

On why gender employment equality in Britain
has stalled since the early 1990s

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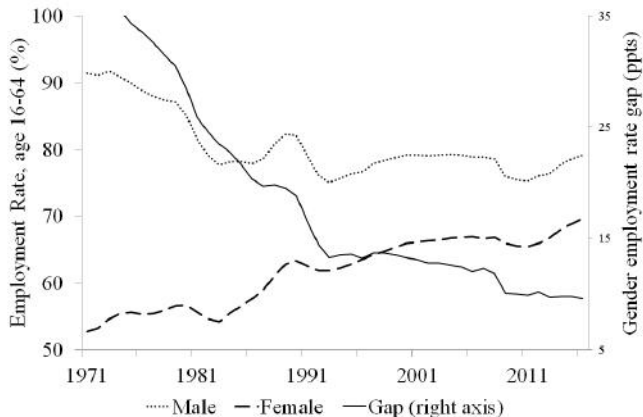
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Gender employment equality in the UK

- ▶ Between 1971-1990 the employment rate gap fell 1 percentage point per year on average
- ▶ From 1991-2016 it fell by only $\frac{1}{3}$ annually

Gender employment equality in the UK

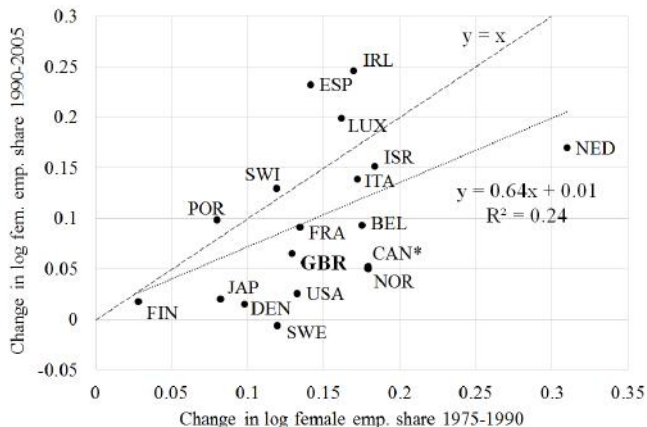
Figure: The UK working-age gender employment rate gap, 1971-2016



Notes.- Author calculations using ONS Labour Market Statistics (accessed 10/11/2017). Gap is expressed as male minus female.

Gender employment equality across countries

Figure: The evolution of female employment shares across countries: 15 years before and after 1990



Notes.- Author calculations using ILOSTAT labour market indicators (accessed 10/11/2017). Canada is 1976-1990 due to lack of data availability for 1975.

Our question

Why, since the early 1990s, has the gender employment gap in the UK not continued to narrow as quickly as it did in the preceding decades?

Our question

Descriptive as opposed to causal framework:

- i** Decompose the change in the gender employment rate gap over time in to differences in workforce composition and employment rates.
- ii** Briefly look at how the same differences account for changes in overall and within industry female employment shares.
- iii** We find evidence that the slow down in the closing of the gender employment rate gap is due to a reduced impact of employment rates of individuals with certain characteristics.

Long run trends in female employment

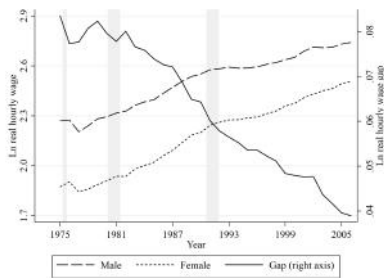
- i** Historical development and cohort effects ([Goldin, 1990, 2006](#); [Joshi et al., 1985](#); [Gregg et al., 2007](#)).

- ii** Human capital ([Acemoglu and Autor, 2011](#)), real wages ([Layard et al., 1980](#); [Smith and Ward, 1985](#)), technological ([Greenwood et al., 2005](#); [Albanesi and Olivetti, 2016](#)) and institutional changes ([Goldin and Katz, 2002](#); [Bailey, 2006](#); [Albanesi and Olivetti, 2016](#))

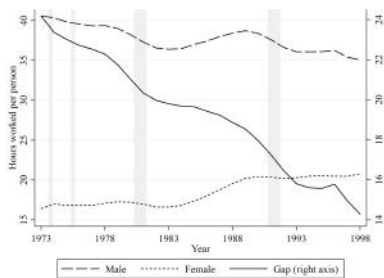
- iii** Changing industry structure and demand for skills ([Olivetti and Petrongolo, 2014, 2016](#)).

