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How does increasing the early retirement age for women affect the labor supply of (women and their) husbands?

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Overview

- Reforms to retirement incentives for one individual could have spillover effects on their partner
  - If there are interdependencies in labor supply within couples
  - Could amplify or dampen overall effect of the policy
- Use evidence from recent reform to early retirement age for women in the UK
  - Early retirement age for women rose from 60 to 61 (occurred between 2010 and 2012)
- What was the effect of this reform on husbands' labor supply?
  - Estimate the effect on women's labor supply
  - Estimate knock-on effect on husbands' labor supply

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Outline

1. Existing literature
2. Policy background
3. Theory
4. Data and estimation strategy
5. Results
   - Women's labor supply
   - Husbands' labor supply
6. Conclusion

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Literature

- Individuals' labor supply often thought to be complementary to spouse's employment or earnings
  - Schirle (2008); Goux, Maurin and Petrongolo (2014); Gelber (forthcoming)
- Other papers find substitutability between spouses' labor supply, often in reaction to job loss
  - Lundberg (1985); Cullen and Gruber (2000)
- One form of interdependency of labor supply is joint retirement
- Some papers develop structural models of joint retirement
  - Gustman and Steinmeier (2000); Maestas (2001); Gustman and Steinmeier (2004); Casanova (2010)
- Other papers identify joint retirement using exogenous variation in one partner's labor supply
  - Baker (2002); Coile (2004); Banks, Blundell and Casanova (2010); Stancanelli (2013)

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Increasing the early retirement age for women

- Legislation passed in 1995 increased the early retirement age (known in UK as "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
- Early retirement age for men is 65
  - ERA for men and women will increase to 66 between 2018 and 2020

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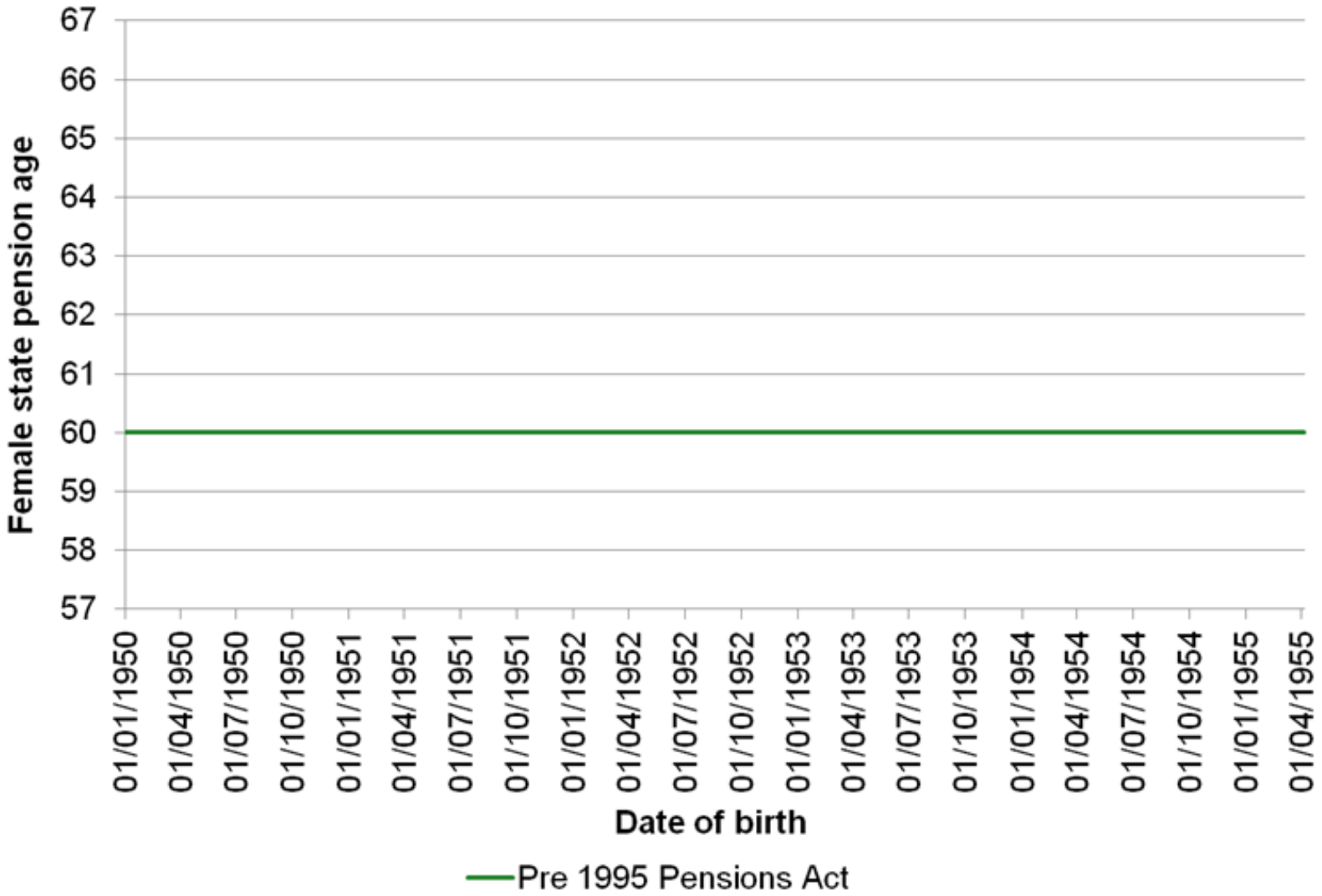
Increases in the early retirement age for women



Source: Figure A.1 of Cribb, Emmerson and Tetlow (2013).

