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Incentives, shocks or signals: labour supply effects of increasing the early retirement age for women

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Overview

- What is the effect of increasing the earliest age at which women can claim pension benefits on:
  - Women's labour force participation?
  - Their husbands' labour force participation?

- What mechanisms are driving these responses?
- Using evidence from a recently implemented reform in the UK
  - Gradually increasing the female pension claiming age from 60 to 66, starting in 2010
  - Use data up to 2012, by which time pension claiming age had increased from 60 to 61

- Contributes to two literatures
  - Effect of changes to normal and early retirement ages in social security systems
 - Joint retirement and complementarity of leisure within couples

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Outline

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Increasing the state pension age for women

- Legislation passed in 1995 increased the "state pension age" for women in the UK from 60 to 65
  - Due to be phased in between 2010 and 2020
  - Motivated by a requirement to equalise the treatment of men and women
  - More recent legislation has accelerated and extended the increase

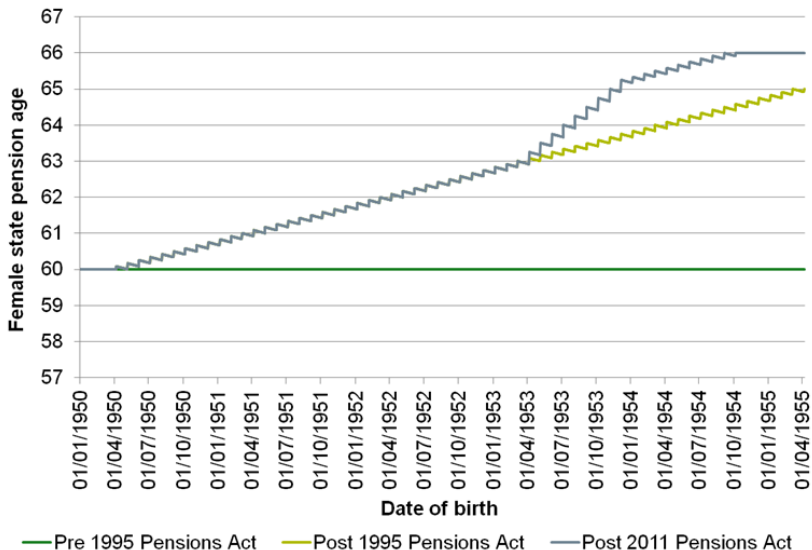# Increases in the female state pension age
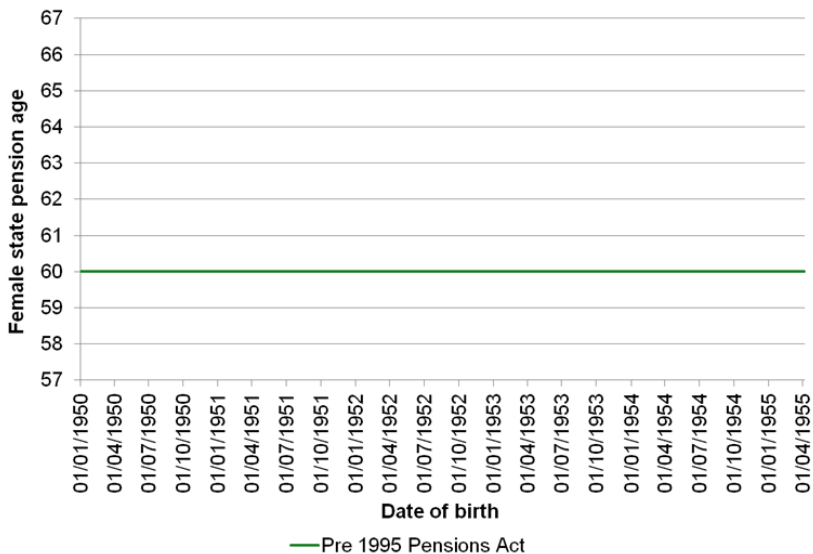
Source: Figure A.1 of Cribb, Emmerson and Tetlow (2013).

