
Starting school and leaving welfare: the impact of public education on lone parents' welfare receipt

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Overview

- What happens to labour supply when children start school?
- Interesting because
 - Helps understand impact of childcare on parents' labour supply
 - Policy debate on pre-school provision
 - Policy debate on conditionality for welfare recipients
- Use regression discontinuity caused by DoB admission rules applied to administrative data on welfare recipients in England
- This paper adds
 - Detailed estimates for England for starting school (aged 4-5) and nursery (age 3)
 - Estimates of precise timing of labour supply response

Outline

- Should starting school matter?
- Previous work on impact of childcare/school on labour supply
- Our study
 - School and nursery admissions policies in England
 - Data and sample
 - Results
 - Sensitivities and placebos
- Concluding thoughts

Should starting school matter?

- Schools provide free childcare...
- ...but for specific weeks in the year, at specific hours
- ...and comes with a requirement for children to be in school for specific weeks in the year, at specific hours
- ...and school brings new demands and challenges for children and their parents

- Previous work (Brewer and Paull, 2006)
 - Employment of mothers whose YC starts school rises by 7% in 15 months
 - But lots of churn: end of high exit rates, start of high entry rates

Estimating the impact of childcare on parental labour supply: interesting, but difficult

- Traditional approach: estimate elasticity of maternal employment wrt price of childcare. However: (Brewer and Paull, 2004)
 - Inadequate data
 - Misspecification of choice set
 - Few credible instruments to overcome selection bias
- “The fact that the studies that accounted for unpaid child care in ways consistent with the existence of an informal care option produced small elasticities suggests that the true elasticity may be small” (Blau & Currie, 2004)
- Natural experiments
 - Policy variation across regions or over time (Lefebvre & Merrigan, 2008; Baker et al, 2008; Berlinski & Galiani, 2007; Cascio, 2009)
 - DOB cut-offs in admissions rules (Gelbach, 2002; Schlosser, 2006; Fitzpatrick, 2010; Berlinski et al, 2011)

Date-of-birth cut-offs: previous literature

- Gelbach (2002) (US, 1979-1980)
 - QoB as instrument for kindergarten enrolment (2SLS)
 - Finds enrolment increases LS of all married women, and lone mothers with no younger kids (US: 1979-1980)
- Berlinski et al (2011) and Fitzpatrick (2010)
 - Use indicator for being born “right” side of cut-off as instrument for pre-school enrolment
 - Berlinski et al run 2SLS; Fitzpatrick estimates reduced form
 - Findings
 - Mothers whose YC joins pre-school more likely to be in work, and work more hours (Argentina: late 1990s)
 - No impact of pre-school eligibility on LS (US: 1999-2000)

What does this paper do (and add)?

- Uses birth date cut-offs for school and nursery entry in England to estimate causal link between school entry and parental LS
- Focuses on low-income lone parents
- Identifies precise timing of impact of school/nursery on labour supply

- But do not observe school enrolment, so formally estimate impact of eligibility for school/nursery on labour supply

Institutional background: schools and nursery

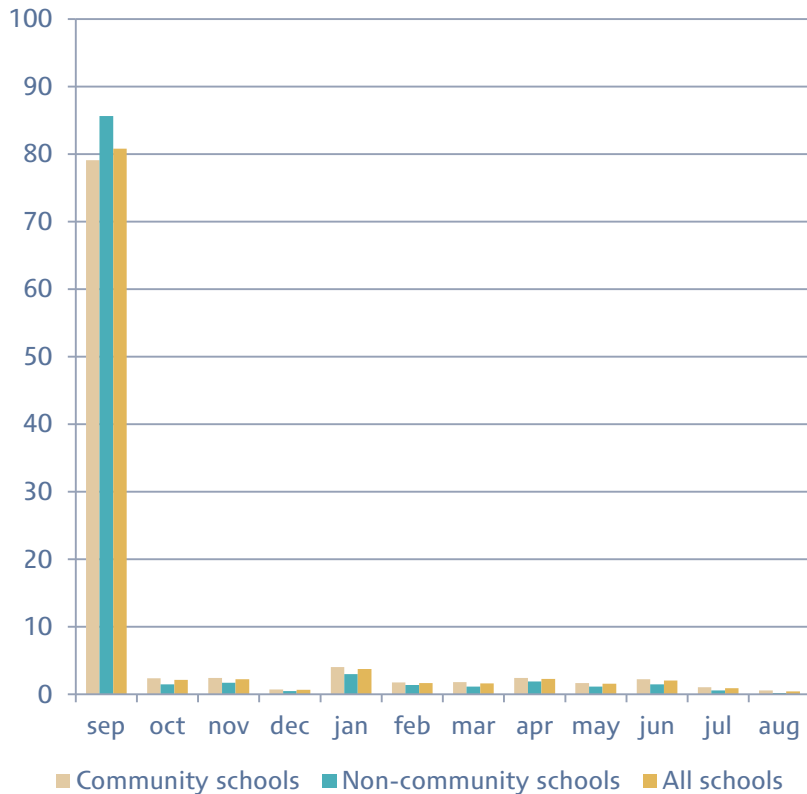
- Academic year: 1 September – 31 August, split into 3 terms
- Children have to be in school by term after turn 5, but admissions policies determined locally and most can start earlier
- Half of children in LAs where start in Sep after turn 4 (Policy 1)
 - Born 31 Aug 2006, then start school 1 Sep 2010, aged 4y 1d
 - Born 1 Sep 2006, then start school 1 Sep 2011, aged 5y 0d
- Most popular variation (15% of children, Policy 2)
 - Born 1 Sep to 28/29 Feb, then start school in Sep after turn 4
 - Born 1 Mar to 31 Aug, then start school in Jan after turn 4
 - Two discontinuities:
 - 31 August – 1 September: 8 months difference in school entry
 - 28/29 February – 1 March: 4 months difference in school entry
- Nursery: eligible for p/t place from term after turn 3
 - Three discontinuities; difference in nursery entry ~4 months