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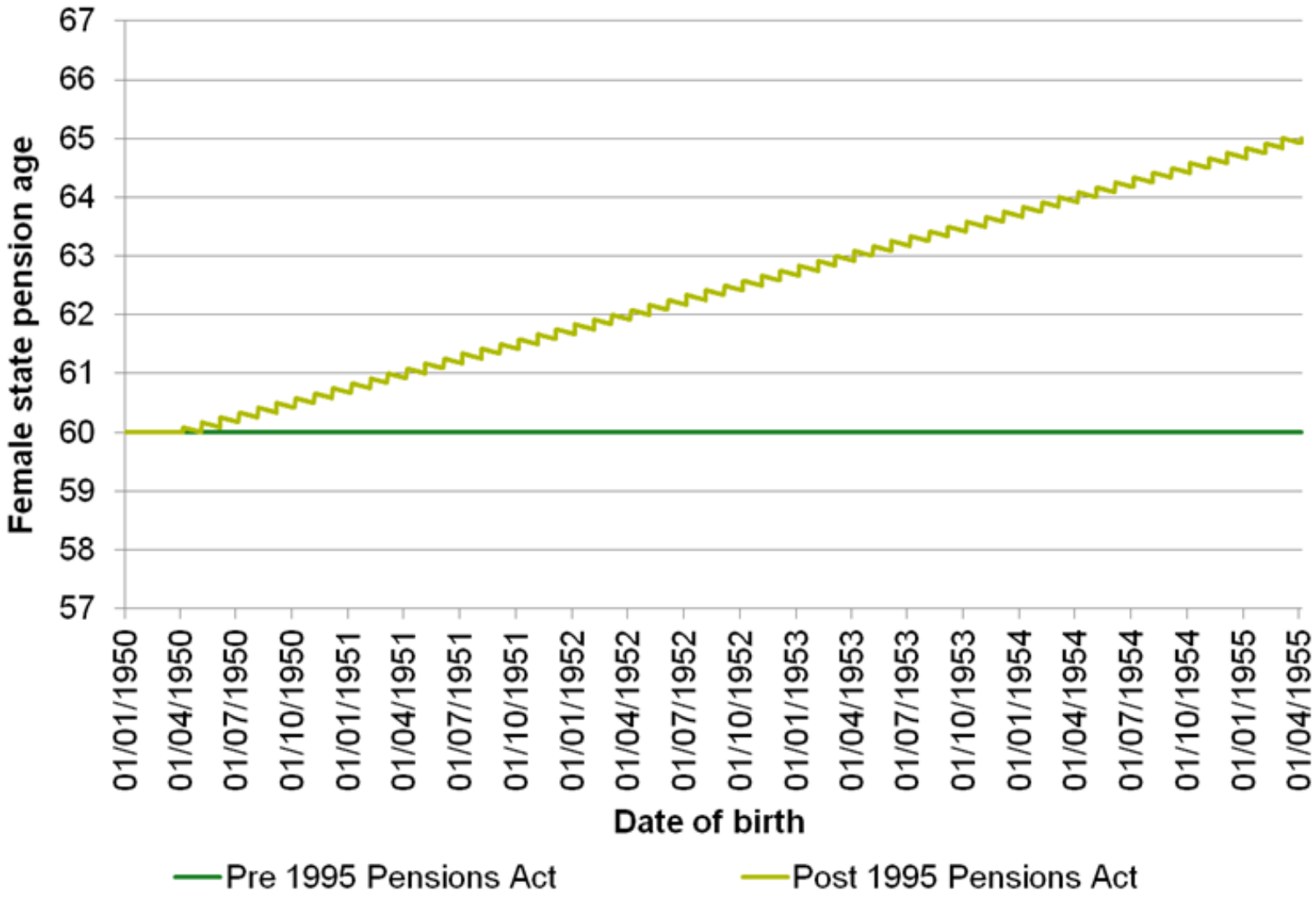

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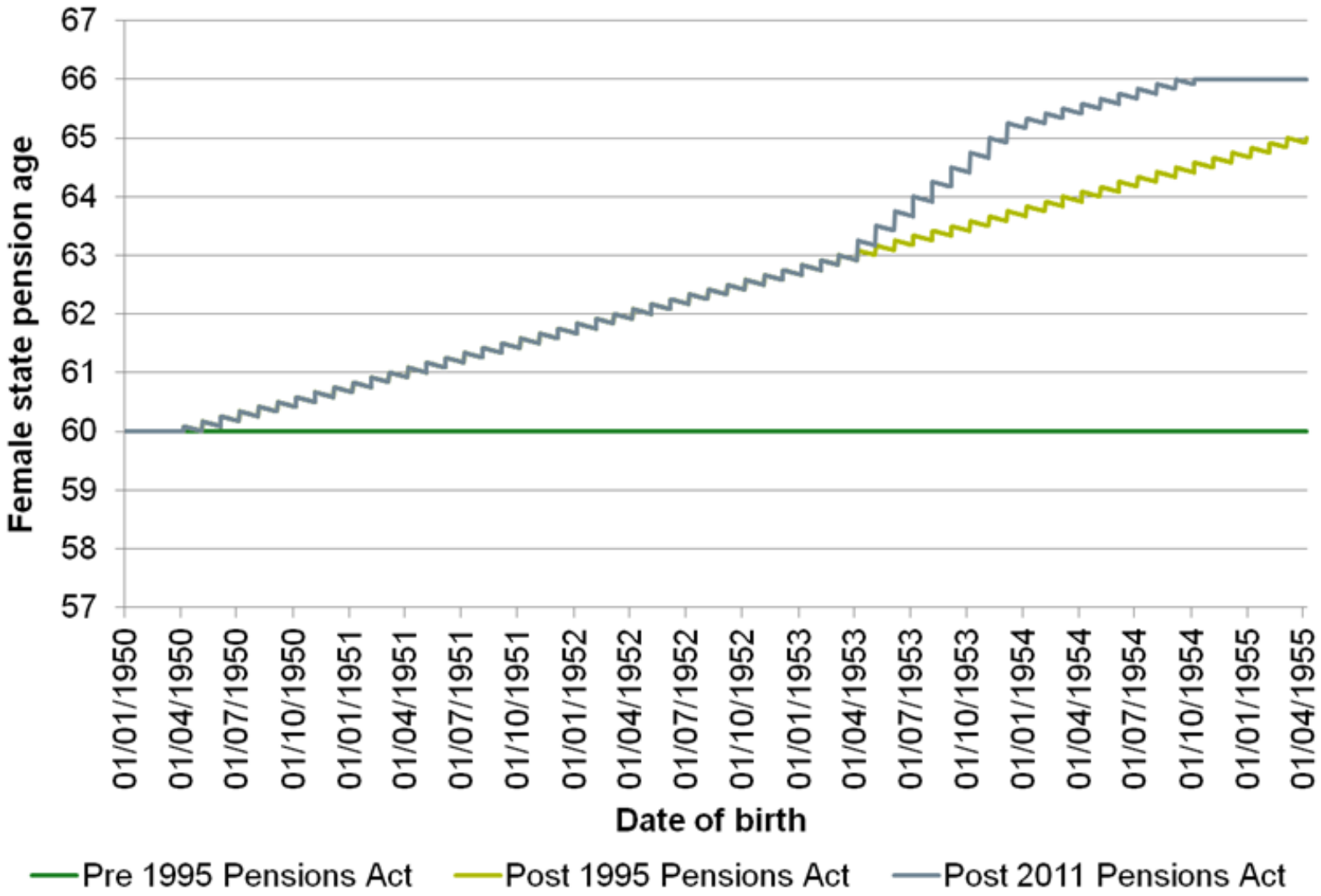

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What happens at the early retirement age?