Increases in the female state pension age

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# Increases in the female state pension age

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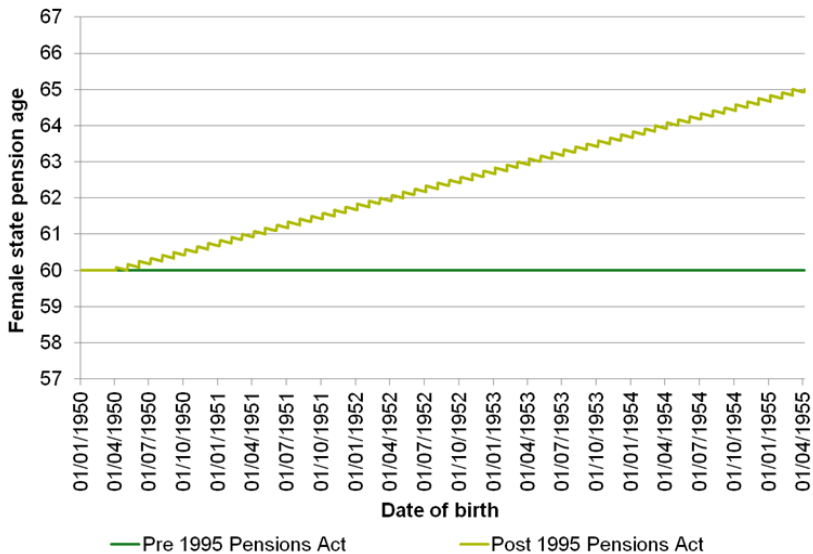
What happens at the state pension age? (1)

- Earliest age at which one can draw a state pension
    - SPA is the only focal age in the UK state pension system

- State pension comprises:
    - Flat-rate component: basic state pension, paid to everyone who has 30 years' contributions ($8,700 per year)
    - Earnings-related component: state earnings-related pension scheme (now state second pension) (up to c. $13,000 p.a.)

- No earnings test for receipt of state pension income
    - Claiming and leaving paid work separate decisions (in theory)

- Can delay drawing state pension in return for 10.4% p.a. uplift
    - Compares to 8.0% deferral rate in Social Security
    - But very few people choose to defer in the UK

- Prior to reform, SPA was the single most common age for women to leave paid work but many exit before and after

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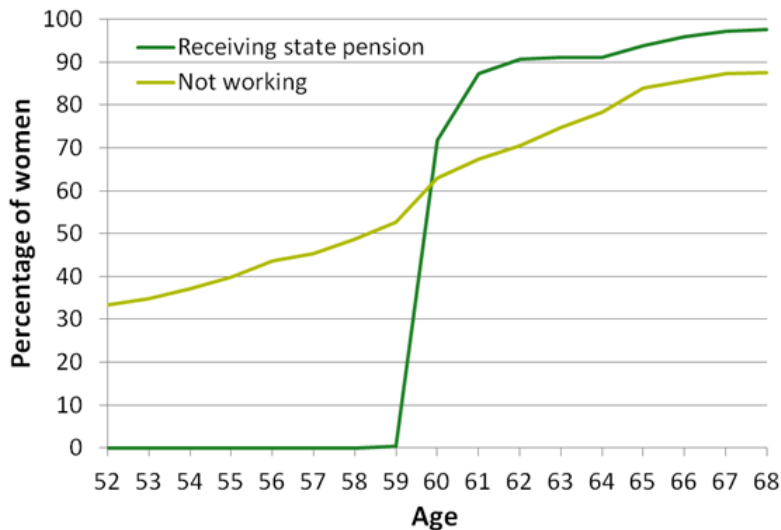# Benefit claiming and retirement rates for women