A word on hours and wages...

Figure: Mean hours worked per person and mean log real hourly wages, with gender gaps



(a) Real hourly wages, 1975-2005



(b) Hours worked per person, 1973-1998

Notes.- the series for “Real hourly wages” are taken from [Elsby et al. \(2016\)](#). Real wages were expressed in April 2012 pounds using the ONS RPIX prices index. “Hours worked per person” are author calculations using General Household Survey, 1972-1998, ages 25-54 only. Working hours were not consistently recorded after 1998 when compared with before. Gaps are expressed as male minus female. Shaded areas denote official periods of UK recessions.

Data

- ▶ Great Britain's General Household Survey (GHS) covering the period 1972-2006.
- ▶ Variables are limited to those that change minimally over time.
- ▶ Prime working age population (25-54) with no missing values for all variables.
- ▶ Three year, pooled samples. For example, estimates for "1973" use the pooled sample for 1972-1974.
- ▶ The two periods considered in our analysis are 1973-1989 and 1989-2005.

Worker types

- ▶ Age groups [6 categories], highest qualification [4], number of dependent children [3], whether or not at least one of those children is an infant [2], and marital/partner status [2].
- ▶ For individuals married, cohabiting, or in a same-sex couple, their partner's employment status [2] and education [4].
- ▶ Interacted, these give **180 worker types**.

Worker types

For example, married men/women, who have a degree and two non-infant children, whose wives/husbands are employed and have further education qualifications.

A gender-blind distribution of work

- ▶ e_{ig} is the *observed* employment rate of a worker with gender $g \in \{m, f\}$ and type of personal characteristics i .
- ▶ α_{ig} denotes the share of the male or female population who are type i .
- ▶ *Non-gendered* employment rates or shares of the population omit the g subscript.

A gender-blind distribution of work

Counterfactual gender-blind distribution of work:

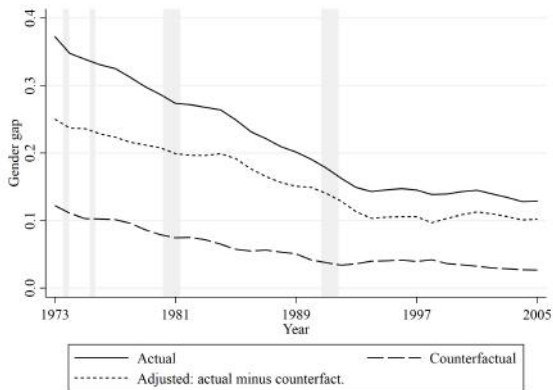
$$Gap_{Cf} = \sum_i (\alpha_{im} - \alpha_{if}) e_i .$$

Adjusted gap:

$$Gap_{Adj} = Gap - Gap_{Cf} .$$

A gender-blind distribution of work

Figure: Employment rate gap, age 25-54.



Notes.- author calculations using General Household Survey, 1972-2006. Shaded areas denote official periods of UK recessions.

Worker characteristics and household employment

The change in the gender employment rate gap between periods t and x can be written as:

$$\Delta_{t-x}Gap_t = \sum_i \left[\underbrace{(\Delta_{t-x}\alpha_{imt})e_{imx} - (\Delta_{t-x}\alpha_{ift})e_{ifx}}_{\text{Composition shifts}} + \underbrace{\alpha_{imx}(\Delta_{t-x}e_{imt}) - \alpha_{ifx}(\Delta_{t-x}e_{ift})}_{\text{Employment rate changes}} \right] + \text{Interactions ,}$$

- ▶ **Composition shifts** - Change in gender employment rate gap due to differences in the distribution of worker types.
- ▶ **Employment rate changes** - Analogous change due to differences in the employment rate of worker types.

