

# Job Changes, Hours Changes, and the Path of Labour Supply Adjustment

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# Introduction (1)

## 1. What?

- Key question: “Are **adjustments** to hours made by moving jobs or can workers adjust their hours of work with the same employer?”
- Objective: To check if and how employees (single mothers) vary their worked hours in response to **exogenous** changes in the incentives to work a given level of hours, under the null hypothesis of complete flexibility in hours choice within the job

# Introduction (2)

## 1.2 Why?

- Labour supply models have been criticized
- Models of hours choice where hours are fixed within jobs, or where jobs are **packages** of **fixed** hours-wage combinations
- In **monopsonistic** environment, employer preferences will play a key role in determining hours of work in a given job
- But the **precise mechanism** for these adjustments in labour supply has **not** been studied

# Introduction (3)

## 1.3 How?

- Use **reforms to the tax and benefit system** in the UK that changed the hours conditions for FC (1992 and 1995) and the incentives to work through the WFTC (1999) to test the 'canonical' model of **hours** flexibility
- [Why UK? Because UK reforms have changed incentive structure towards part-time and full-time work with **specific hours requirements**]
- Also look at how ***changes in hourly wages*** relate to the introduction of the reforms both within and between jobs

# 'In Work' Benefit Reforms in the UK over Our Sample Period (1991-2002)

**Two** in-work benefits were in operation during our sample period:

- **Family Credit (FC)**, which existed from April 1988 until September 1999; and
- **Working Families' Tax Credit (WFTC)**, which existed from October 1999 until March 2003
- Plus a reform to Family Credit in 1995, with additional credit for those adults working full-time (30+ hours a week).

# Reforms (2)

Thus we can divide our sample into **three periods**:

- **Autumn 1991 to (March) 1995 (FC)**

[April 1992: minimum work requirement in FC fell from 24 to 16 hours a week. This occurs between the first two waves of the BHPS]

- **April 1995 to September 1999 (FC+)**

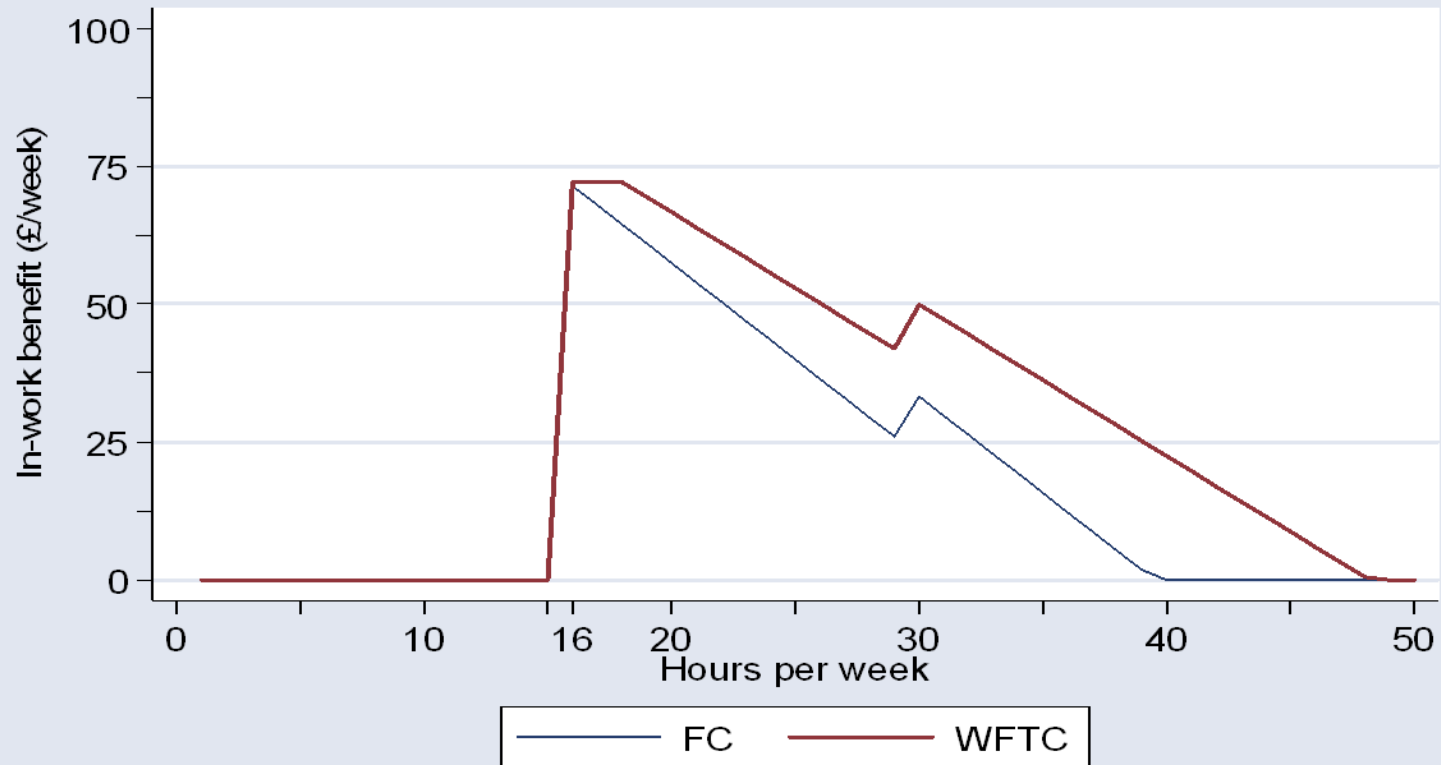
[1995 reform affected the labour supply decisions of lone parents in obvious ways: there was an *increased* incentive for those working less than 30 hours to increase their hours to 30, but an *income effect* meant that those already working at least 30 hours had an incentive to cut their hours worked to no less than 30]