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Benefit claiming and retirement rates for women
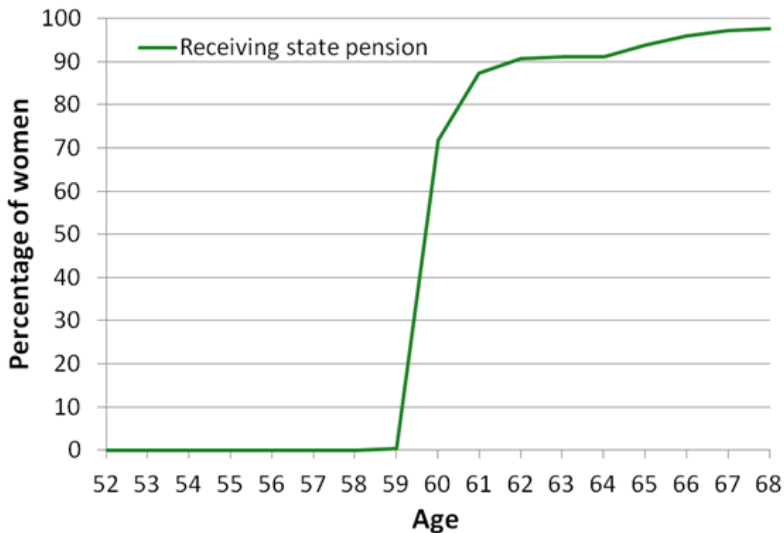
Notes: Women born 1940–1943.
Source: Family Resources Survey and Labour Force Survey.

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What happens at the state pension age? (2)

- Tax and benefit system also changes at state pension age
- Pensioners eligible for more generous (income and health tested) benefits with less conditionality
- Employee payroll taxes reduced
  - Marginal rate reduced by up to 12 percentage points

Why might increasing the state pension age affect labour force participation?

1. Marginal financial incentives
2. Wealth effect
3. Credit constraints
4. Social norms and endorsement effects

Why might increasing the state pension age affect labour force participation?

1. Marginal financial incentives
   - Higher payroll taxes at age 60: reduce marginal benefit of working
   - Lower (non-pensioner) out-of-work benefits with greater conditionality: increase marginal benefit of working
   - Overall effect ambiguous

Why might increasing the state pension age affect labour force participation?

1. Marginal financial incentives
2. Wealth effect
   - Richer people consume more leisure
   - Increasing state pension age reduces lifetime wealth
   - Expect people to work more: retire later?

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Why might increasing the state pension age affect labour force participation?

1. Marginal financial incentives
2. Wealth effect
3. Credit constraints
   - Women have lower income at age 60 than they would have had
   - May want to draw down savings or borrow to fund expenditure
   - If this is not possible, may continue to work for longer

Why might increasing the state pension age affect labour force participation?

1. Marginal financial incentives
2. Wealth effect
3. Credit constraints
4. Social norms and endorsement effects
   - State pension age may anchor social norms
   - May signal an endorsement about when is the right time to retire
   - Increasing state pension age may lead to people delaying retirement

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Why might increasing women's state pension age affect their husbands' labour force participation?

- Husbands of affected women may increase their labour supply because:
  - Alternative margin for household to respond to wealth loss
  - Complementarity of leisure: husbands and wives may want to retire at the same time

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Literature: changing normal and early retirement ages

- Ex ante simulations of effect of increasing early/normal retirement ages suggested large effects on employment rates
  - Fields and Mitchell (1984); Gustman and Steinmeier (1985); Phelan and Rust (1997); Coile and Gruber (2002); Blundell and Emmerson (2007)

- Ex post evaluations suggest (in many cases) even larger (short-term) responses
  - Börsch-Supan and Schnabel (1999); Mastrobuoni (2009); Coppola and Wilke (2010); Staubli and Zweimuller (2011)