- Earliest age at which one can draw a state pension
  - ERA 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)
- Tax and benefit system also changes at early retirement age
  - Pensioners eligible for more generous (income and health tested) benefits with less conditionality
  - Employee payroll taxes eliminated (reduce marginal rate by up to 12 percentage points)

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Why might increasing women's early retirement age affect their husbands' labor force participation?

- Couples deciding on labor supply decisions together, rather than independently
- Husbands of affected women may increase their labor supply as alternative margin for household to respond to wealth loss
- If there are complementarities in leisure, husband may delay retirement when wife delays hers

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Data

- UK Labour Force Survey data
  - Quarterly household level survey with around 100,000 individuals per quarter
  - Allows us to link spouses together
  - Each household included in the survey for up to 5 consecutive quarters
  - Observe month and year of birth: allows calculation of early retirement age
- Use data from one year prior to rise in the ERA (2009Q2) up to 2012Q2
  - Use one cohort of women (and their husbands) unaffected by the reform and three affected cohorts (1949–1952)
  - Restrict attention to husbands aged 55–69
  - Sample sizes of 30,297 women and 18,776 husbands

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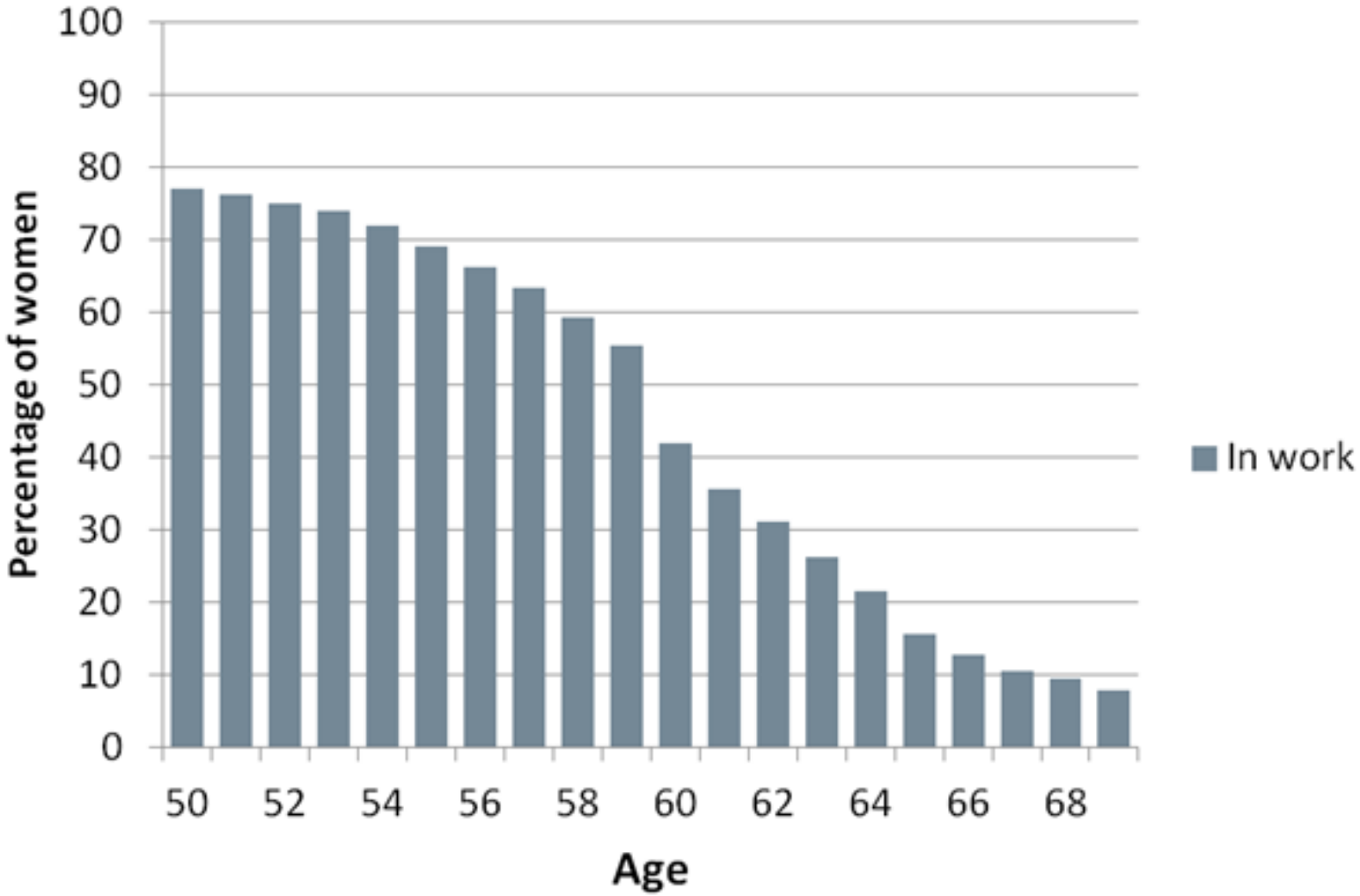
Female economic activity prior to ERA increase