- **October 1999 to end of sample (WFTC)**

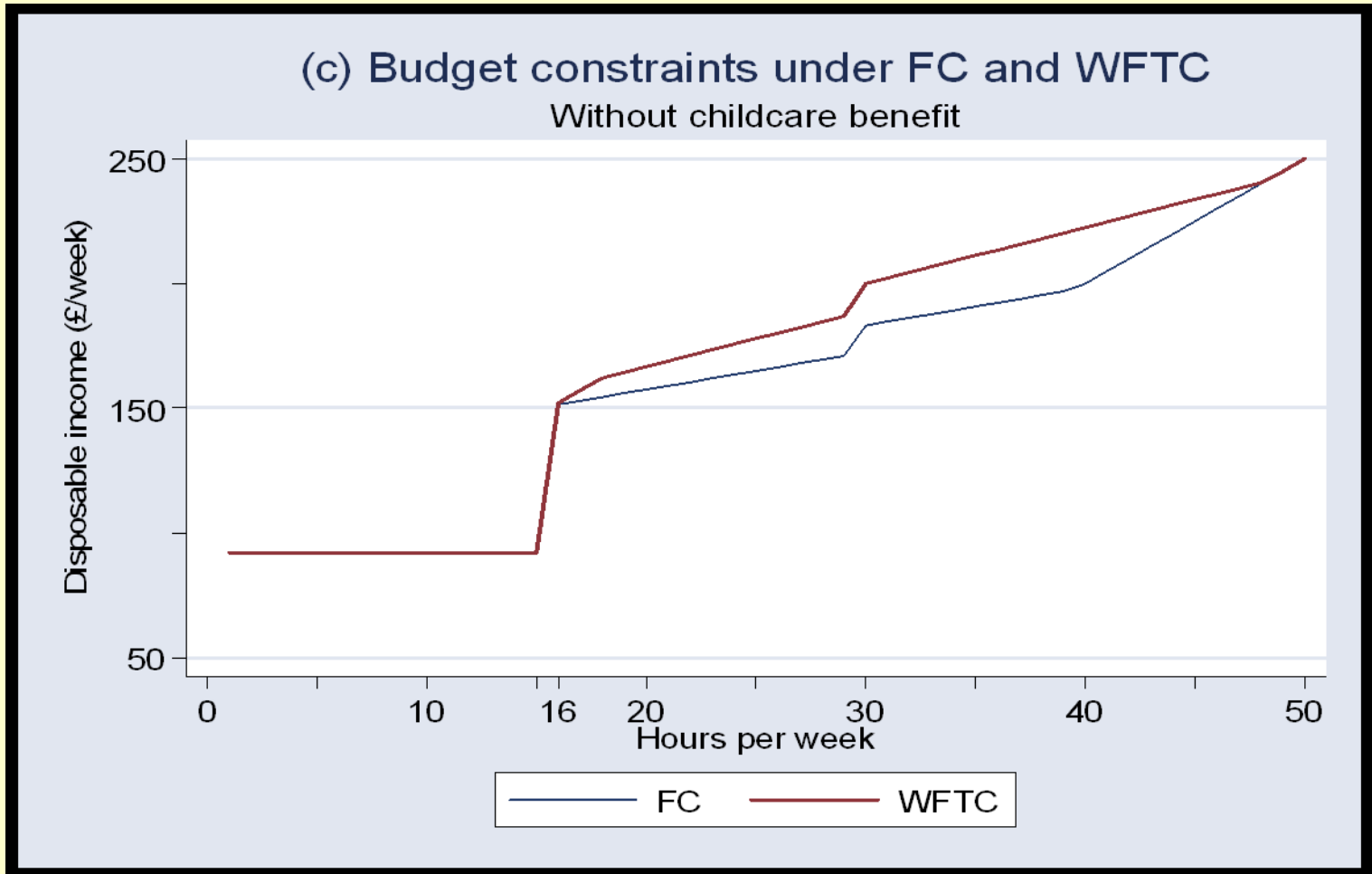
[WFTC was *more generous* than FC in three ways: it had *higher credits*, particularly those for young children, families could *earn more* before the benefit began to be withdrawn, and it had a *lower withdrawal/taper rate*]