- Behavioural factors could explain these larger estimated effects
  - Evidence on importance of social norms around retirement ages is mixed: Lumsdaine, Stock and Wise (1996); Asch, Haider and Zissimopoulos (2005)
  - Framing/reference points matter: Behagel and Blau (2012)
  - Understanding of the policy matters: Bottazzi, Jappelli and Padula (2006)
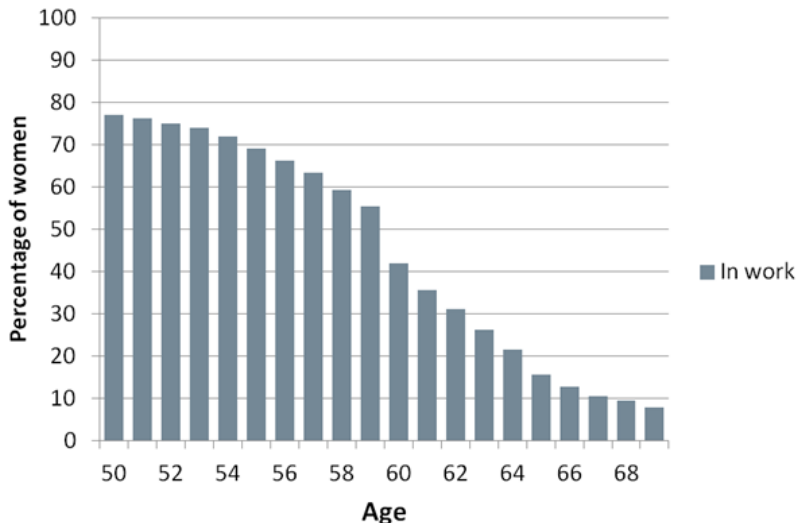
Literature: joint retirement

- Various papers have identified joint retirement using exogenous changes in wife's labour force participation
    - Coile (2004); Banks, Blundell and Casanova (2010)

- Structural models of joint retirement
    - Gustman and Steinmeier (2000); Maestas (2001); Gustman and Steinmeier (2004); Casanova (2010)

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Data

- UK Labour Force Survey data
  - Quarterly household level survey with around 100,000 individuals per quarter
  - Each household included in the survey for up to 5 consecutive quarters
  - Observe month and year of birth: allows calculation of state pension age

- Use data from one year prior to rise in the SPA (2009Q2) up to 2012Q2
  - Use one cohort unaffected by the reform and three affected cohorts (1949–1952)
  - For analysis of husbands' behaviour: restrict attention to husbands aged 55–69
  - Sample sizes of 30,297 women and 18,776 husbands

Female economic activity prior to SPA increase

Notes: Averages over the period 2003Q1 to 2010Q1.
Source: Figure 2.1 of Cribb, Emmerson and Tetlow (2013).

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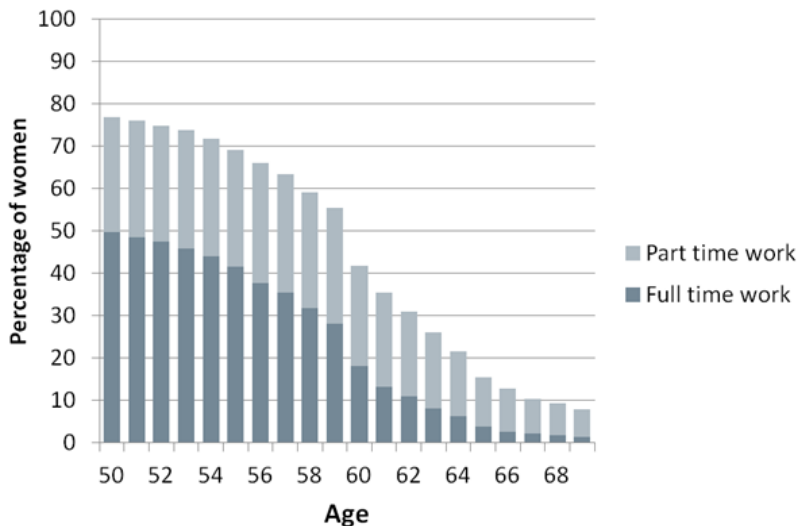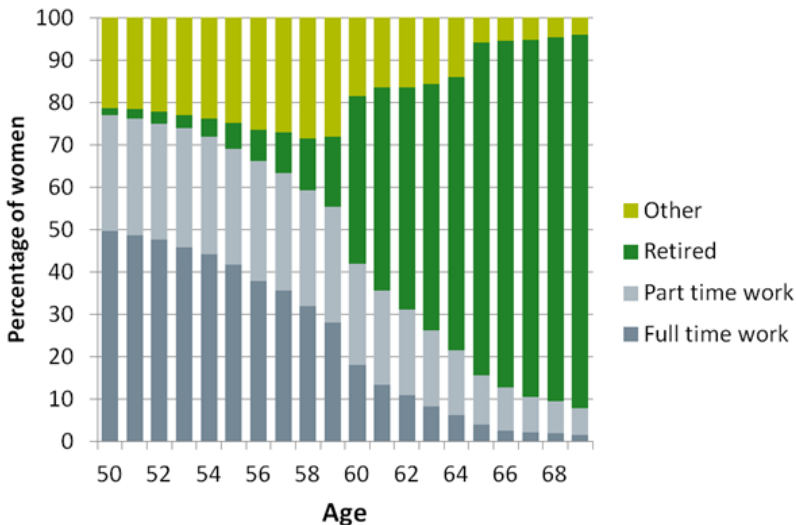Fiscal Studies