Notes: Averages over the period 2003Q1 to 2010Q1.
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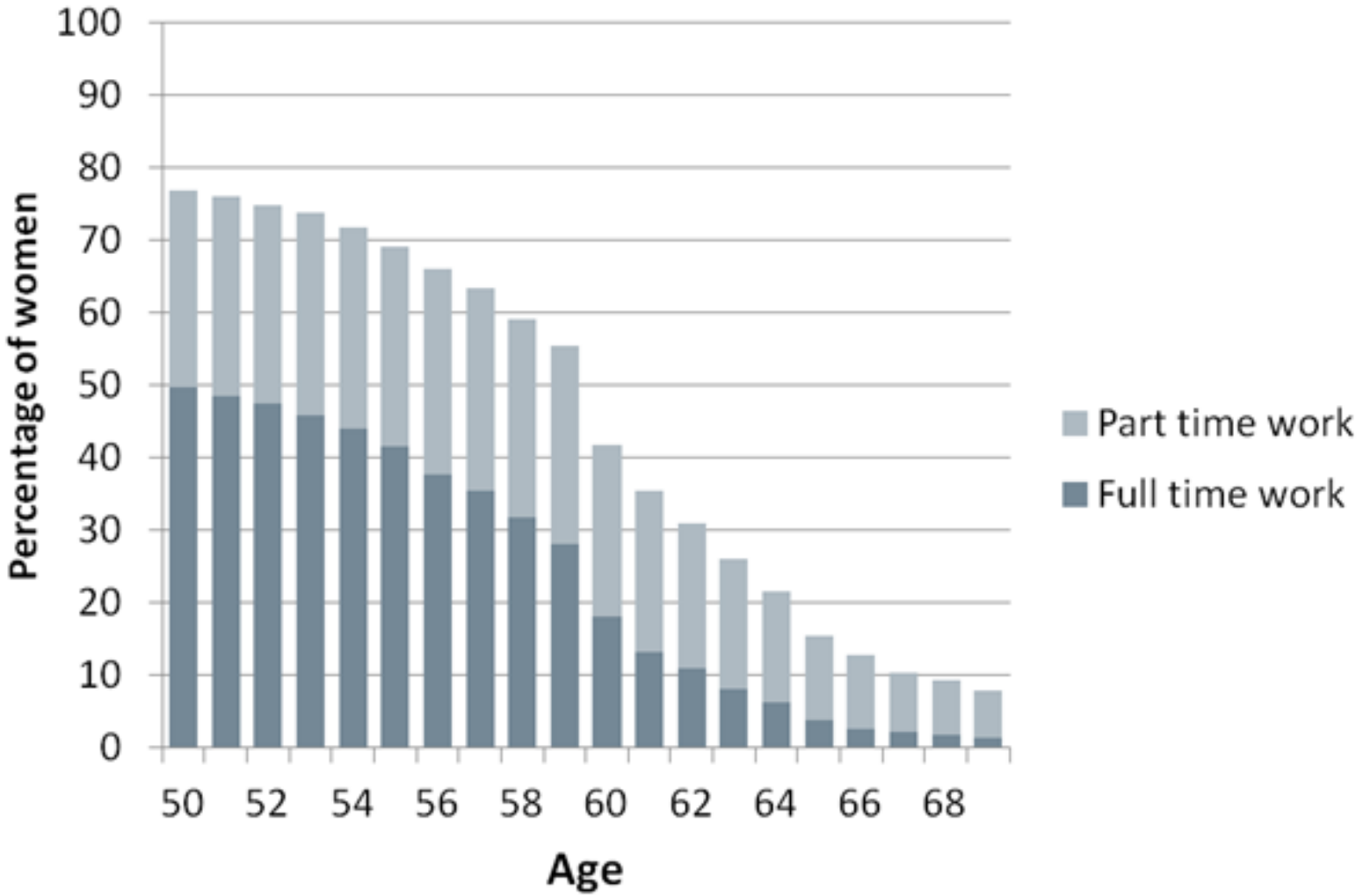

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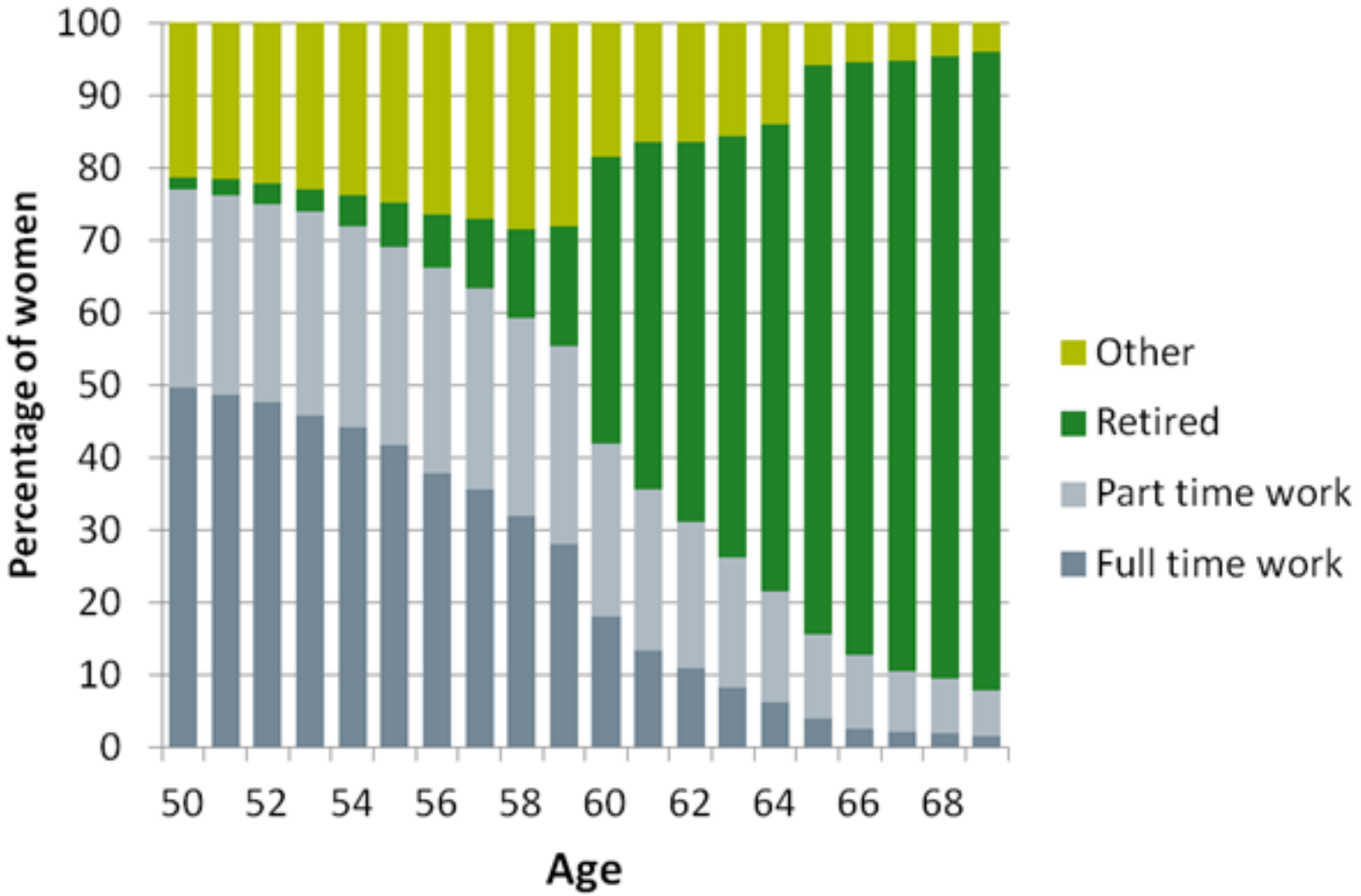