# Reforms (3)

(a) FC and WFTC schedules, weekly awards  
Without childcare benefit



# Reforms (4)



# Data

- First 12 waves of the **British Household Panel Survey** (BHPS), 1991-2002. (Attraction: records individuals' *stated* preferences toward hours of work.)
- Sample: **employed unmarried non-cohabiting females** who are at least 16 years old and were born after 1941
- Excludes long-term ill or disabled, in school full time, self-employed, or out of the labour force in a given year
- Sample: **2,284 women** who have been observed working at least two consecutive times over the sample period, and at some point were living alone: **1,122 lone mothers**, and **1,162 childless**

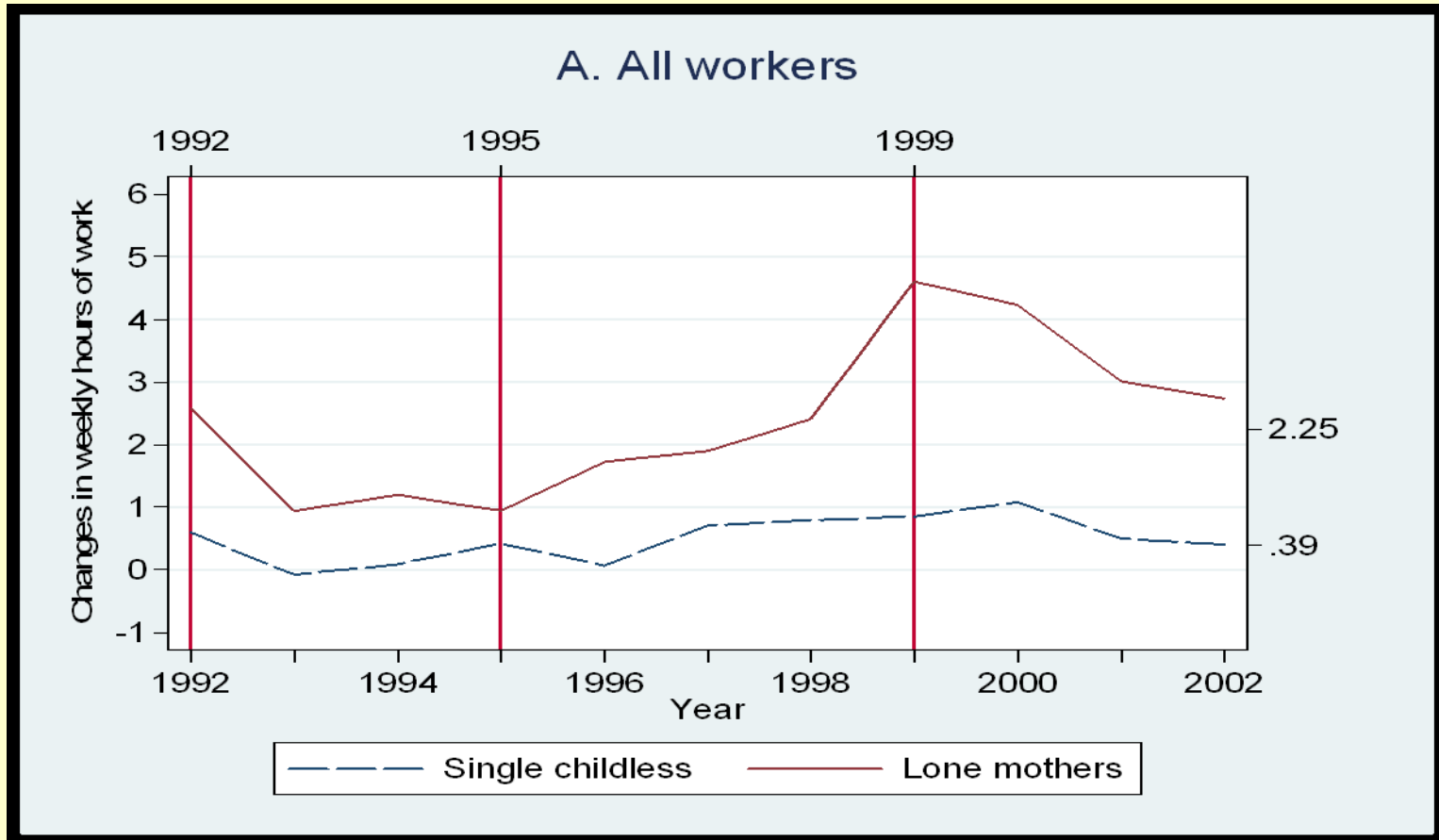
# Summary statistics

- Appendix Table A1

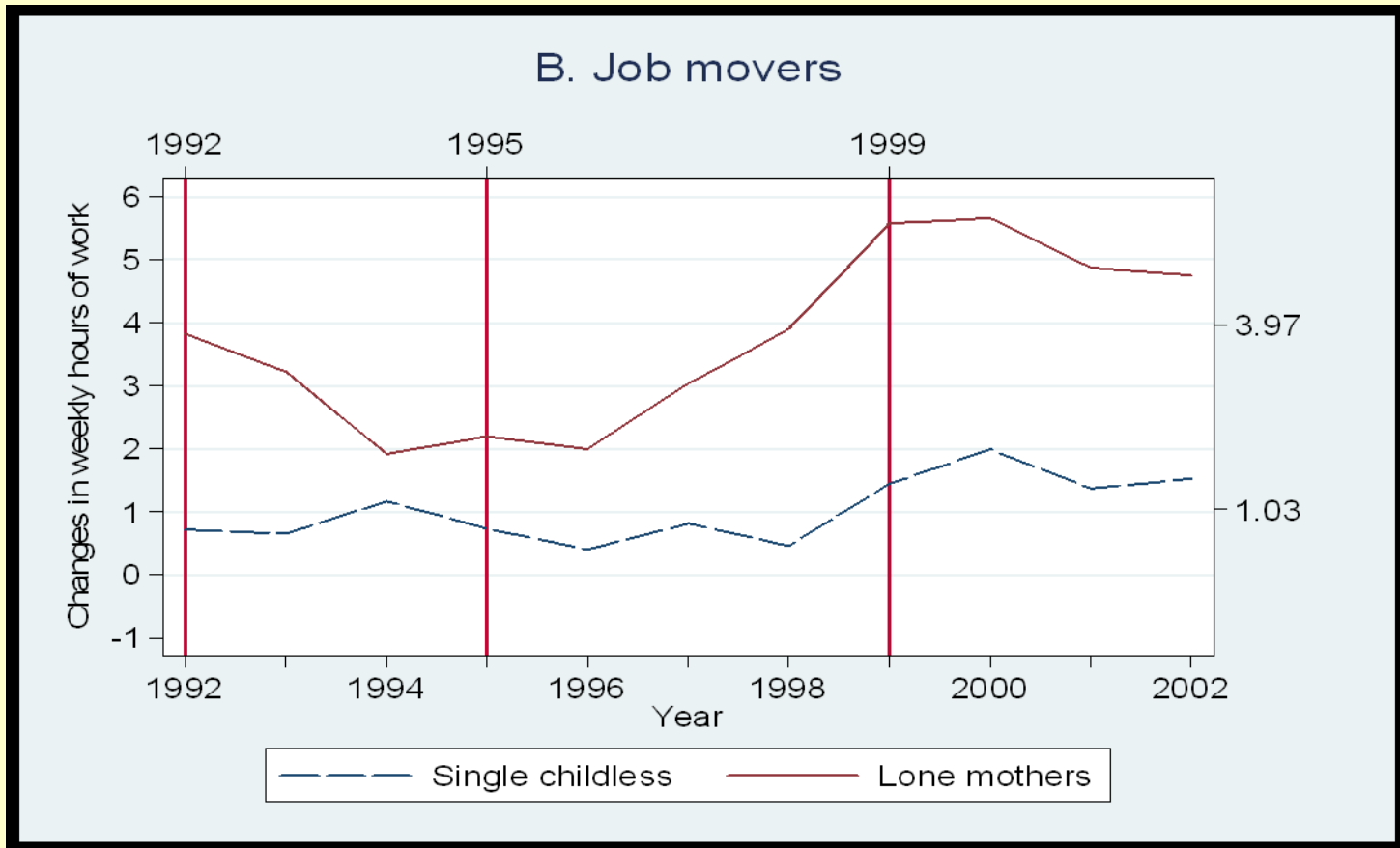
Noticeable **differences** between the two groups:

