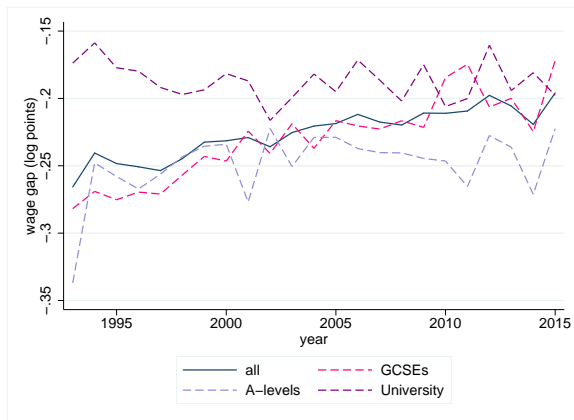# The Gender Wage Gap and the Career Patterns of Men and Women

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University of Greenwich, Jan 2016

Motivation

- While there has been some historical convergence, gender wage disparities remain high

- This is true at all education levels

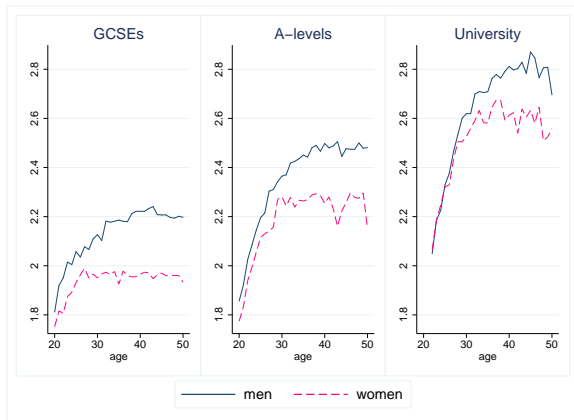# Motivation: wage gap over time

- LFS data, 20-50 years old employees
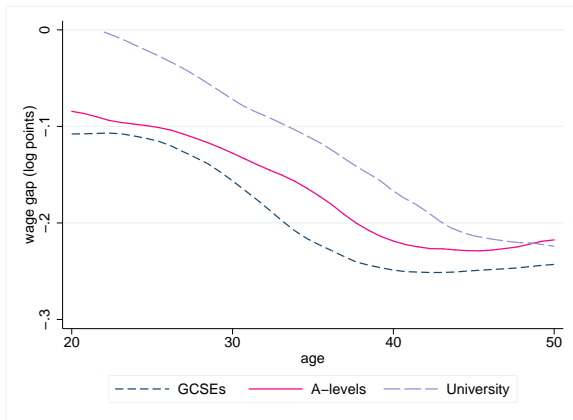- Wage gap in log points, hourly wages, central 98% distribution
- Net of common cohort × time effects

The gender differential in (real) hourly wages increases continuously over the life-cycle

BHPS 1991-2008.

After controlling for cohort and time effects, hourly wages are 15-25% lower for women than for equally educated men by their 40s

BHPS 1991-2008.

This project relates the diverging wages of men and women over the life-cycle with gender differences in career patterns

- Document differences in the career patterns of men and women

- Relate them to the dynamics of family demographics

- Measure the long-term consequences of career patterns on earnings capacity

- Assess the role of differences in career patterns in explaining the gender pay gap

Career patterns: we focus on employment and hours choices.

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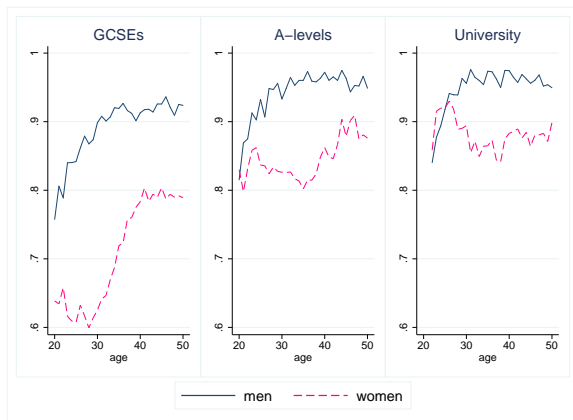Career patterns: we focus on employment and hours choices.

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Career patterns: we focus on employment and hours choices.