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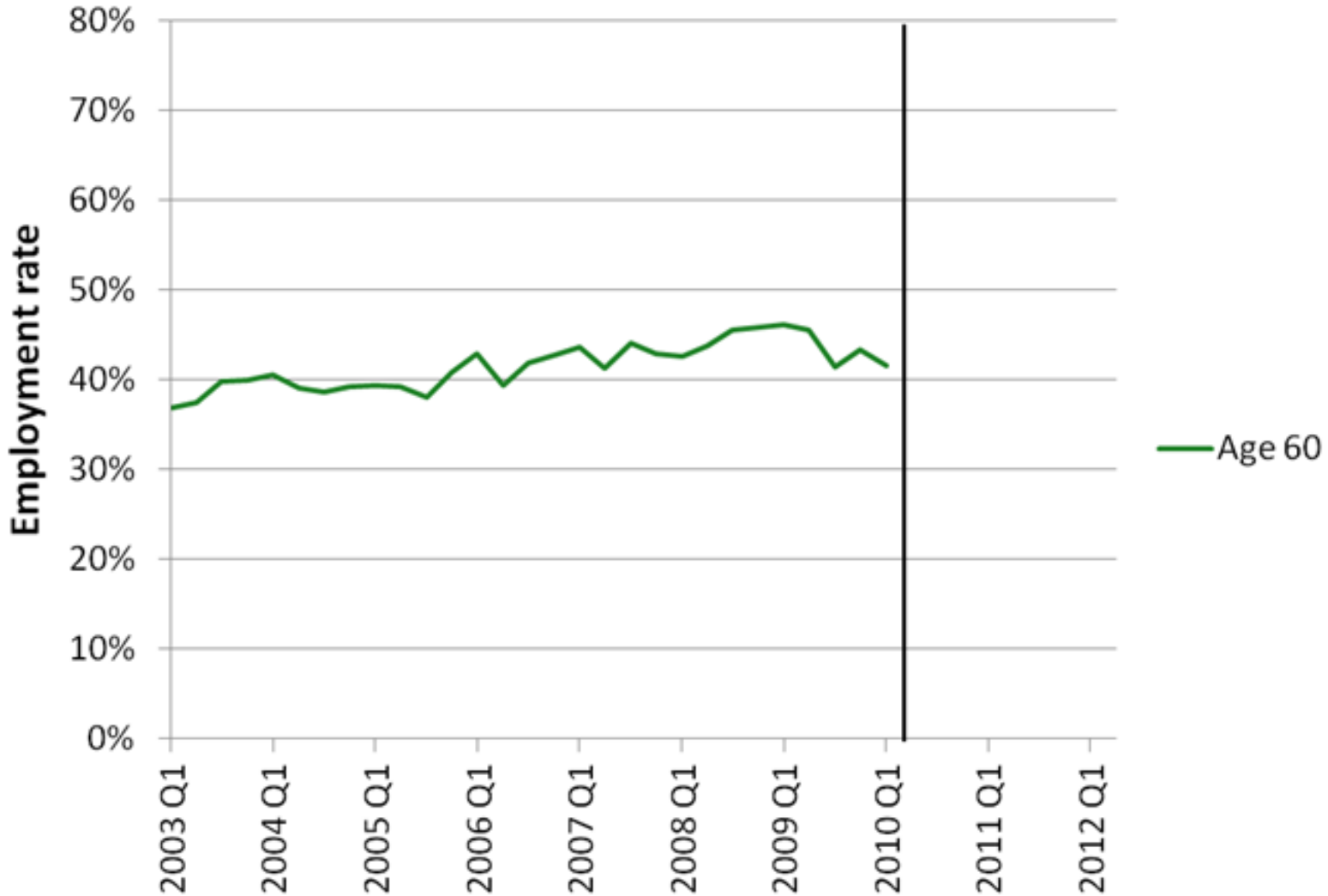
Employment of 60 year old women has risen since 2010



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

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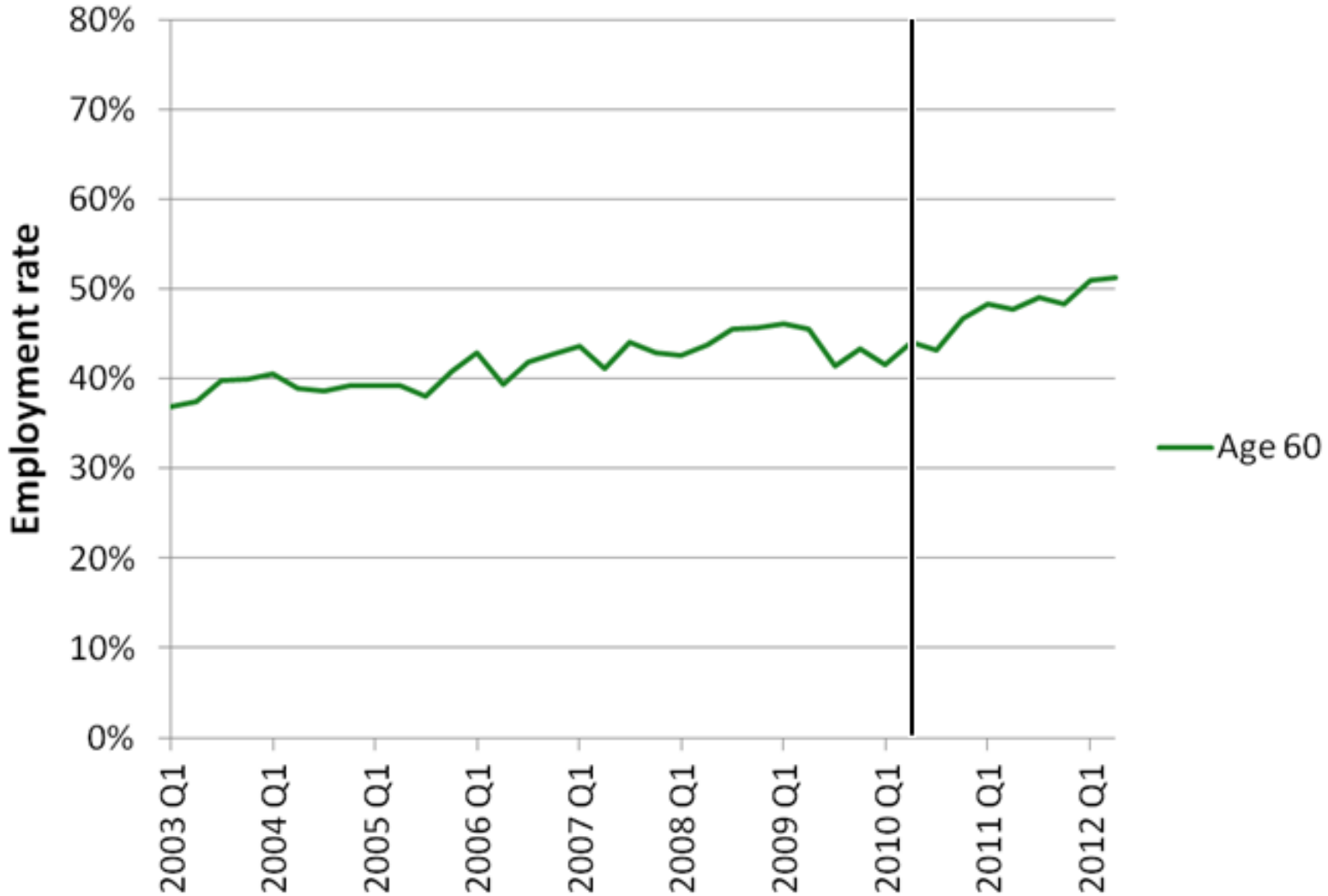
Employment of 60 year old women has risen since 2010