- **Lone mothers** are younger, less educated, more likely to be nonwhite and in social housing, less likely to be employed in the public sector, and have fewer years of work experience
- Labour market outcomes: Compared to unmarried women without children, **lone mothers** work about 9 fewer hours per week, earn £1.20 less per hour, and nearly £420 less per month, and report a larger change in worked hours from one year to the next.

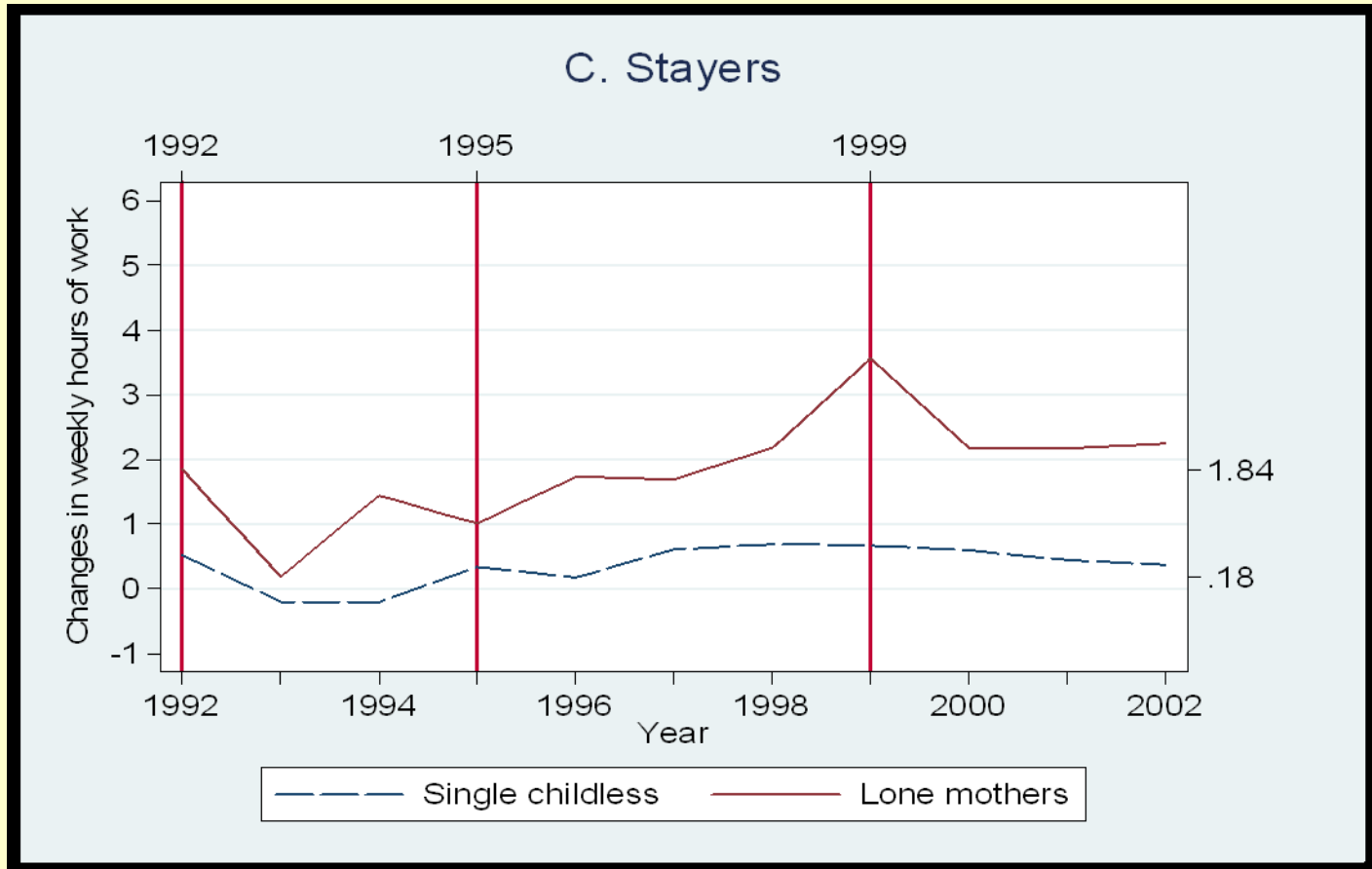
# Fig 1: Changes in worked hours All women