Women and men work at different rates

BHPS 1991-2008.

Part-time work: 20 or fewer hours per week

BHPS 1991-2008.

This cumulates to large differences in working experience
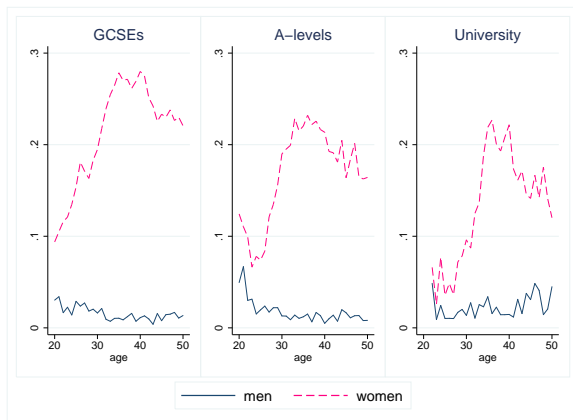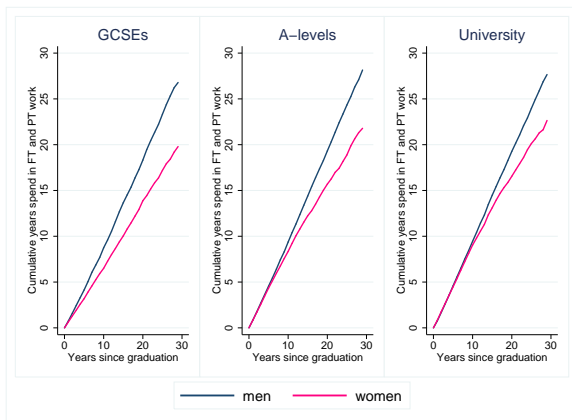
BHPS 1991-2008.

Labour supply over the life-cycle: cumulative experience II

Women versus men: gradual loss in full-time experience partly compensated by extra part-time experience

Figure: Gender differences in accumulated experience: Full-time and Part-time

BHPS 1991-2008.

The differences in labour supply widen dramatically with the first birth
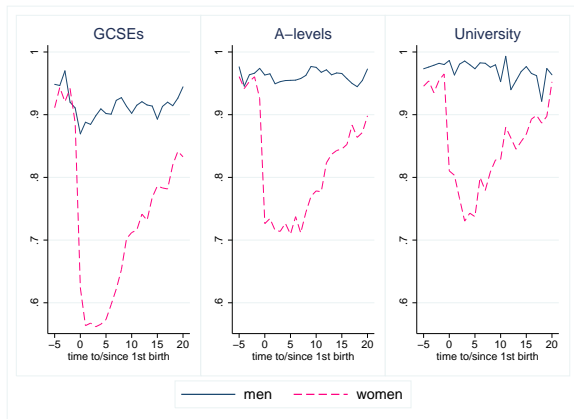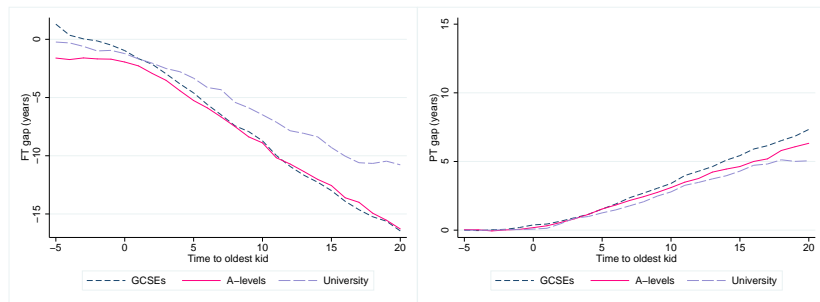
BHPS 1991-2008, 22 or older at first birth.

Labour supply among parents: part-time employment rates

BHPS 1991-2008, 22 or older at first birth.

Figure: Gender differences in accumulated experience: Full-time and Part-time

BHPS 1991-2008, 22 or older at first birth.