Female economic activity prior to SPA increase

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Employment of 60 year old women has risen

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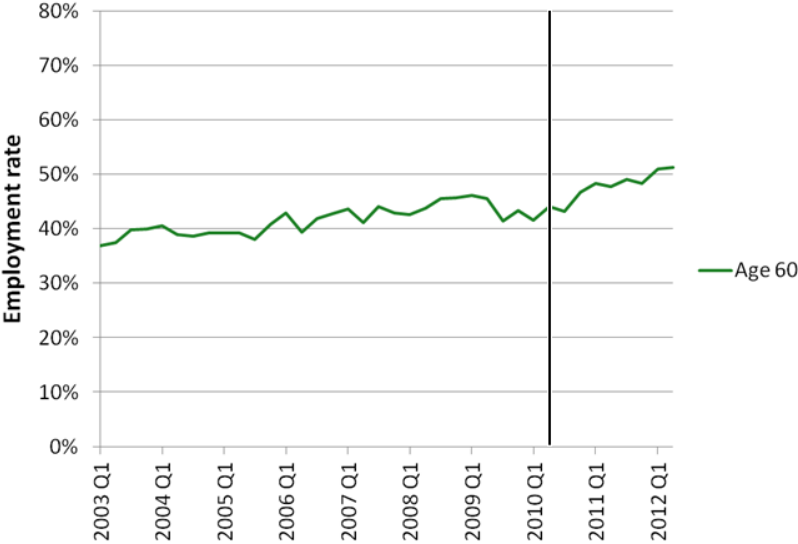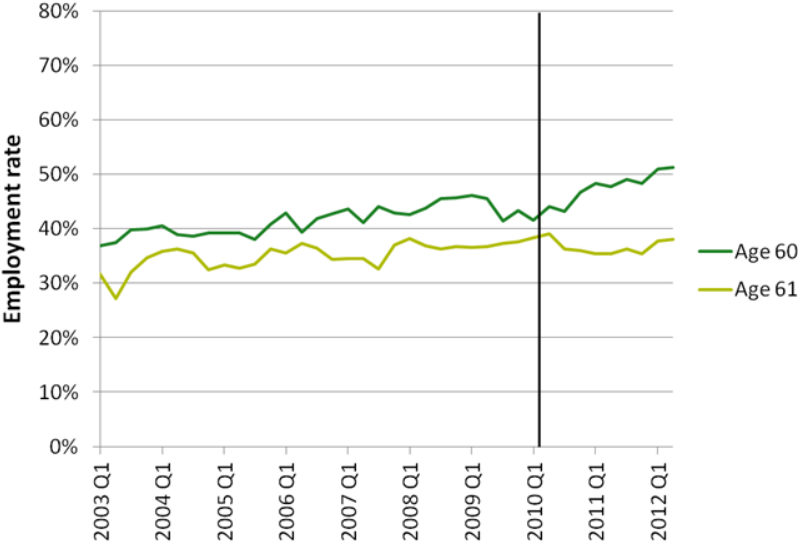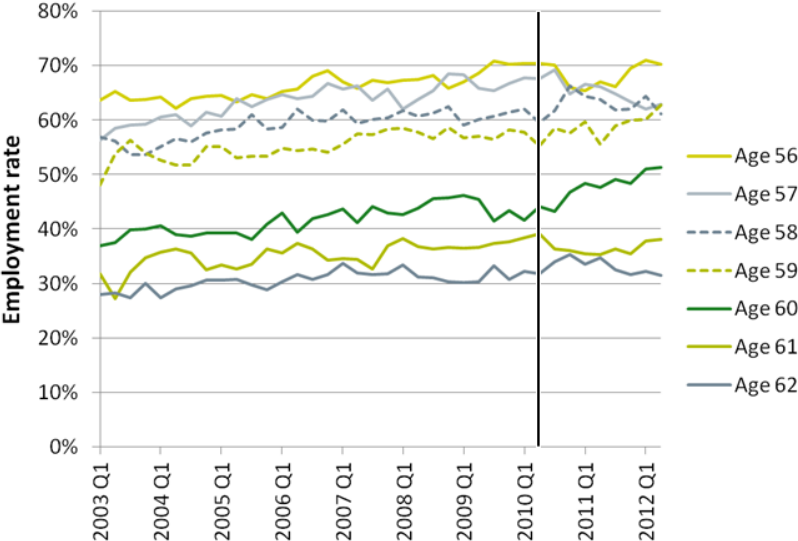Source: Figure 2.2 of Cribb, Emmerson and Tetlow (2013).