# Fig 2: Changes in worked hours Job Movers



# Fig 3: Changes in worked hours Job Stayers



# Methods (1)

$$\begin{aligned}\Delta h_{it} = & \alpha_0 + \alpha_1 d_{it-1} + \alpha_2 Q_{it} \\ & + \alpha_{21} Q_{it} I(1992 \leq t \leq 1994) \\ & + \alpha_{22} Q_{it} I(1999 \leq t \leq 2002) \\ & + (\alpha_3 + b_{FC}^S d_{it-1}) I(1992 \leq t \leq 1994) \\ & + (\alpha_4 + b_{WFTC}^S d_{it-1}) I(1999 \leq t \leq 2002) \\ & + \beta_{FC} d_{it-1} Q_{it} I(1992 \leq t \leq 1994) \\ & + \beta_{WFTC} d_{it-1} Q_{it} I(1999 \leq t \leq 2002) \\ & + \mathbf{X}'_{it} \boldsymbol{\gamma} + \varepsilon_{it}\end{aligned}$$

## Methods (2)

$\Delta h_{it}$  = change in total weekly hours of work b/w  $t-1$  and  $t$

$d_{it-1}$  = dummy variable equals 1 if woman  $i$  is lone mother at  $t-1$ , and 0 otherwise

$Q_{it}$  = 1 if woman  $i$  changes job b/w  $t-1$  and  $t$ , and zero otherwise

$I(w)$  = function indicating that the event  $w$  occurs

$\mathbf{X}_{it}$  = vector of individual characteristics measured either at  $t-1$  or b/w  $t-1$  and  $t$

$\varepsilon_{it}$  = i.i.d. error term.

## Methods (3)

- Variables in  $\mathbf{X}$ : cubic polynomial in total work experience; dummy variables for race, educational qualification, firm size, public sector, and industry; the number and changes in the number of children by age group; and changes in health status, housing tenure, union coverage, and local unemployment rate.
- **Treatment effects:**  $\beta_{FC}$  and  $\beta_{WFTC}$
- $b_{FC}$  and  $b_{WFTC}$  : FC and WFTC effects for workers who did not change job (stayers).

# Methods (4)

- If  $\hat{b}_j = \hat{\beta}_j$  : hypothesis of within-job flexibility in hours choice **cannot** be rejected
- If  $\hat{b}_j \neq \hat{\beta}_j$  : there is evidence of **hours constraints** within jobs

# Methods (5)

- Identification of FC and WFTC effects on *single mothers'* behaviour through the **differential tax and benefit treatment** that they receive as compared to a **control group** (*single women* without children)
- **Key identification condition:** other than the introduction of the changes in in-work benefits, there are **no contemporaneous shocks** that affect the **relative** outcomes of the treatment and control groups.