- ▶ Women respond to childbirth by reducing employment and working hours

- ▶ In contrast, men's labour supply hardly affected by family circumstances

- ▶ After 15 years: women have a deficit of 8-13 years of full-time experience relative to men, but around 4-6 additional years of part-time experience

- ▶ These differences in career patterns coincide with the widening of the wage gap

Wage gap over time, by whether or not a parent

The gender wage gap is small and relatively constant over time among those who have no children
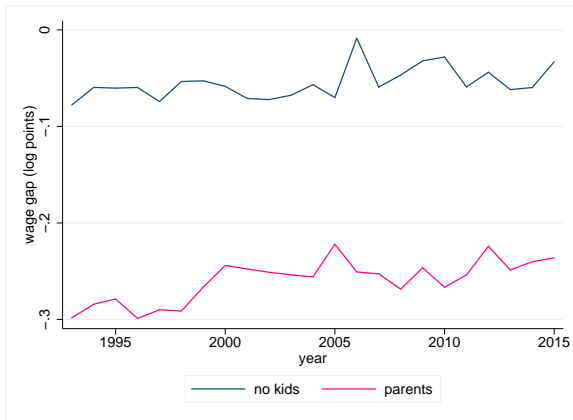
LFS 1993-2015.

Wage differences remain low among those who have no children
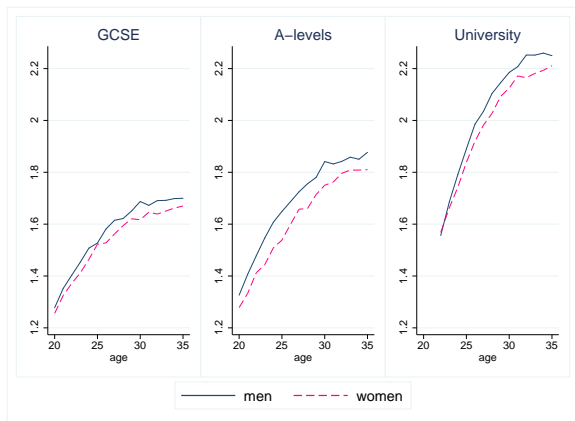
LFS 1993-2015.

Gender wage gap by time to/since birth of first child

But the gender wage gap widens gradually with time since birth among parents
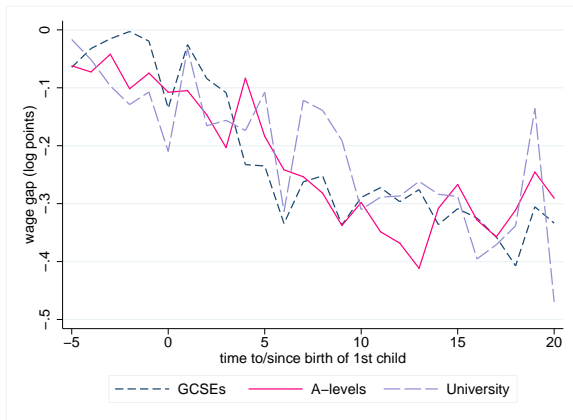
BHPS 1991-2008, 22 or older at birth.

The long-term effects of career patterns

To measure the long-run effects of career interruptions and short working hours, we estimate a model of labour supply, experience accumulation and wages for women

- ▶ Model female labour supply and the dynamics of wages over the course of life

- ▶ Women decide whether to work part-time, full time, or not at all

- ▶ Labour supply responds to her circumstances: income at different working hours and family demographics

- ▶ Wages depend on accumulated part-time and full-time experience

- ▶ All by education, for each of the three grades GCSEs, A-levels, University

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Working experience e of woman i at age a

$$e_{ia} \;=\; e_{i,a-1}\left(1-\delta\right) \;+\; \theta_F \mathbf{1}\left(l_{i,a-1}=F\right) \;+\; \theta_P \mathbf{1}\left(l_{i,a-1}=P\right)$$

- ▶ Working experience accumulates on the job
  - ▶ Working full-time adds θ_F units of experience; set to 1
  - ▶ Working part-time adds θ_P units of experience - Part-time penalty if $\theta_P < 1$

- ▶ Experience depreciates in each period at a rate δ – helps explaining the concavity in wage profiles

Wage w of woman i at age a

$$\ln w_{ia} \quad = \quad \ln W + \gamma \ln (e_{ia} + 1) + v_{ia}$$

- ▶ Wage rates are a function of a market wage W, accumulated experience e and idiosyncratic unobserved shocks v

