold
- Outflow effects ×10 larger in magnitude

Transition Matrix

Back to Outflow

Triple Difference Event Study

- Considering the **dynamics** of the triple diff, the effect is delayed

Triple Difference Decomposition

- To see where effects come from, decompose outflow:

$$Pr(Outflow_{ist}) = Pr(ChangeSector_{ist}) + Pr(NewJobWithinSector_{ist}) + Pr(LeaveLaborMarket_{ist})$$

$$(9)$$

Table 3: Triple Difference Outflow Decomposition

	(1) Overall	(2) Leave Labor Mkt	(3) Different Sector	(4) Same Sector
Public × Post-2010 × Capped	2.523***	1.988***	0.270***	0.265
	(0.413)	(0.358)	(0.0893)	(0.265)
Individual FE	Y	Y	Y	Y
R2	0.274	0.275	0.195	0.176
N	1538674	1538674	1538674	1538674
Fraction of total transitions	1	0.67	0.04	0.28
Coefs (shutting down other channels)	–	2.967	6.750	0.946
Magnitude relative to Unemp	–	1	2.3	0.3

Results from a triple difference estimator. The outcome variable of interest is a binary variable which takes a value of one if a given individual separated from a sepecific sector at time t. The first difference is the pre- vs post-2010 period. The second difference compares public and private sector workers. The third difference compares workers earning above and below the £21k cap. Only the triple difference parameter estimates are reported in the above table, which identify the ATT. Outflow is decomposed into outflow into unemployment, outflow into a diffeerent sector and outflow to the same sector.

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Transition Matrix

Redundancies Along the Wage Distribution

- To see whether outflows were voluntary, look at redundancies

$$redundant_{it} = \alpha + \beta_1 ln(w_{it}) + \beta_2 X_{it} + e_{it} \qquad (10)$$

Table 1: Redundancy along the public wage distribution

	(1) Unconditional	(2) Conditional
Log Hourly Wage	-1.393***	-1.044
	(0.533)	(0.660)
Controls		Y
Adjusted R Squared	0.00184	0.0332
N	3710	3710

Table shows results from a regression where the dependent variable is a binary variable that takes a value of one if the worker is made redundant and zero if they separate for another reason. Only individuals who transition at time t are included. The independent variable of interest is the individual's hourly wage. The conditional specification (2) controls for age, qualification indicators and industry indicators.
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

- Redundancy negatively correlated with log wages over this period

Back to Outflow

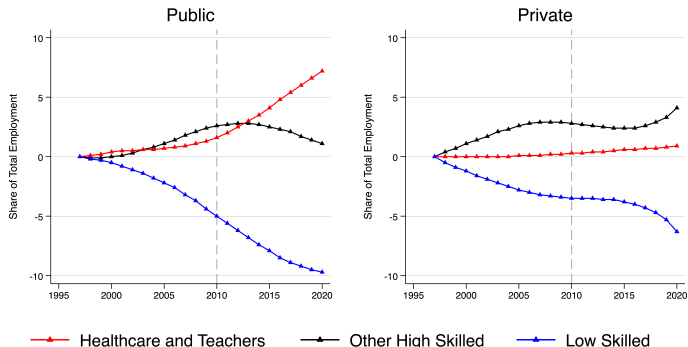# Public and Private Occupation Shares

Figure 7: Share of Sectoral Employment

Source: LFS sample of public and private sector workers aged 16 and over
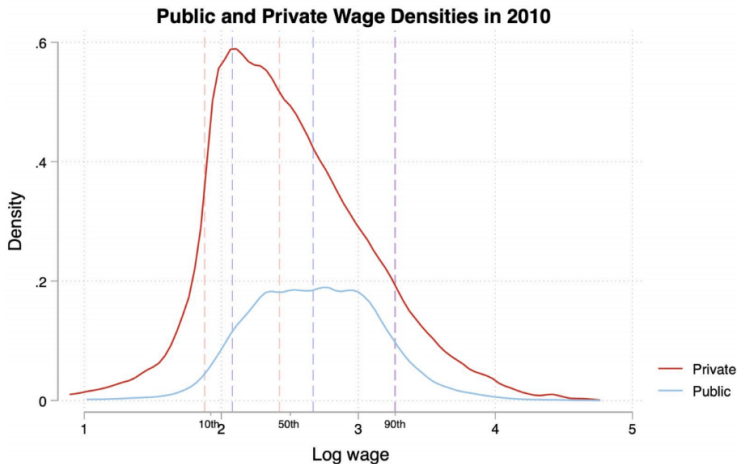
Figure shows the chabge in the share of total sectoral employment over time.
The vertical dashed line in 2010 represents the onset of the pay caps.
The series are smoothed using local linear regressions.
A high skilled worker is defined as any occupation with SOC code < 4000.

Back to Occupation Shares

Public and Private Sector Wage Distributions

Densities normalised so that integral of public and private sector density sum to 1. 2020 £s

Back Summary Stats   Back IQR

Characteristic Counterfactual

1. What distribution of wages would have prevailed in 2018 if characteristics were distributed as in 2010?
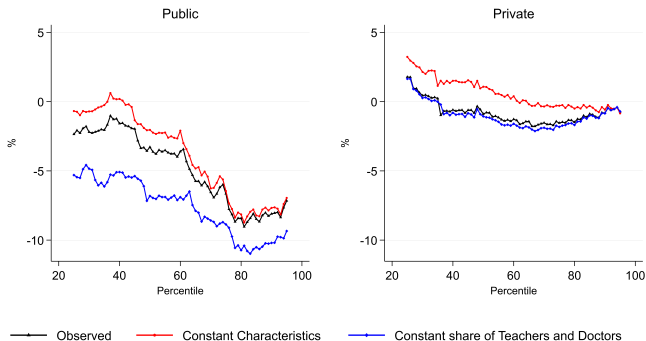

Figure 9b: Characteristic Counterfactual

Source: ASHE sample of public and private sector workers aged over 16.

Figure shows the observed and counterfactual wage growth between 2010 and 2018. The black line represents the observed wage growth, the red line represents the wage growth that would have occurred given that characteristics are distributed as in 2010 and skills were priced as in 2018. The blue line represents the wage growth that would have prevailed in the public sector if the share of teaching and medical professionals are held constant. Counterfactuals are calculated via a DiNardo, Fortin & Lemieux decomposition where wages are generated according to a linear specification including sex, age (squared), union status, hours worked, and region & occupation fixed effects.

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