# Results (1)

## Benchmark estimates - Table 1

- Single mothers experience large and significant increases in hours of work after introduction of WFTC (1999) **in conjunction with a job change**
- Hours changes for job stayers are **more modest**
- Hours changes after other reforms (FC) are **modest** too, for all women

In-Work Benefit Reforms, Job Changes, Hours Changes  
 Without controls (N=12,359)

	(1)	(2)	(3)	(4)
$a_1$	<b>1.58</b>	<b>2.68</b>	<b>1.54</b>	<b>1.36</b>
$a_2$	0.77	0.74	0.73	-0.19
$b_{FC}$			-0.25	0.03
$b_{WFTC}$			0.16	0.45
$\beta_{FC}$	0.11	0.72	0.95	0.48
$\beta_{WFTC}$	<b>2.56</b>	<b>2.66</b>	<b>2.48</b>	<b>3.39</b>

In-Work Benefit Reforms, Job Changes, Hours Changes  
 With controls (N=12,359)

	(1)	(2)	(3)	(4)
$a_1$	0.34	0.44	0.24	0.19
$a_2$	-0.30	-0.32	-0.31	-0.45
$b_{FC}$			-0.03	-0.21
$b_{WFTC}$			0.20	0.56
$\beta_{FC}$	0.21	0.83	0.89	0.44
$\beta_{WFTC}$	<b>2.54</b>	<b>2.65</b>	<b>2.60</b>	<b>3.42</b>

## Results (2)

### Response Heterogeneity

Results of Table 1 are particularly strong among lone mothers who (Tables 2-8):

- are **more educated**
- have only **one child**, especially if **aged less than 4**
- work in **larger firms** (50+ employees)
- are employed in **service industries**
- are willing to continue to work the **same number of hours** (given the same hourly pay)

# Results (3)

## Robustness checks

Tables 9-11

- Accounting for **1995 FC reform** (extra credit for full-time work) does not change our previous results: effect of FC+ is modest and statistically insignificant
- Accounting for length of time in the panel does not change much previous results: **changes in sample composition** are likely to be a minor problem
- **Propensity score matching models** (biweight kernel and local linear regression matching) confirm our previous results

# Wage estimates

## Summary:

- **No effect** of job changing behaviour (neither moving nor staying) after the introduction of FC and WFTC
- This suggests little evidence of **monopsonistic elements** in labour market of unmarried women (with and without children) in Britain
- We do find some evidence of monopsonistic power for specific subgroups of lone mothers, especially for those who:
  - live in the South East (including London)
  - work in small firms (fewer than 50 employees)

# Ln(wage) equation estimates - summary

	All	Less educated	S.E. (incl. London)	Small firms	Service industries
$a_1$	<b>-0.050</b>	-0.047	-0.071	<b>-0.063</b>	<b>-0.056</b>
$a_2$	-0.010	<b>-0.022</b>	-0.006	-0.009	-0.010
$b_{FC}$	-0.002	-0.018	-0.005	0.002	0.001
$b_{WFTC}$	0.013	0.010	0.009	0.014	0.008
$\beta_{FC}$	0.007	0.004	0.010	0.012	0.008
$\beta_{WFTC}$	0.007	0.003	<b>-0.027</b>	<b>-0.015</b>	-0.001

# Conclusions (1)

1. Single mothers experience **large increases** in **hours** of work after the introduction of the **WFTC (1999) in conjunction with a job change**
2. Hours changes for job **stayers** are more **modest (or inexistent)**
3. Hours changes after the other 2 reforms (**FC** and **FC+**) are **modest** too, both for lone mothers and single women without children

# Conclusions (2)

4. These results are particularly strong among lone mothers who:
  - are **more educated**;
  - have only **one child**, especially if **aged less than 4**;
  - work in **larger firms** (50+ employees);
  - are employed in **service industries**;
  - are willing to continue to work the **same number of hours** (given the same hourly pay).
  
5. Wage results suggest **little monopsonistic power** on average, but some evidence of monopsony in the South East and in small firms.