- ▶ The returns to experience in wages is measured by γ

$$\ln w_{ia} = \ln W + \gamma \ln (e_{ia} + 1) + v_{ia}$$
$$e_{ia} = e_{i,a-1} (1 - \delta) + \mathbf{1} (l_{i,a-1} = F) + \theta_P \mathbf{1} (l_{i,a-1} = P)$$

|	GCSEs	A-levels	University
Wage rates			
Intercept (W)	5.406	5.547	6.949
	(0.030)	(0.038)	(0.071)
Returns to experience (γ)	0.152	0.229	0.306
	(0.006)	(0.009)	(0.011)
Experience dynamics			
While in Part-Time work: θ_P	0.150	0.096	0.116
	(0.015)	(0.022)	(0.013)
Depreciation rate: δ	0.081	0.057	0.073
	(0.008)	(0.008)	(0.009)

Wage profiles of women: fit

Wage profiles by age and education: BHPS (solid) and model predictions (dashed)
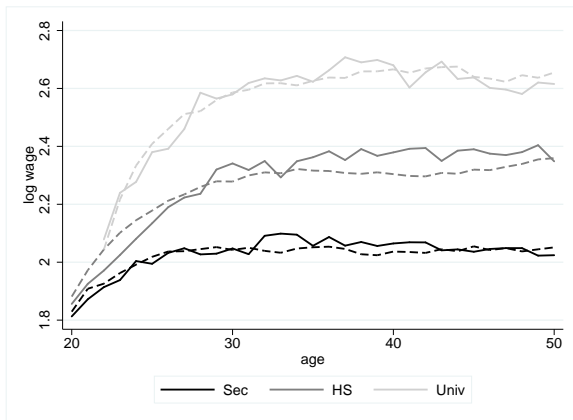
Part-time Experience Penalty

- ▶ Working short hours is costly
- ▶ Part-time work just makes up for the depreciation of experience capital

Figure: Loss in experience capital by moving into part-time hours at 30 relative to continue in full-time work
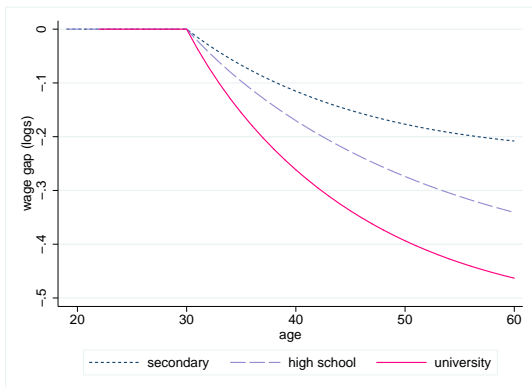
Cumulated losses in earnings from part-time and non-working time

- The loss in earnings capacity from taking time off paid work or working short hours depends on the sequence and duration of these spells

- Using the model predictions of lifetime labour supply choices, we calculate the accumulated cost of career intermittency for women

Losses in earnings capacity by the age of 50 as compared to the gender gap

	Cumulative time (years)		Wage loss (log pts)		Gender
	PT	PT +NW	PT	PT+NW	gap
GCSEs	+7.6	+15.4	0.053	0.105	.241
A-levels	+5.6	+12.9	0.070	0.125	.222
University	+3.4	+ 7.8	0.078	0.143	.213

Losses in earnings capacity among mothers when oldest child is 15 as compared to the gender gap

Log points

	Cumulative time (years)		Wage loss (log pts)		Gender
	PT	PT+NW	PT	PT+NW	gap
GCSEs	+5.4	+13.0	0.071	0.147	.308
A-levels	+4.6	+12.5	0.087	0.160	.266
University	+4.2	+9.3	0.096	0.171	.287

Summary

- Differences in pay between men and women remain large

- They open up sharply with the birth of the first child, which coincides with marked divergence in career patterns

- We find that experience matters and is complementary with education

    - Taking time off paid work and working short hours carry long-term costs on earnings capacity
    - Costs are higher for university graduates

- At university level, career intermittency explains almost 70% of the gender wage gap by the age of 50

- At GCSE level, the equivalent value is around 40% and despite the higher prevalence of career breaks