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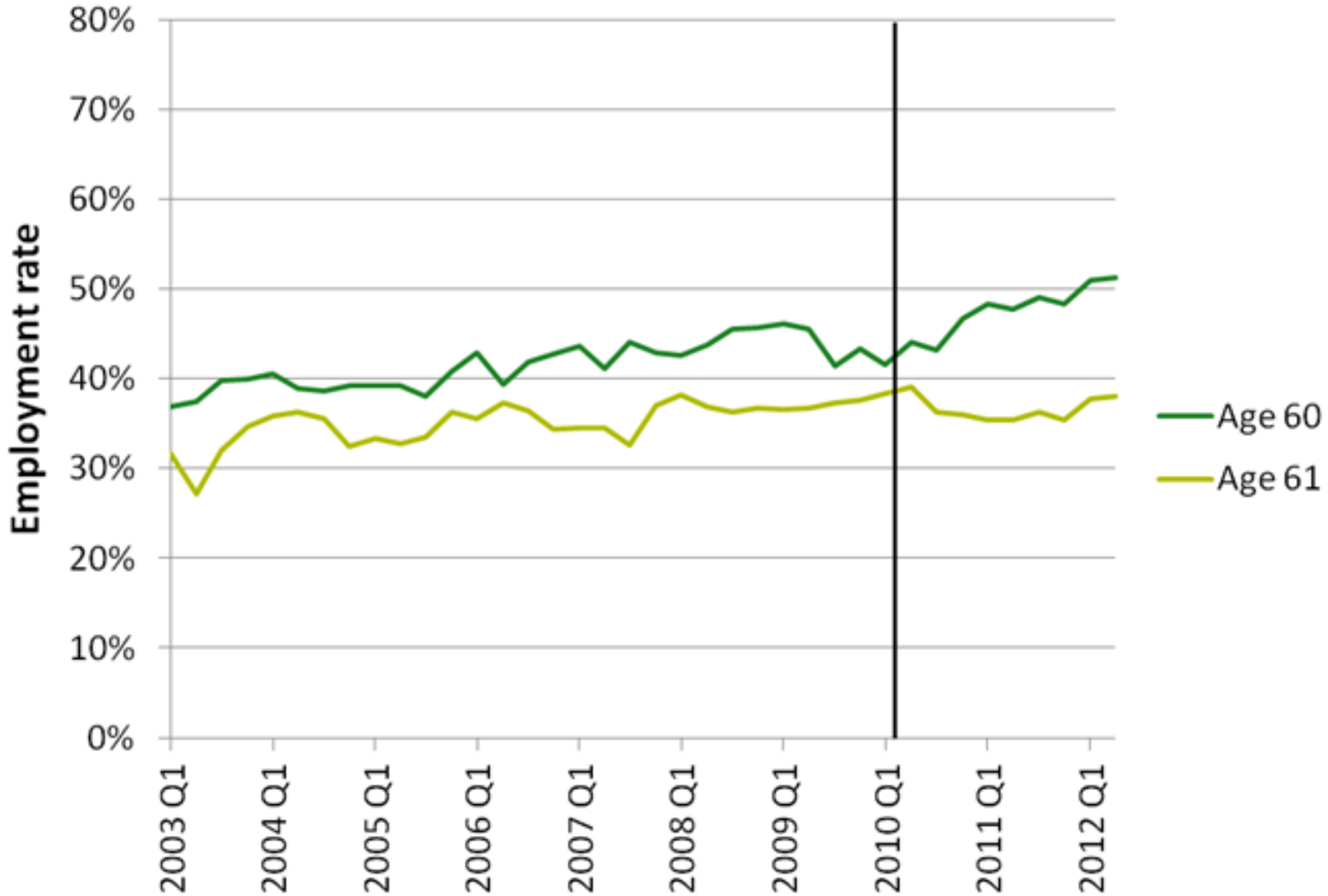

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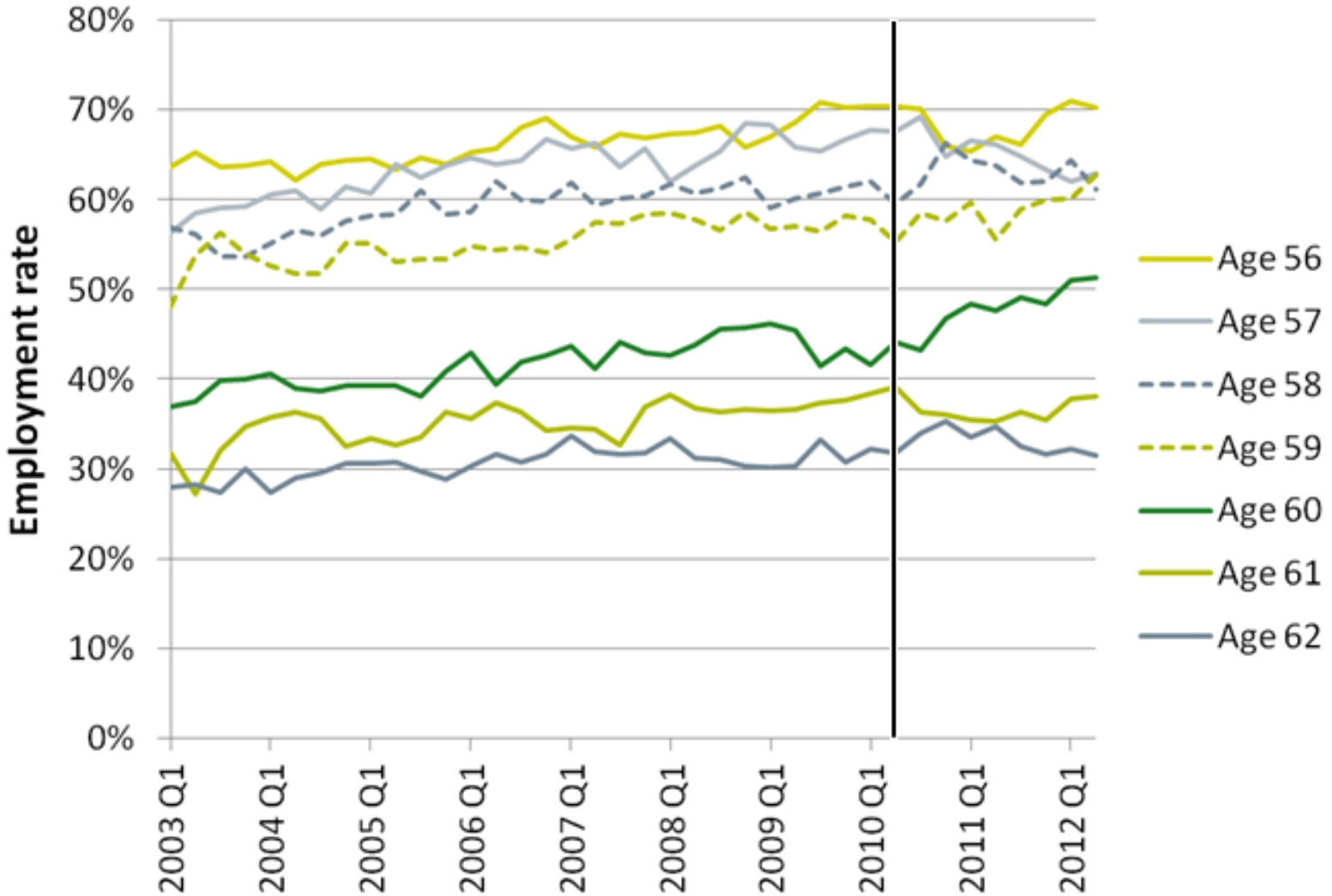