Table: Shift-share decomposition of changes in overall employment rates and the gender gap, 1973-89 and 1989-2005 (ppts)

	Male		Female		Gap	
	73-89	89-05	73-89	89-05	73-89	89-05
Composition shifts	0.8	2.3	3.1	4.8	-2.3	-2.5
Employment rates	-10.9	-3.8	7.4	0.0	-18.3	-3.8
Interactions	4.3	0.8	0.8	1.7	3.5	-0.9
Total (actual)	-5.8	-0.7	11.3	6.6	-17.1	-7.3
<i>Employment rates:</i>						
<i>By highest qualification:</i>						
None	-8.7	-2.1	3.3	-2.1	-12.0	0.1
Any below A-level	-1.6	-1.1	3.0	1.4	-4.6	-2.5
A-level or prof.	-0.4	-0.5	1.0	0.6	-1.4	-1.1
Degree	-0.1	-0.2	0.1	0.1	-0.2	-0.3
<i>By dependent children:</i>						
No children	-4.0	-2.7	1.1	-1.2	-5.0	-1.5
≥0, no infant	-3.6	-0.6	2.9	-0.5	-6.5	0.0
1-2, incl. infant	-1.6	-0.5	3.0	1.9	-4.6	-2.3
3+, incl. infant	-1.7	-0.1	0.5	-0.1	-2.2	0.1
<i>By partner status:</i>						
No partner	-7.0	-1.9	-0.3	-0.6	-6.7	-1.3
Partner employed	-1.5	-0.7	9.6	1.4	-11.1	-2.1
Partner non-employed	-2.3	-1.2	-1.9	-0.8	-0.4	-0.4

Notes.- Author calculations using General Household Survey, 1972-2006, ages 25-54 only. Gap expressed as male minus female (changes). *Contributions from changes only in the employment rates associated with each mutually exclusive set of characteristics.

Worker characteristics and household employment

Using a regression based decomposition the same change can be written as:

$$\begin{aligned} \Delta_{t-x}Gap_t = & \underbrace{\left\{ E_{\beta_{m_x}}[e_{m_t}|X_{m_t}] - E_{\beta_{m_x}}[e_{m_x}|X_{m_x}] \right\} - \left\{ E_{\beta_{f_x}}[e_{f_t}|X_{f_t}] - E_{\beta_{f_x}}[e_{f_x}|X_{f_x}] \right\}}_{\text{Composition}} \\ & + \underbrace{\left\{ E_{\beta_{m_t}}[e_{m_x}|X_{m_x}] - E_{\beta_{m_x}}[e_{m_x}|X_{m_x}] \right\} - \left\{ E_{\beta_{f_t}}[e_{f_x}|X_{f_x}] - E_{\beta_{f_x}}[e_{f_x}|X_{f_x}] \right\}}_{\text{Coefficients}} \\ & + \text{Interactions ,} \end{aligned}$$

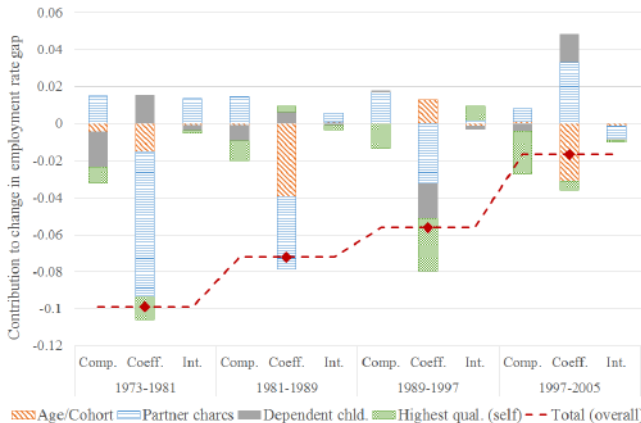
- ▶ **Composition effects** - difference in the employment rate gap due to change in distribution of observables.
- ▶ **Coefficients effects** - analagous difference due to changes in the response of employment rates to observables.

Table: Blinder-Oaxaca type decomposition of changes in overall employment rates and the gender gap, 1973-89 and 1989-2005 (ppts)

	Male		Female		Gap	
	73-89	89-05	73-89	89-05	73-89	89-05
<u>Composition:</u>						
Age/Cohort	0.1	-0.1	0.6	-0.2	-0.5	0.1
Partner chars	1.0	0.9	-1.9	-1.4	2.9	2.4
Dependent chld.	0.2	0.0	3.0	0.3	-2.8	-0.3
Highest qual. (self)	1.0	2.0	3.0	5.7	-1.9	-3.7
<u>Coefficients:</u>						
Age/Cohort	-5.1	1.2	0.3	3.0	-5.5	-1.9
Partner chars	-8.8	-8.3	3.0	-8.4	-11.8	0.1
<i>Single</i>	-1.3	-1.1	-2.2	-2.5	0.9	1.4
<i>Non-employed partner</i>	-5.6	-1.8	-0.4	-1.3	-5.2	-0.5
<i>Employed partner</i>	-2.1	-4.2	4.3	-7.0	-6.4	2.8
<i>Partner quals.</i>	0.2	-1.3	1.3	2.3	-1.1	-3.5
Dependent chld.	1.0	1.5	-1.2	1.8	2.2	-0.4
Highest qual. (self)	2.6	1.6	3.5	5.0	-0.9	-3.3
Interactions	2.1	0.5	1.0	0.8	1.1	-0.4
Total (actual)	-5.8	-0.7	11.3	6.6	-17.1	-7.3