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Empirical methodology (1)

- Difference-in-differences methodology to identify the effect of raising the state pension age on women's economic activity

$$y_{ict} = \alpha T_{ict} + \gamma_t + \lambda_c + \sum_{a=1}^{A} \delta_a \left[age_{ict} = a\right] + X'_{ict}\beta + \epsilon_{ict} \qquad (1)$$

- y is the outcome of interest (e.g. being in work)
- T indicates being under the state pension age
- Identification of treatment effect assumes:
  - age- and cohort-constant time fixed effects (γ_t) – quarters
  - time- and age-constant cohort fixed effects (λ_c) – years
  - cohort- and time-constant age fixed effects (δ_a) – quarters

- Also control for education, ethnicity, housing tenure, marital status, region, husband's age, husband's education (X)

Empirical methodology (2)

- Estimate equivalent model for male partners

$$y_{ict} = \alpha T_{ict}^W + \gamma_t + \lambda_c + \sum_{a=1}^{A} \delta_a \left[age_{ict}^W = a \right] + X_{ict}'\beta + \epsilon_{ict} \quad (2)$$

- T^W is an indicator of wife being aged under state pension age
- Other controls are the same as included in the model of women's behaviour
  - Including controls for husbands age: quadratic, indicators for being over 65 and being over female state pension age
- Focus on sample of husbands aged 55–69

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Effect of SPA rise on women's employment rate

Table : Effect of increasing the state pension age from 60 to 61 on women's employment rate (probit)

	Number of waves	Clustering of standard errors	Effect of being under SPA	Std. error	N
(1)	5	At individual level	+0.073***	0.019	30,297

Notes: *** denotes that the effect is significantly different from zero at the 1% level, ** at the 5% level, * at the 10% level. "Effect of being under SPA" reported for the probit model is the average marginal effect.
Source: Table 4.1 of Cribb, Emmerson and Tetlow (2013).