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Empirical methodology (Women)

- Difference-in-differences methodology to identify the effect of raising the early retirement 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 early retirement 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)

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Effect of increase in ERA on women's employment

Table: Effect of increasing the early retirement age from 60 to 61 on employment rate of women

	Effect of being under ERA	*Std. error*	*Sample size*
Estimated by Probit			
All women	+0.073***	0.019	30,297
Subgroups estimated by OLS			
Single women	+0.126***	0.034	8,818
Women with a partner	+0.054**	0.023	21,479

Notes: Standard errors are clustered at the individual level and estimated by bootstrapping with 1000 replications.

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Effect of increase in ERA on women's employment

- Increase in the early retirement age explains almost all excess retirements that occurred at age 60 prior to the rise in ERA
- We find no variation in the effect by housing tenure (indicator of credit constraints)
- Those women who face the largest fall in their participation tax rate when the ERA rises do not have the largest response
- Including cohort fixed effects controls for much of the wealth loss caused by increasing the ERA
- Suggests that a social norm is an important reason for response to the increase in the ERA

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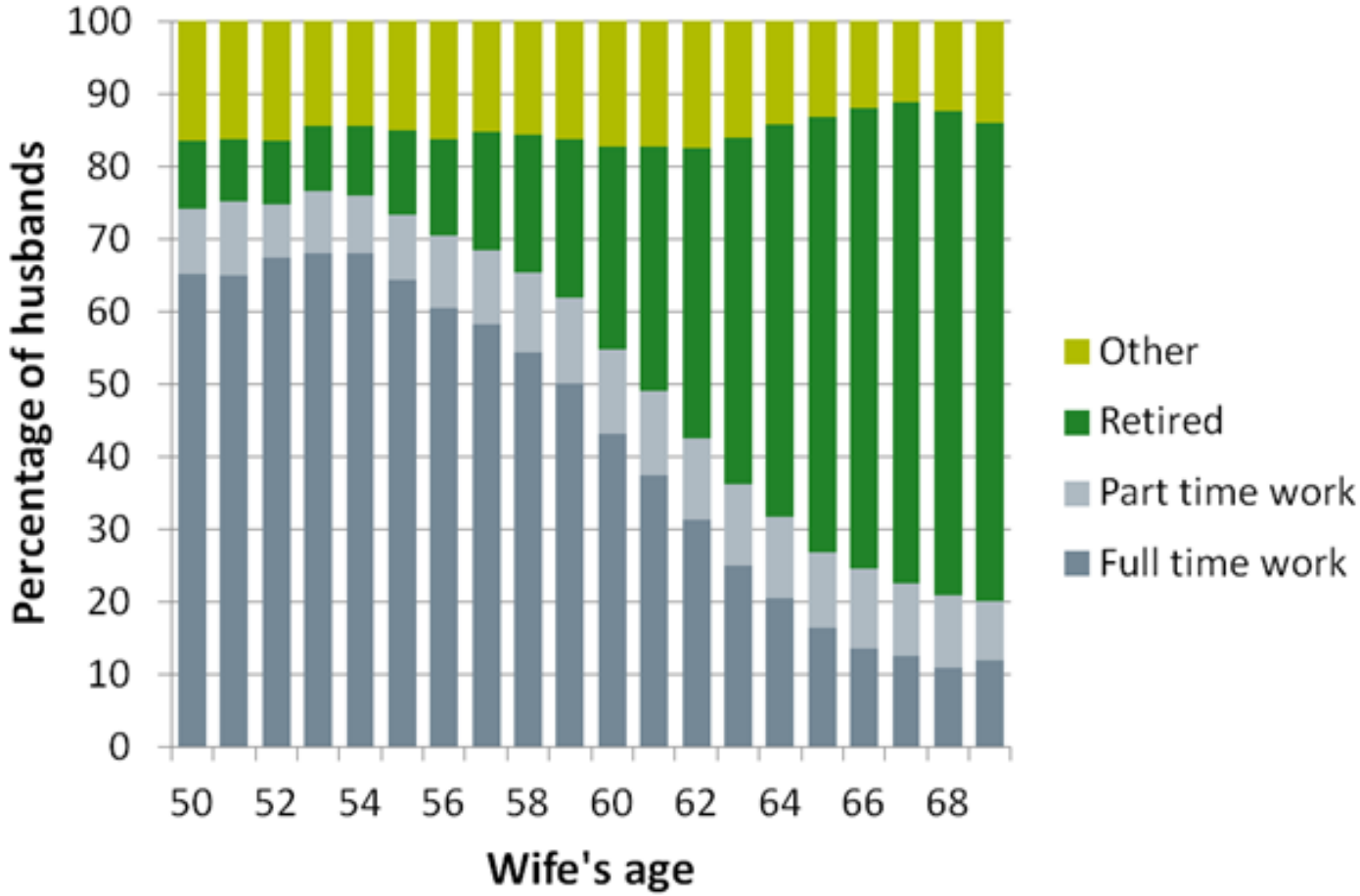
Husbands' employment prior to increase in ERA for women