Notes.- author calculations using General Household Survey, 1972-2006, ages 25-54 only. Groupings: 'Age/cohort': dummy variables for age groups; 'Partner chars': marital status interacted with dummy variables for a partner's employment status and their highest qualification; 'Dependent chld.': interaction of dummy variables for no. of children with indicator of their being an infant in the household; 'Highest qual. (self)': highest qualification level.

Figure: Blinder-Oaxaca type decomposition of the change in the gender employment rate gap, 1973-81, 1981-89, 1989-97 and 1997-2005



Notes.- author calculations using General Household Survey, 1972-2006, ages 25-54 only. Estimates are obtained from regressions of male and female employment likelihood on individual characteristics, and first using these to decompose changes between years for each gender, and then presenting how each of these together imply contributions to the change in the employment rate gap, stated as male minus female.

The pace of industry structural change

- ▶ We consider eight broad industries, denoted by k
- ▶ Each industry share of overall employment is λ_k
- ▶ Overall female employment at time t is F_t

The pace of industry structural change

The change in the overall female share of employment between times t and x can be decomposed as

$$\Delta_{t-x}F_t = \sum_k \left[\underbrace{(\Delta_{t-x}\lambda_{kt})F_{kx}}_{\text{Ind. composition shifts}} + \underbrace{\lambda_{kx}(\Delta_{t-x}F_{kt})}_{\text{Within-ind. gender shares}} + \underbrace{(\Delta_{t-x}\lambda_{kt})(\Delta_{t-x}F_{kt})}_{\text{Interactions}} \right]$$

- ▶ **Industry composition effects** - Change in female employment share due to shifts in the composition of employment *between* industries.
- ▶ **Within industry gender shares** - Analogous change due to shifts in the composition of employment *within* industries.

The pace of industry structural change

Denoting the share of worker type i in industry k by μ_{ik} , the within industry employment share changes can be further decomposed as

$$\lambda_{kx}(\Delta_{t-x}F_{kt}) = \sum_i \left[\underbrace{\lambda_{kx}\mu_{ikx}(\Delta_{t-x}F_{it})}_{\text{Emp. type gender shares}} + \underbrace{\lambda_{kx}(\Delta_{t-x}\mu_{ikt})F_{ix}}_{\text{Within-ind. emp. type shifts}} + \underbrace{\lambda_{kx}(\Delta_{t-x}\mu_{ikt})(\Delta_{t-x}F_{it})}_{\text{Interactions}} \right]$$

- ▶ **Emp. type gender shares** - Change in female employment within an industry due to differences over time in the overall distribution of female worker types.
- ▶ **Within-ind. emp. type shifts** - Analogous change due to distribution of types within industries.

Table: Shift-share decomposition of changes in the female share of total employment, 1973-79, 1982-93 and 1994-2005 (ppts)

	73-79	82-93	94-05
Industry composition shifts	1.2	2.6	2.0
Within-industry gender shares:			
<i>Employment-education gender shares</i>	4.0	5.7	1.3
<i>Industry education demand shifts</i>	-1.6	-2.0	-1.9
<i>Subtotal (incl. interactions)</i>	0.9	2.6	-0.7
Interactions	0.1	0.1	0.4
Total (actual)	2.2	5.2	1.7

Notes.- author calculations using General Household Survey, 1972-2006, ages 25-54 only.

Conclusions

- ▶ Technical change does not seem to explain the slowing of the gender employment gap decline.
- ▶ Neither do changes in the distribution of worker types between and within gender populations.
- ▶ It appears that changes in the employment rates of workers with certain characteristics explain the stagnation.
- ▶ Is this the “new norm”?

Thank you

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