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Robustness checks

- Does including multiple observations on the same individuals matter?
    - Test whether restricting sample to one observation per person and/or changing clustering of standard errors affects results

- What if there are (serially-correlated) cohort-time shocks?
    - Positive correlation in employment shocks within a cohort would bias standard errors down (Moulton, 1990; Donald and Lang, 2007)
    - Serial correlation in employment shocks could seriously bias standard errors (Bertrand, Duflo and Mullainathan, 2004; Cameron, Gelbach and Miller, 2008)

- Placebo test
    - Test for the presence of a non-existent policy change
    - As if female state pension age started increasing in 2008

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Robustness checks on the estimated effect of SPA rise on women's employment rate

Table : Effect of increasing the state pension age from 60 to 61 on women's employment rate

	Number of waves	Clustering of standard errors	Effect of being under SPA	Std. error	N
(1)	5	At individual level	+0.073***	0.019	30,297
Robustness checks: linear prob. models					
(2)	5	Not clustered	+0.075***	0.015	30,297
(3)	5	At individual level	+0.075***	0.019	30,297
(4)	1	Not clustered	+0.074**	0.030	6,907
(5)	1	At cohort level	+0.074**	0.033	6,907
(6)	1	Wild cluster bootstrap	+0.074**	n/a	6,907
Placebo test: probit					
(7)	5	At individual level	−0.007	0.017	37,804

Source: Table 4.1 of Cribb, Emmerson and Tetlow (2013).

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Effect of SPA rise on women's economic activity

Table : Effect of increasing the state pension age from 60 to 61 on women's economic status (multinomial probits)

	Effect of being under SPA	Std. error
Full time work	+0.043**	0.017
Part time work	+0.030*	0.017
Out of work	−0.073***	0.019
In work	+0.060***	0.019
Retired	−0.096***	0.017
Sick or disabled	+0.013	0.012
Unemployed	+0.013***	0.004
Other	+0.010	0.011
Sample size	30,297	

Notes: Standard errors are clustered at the individual level and estimated by bootstrapping with 1000 replications.
Source: Table 4.3 of Cribb, Emmerson and Tetlow (2013).

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What mechanisms are driving these responses?

Table : Effect of increasing the state pension age from 60 to 61 on employment rate of different sub-groups of women

	Effect of being under SPA	Std. error	N
Full sample	+0.075***	0.019	30,297
Single women	+0.126***	0.034	8,818
Women with a partner	+0.054**	0.023	21,479
– *whose partner is older*	+0.045*	0.027	15,955
– *whose partner is younger*	+0.080*	0.048	5,524
Rent house	+0.070*	0.039	5,853
Own house	+0.078***	0.022	24,444
Degree or other HE	+0.045	0.037	8,416
Secondary education	+0.087***	0.028	14,756
No qualifications	+0.067*	0.036	7,125

Notes: Estimated using linear probability models. Standard errors clustered at the individual level.
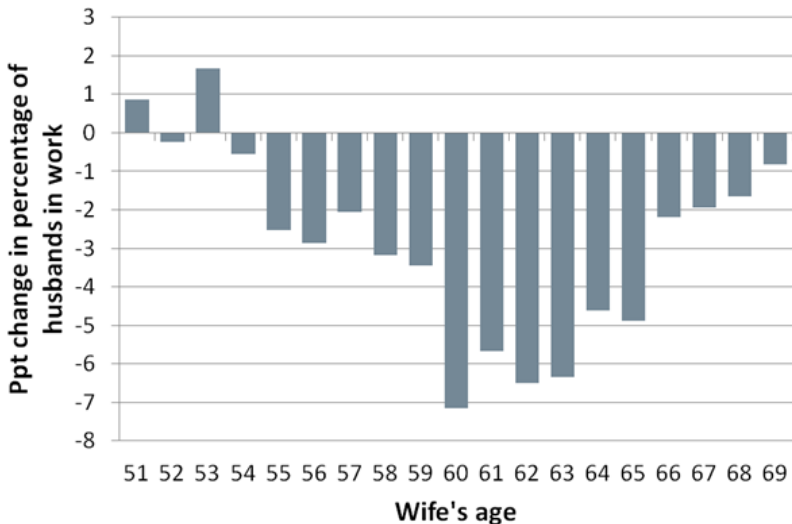Source: Table 4.2 of Cribb, Emmerson and Tetlow (2013).