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

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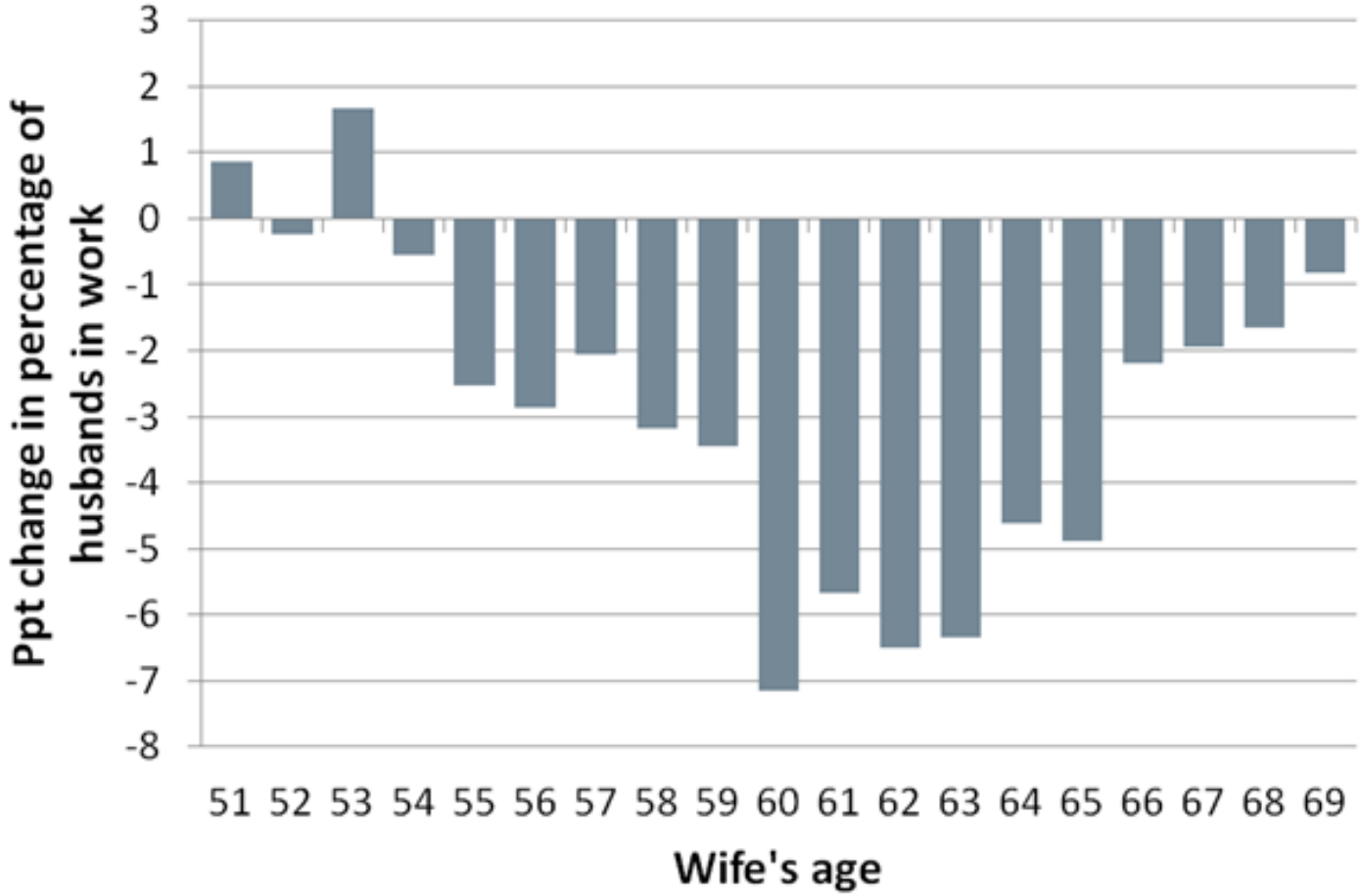
Men were more likely to leave work when wife turns 60



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

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Empirical methodology (Men)

- Estimate equivalent model to women in order to estimate effect on husbands' labor supply

$$y_{ict} = \alpha T^W_{ict} + \gamma_t + \lambda_c + \sum_{a=1}^{A} \delta_a \left[age^W_{ict} = a \right] + X'_{ict}\beta + \epsilon_{ict} \qquad (2)$$

- T^W is an indicator of wife being aged under early retirement age
- Other controls are the same as included in the model of women's behavior
  - Including controls for husband's age (quadratic), indicators for husband being over 65 and being over female early retirement age

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Effect of increasing the early retirement age from 60 to 61 on husbands' economic status

- Increasing ERA for women from 60 to 61 increase employment rates of women in couples by 5.4 percentage points

	Effect of wife being under ERA	*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 clustered at individual level; 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

Table: Effect of increasing the early retirement age from 60 to 61 on couple's labor supply

	Percentage point effect of wife being under ERA	*Std. error*	*Prevalence when wife aged 60 (prior to 2010)*
No one in work	–0.047**	0.021	33.7%
Woman only in work	0.003	0.017	11.6%
Man only in work	–0.010	0.020	25.1%
Both in work	+0.054**	0.025	29.7%

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

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Evidence of joint retirement

Table: Effect of increasing the early retirement age from 60 to 61 on couple's labor supply

	Percentage point effect of wife being under ERA	*Std. error*	*Expected effects if male and female responses are independent*
No one in work	–0.047**	0.021	–0.059
Woman only in work	0.003	0.017	0.017
Man only in work	–0.010	0.020	0.005
Both in work	0.054**	0.025	0.037

- Comparing estimated effects to "simulated" under conditions of independent responses
- If responses were independent we would see a pattern where more response comes from one or other partner in the couple
- If partners' responses were substitutes for one another: see even larger increase in prevalence of one-earner couples
- Suggestive evidence of joint retirement

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Conclusion

- Increasing the early retirement age for women from 60 to 61 has had a significant effect on women's labor supply
  - Increased employment rates of 60 year old women by 7.3 percentage points
  - Increased employment rates of 60 year old women in couples by 5.4 percentage points
- Exploiting the exogenous increase in the early retirement age for women, we find:
  - Employment rates of husbands of 60 year old women increased by 4.2 percentage points
  - Find evidence of joint retirement behavior amongst couples
  - Increasing ERA disproportionately increases number of two earner couples
- Results imply complementarities of leisure are important in driving husbands' responses to increase in ERA

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