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Husbands' employment prior to SPA increase
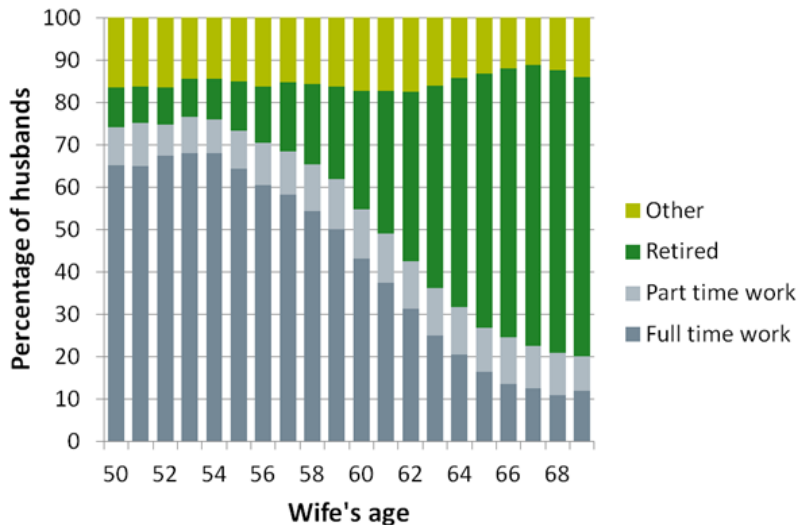
Notes: Averages over the period 2003Q1 to 2010Q1.
Source: Figure 2.3 of Cribb, Emmerson and Tetlow (2013)

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Men are more likely to leave work when wife turns 60

Notes: Averages over the period 2003Q1 to 2010Q1.
Source: Figure 2.3 of Cribb, Emmerson and Tetlow (2013)

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Effect of female SPA rise on husbands' economic status

	Effect of wife being under SPA	Std. error
Probit model		
In work	+0.042**	0.022
Multinomial probit model		
Full time work	+0.037*	0.022
Part time work	+0.008	0.015
Not in work	−0.045**	0.022
Multinomial probit model		
In work	+0.044**	0.021
Retired	−0.026	0.017
Sick or disabled	−0.024	0.014
Unemployed	+0.003	0.007
Other	+0.004	0.006
Sample size	18,776	

Notes: Standard errors are clustered at the individual level and estimated by bootstrapping with 1000 replications.
Source: Table 4.4 of Cribb, Emmerson and Tetlow (2013).

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Evidence of joint retirement?

- Estimate multinomial probit for joint employment of couples
  - Four outcomes: neither in work, only wife works, only husband works, both work

	Percentage point effect of wife being under SPA	Std. error	Prevalence when wife aged 59 (prior to 2010)
No one in work	−0.047**	0.021	24%
Woman only in work	0.003	0.017	14%
Man only in work	−0.010	0.020	20%
Both in work	+0.054**	0.025	42%

Notes: Estimated using Maximum Likelihood estimation. Standard errors calculated by bootstrapping the marginal effect 1,000 times.

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Conclusions

- Increasing the female state pension age from 60 to 61 has had a significant effect on women's and men's labour supply
    - Increased employment rates of 60 year old women by 7.3 percentage points
    - Increased husbands' employment rates by 4.2 percentage points
    - Evidence of joint retirement behaviour amongst couples: 5.4ppt more two earner couples, 4.7ppt fewer couples where no one works

- What drives this effect?
    - Response among women: little evidence of credit constraints or strong change in marginal financial incentives; more likely driven by wealth effects or social norms/endorsement effects
    - Response among husbands: evidence of joint retirement

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