So what are we estimating?

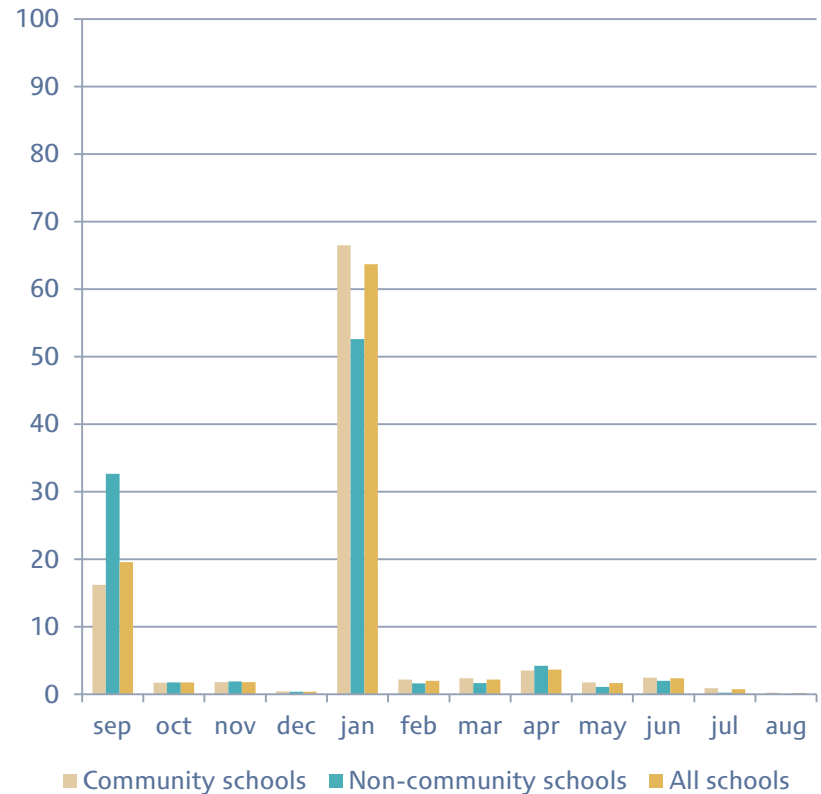
- Take advantage of various DoB cut-offs in admissions policies around the time of school/nursery entry
- Don't observe whether children in school/nursery, so are estimating impact of *eligibility*, not *attendance* (ITT)
 - But expected start date strongly predicts actual start date

Eligibility to start school is a good predictor of being in school

Start dates amongst FSM children due to start in September in Policy 1 areas, 2001/2 – 2004/5



Start dates amongst FSM children due to start in January in Policy 1 areas, 2001/2 – 2004/5



Lone parents on welfare unlikely to go to private schools, and not common to hold children back

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- Estimates the impact of
 - Nursery: 2.5 hrs per day in term-time
 - School: 6.5 hrs per day in term-time compared to 2.5 hrs per day

Data

- DWP/HMRC administrative data on welfare receipt and employment spells for individuals who have received welfare
 - Detailed work and benefit outcomes & histories, but limited personal characteristics: age, sex, ethnicity, # children, DOB of YC
- Admissions policies
- Local area characteristics

Our sample

Criterion: lone parents whose youngest child turns four between 30 November 2000 and 29 November 2004, and who are receiving welfare on 1 March of that year.

Gives 214,305 individuals, all observed for 4.5 years

Faced relatively lax welfare regime, and would have expected to be able to claim welfare benefits until children reached 16

Policy 1 areas

Window	1 Sept cut-off
14 days	11,060
30 days	23,857
60 days	47,173
90 days	70,368

Policy 2 areas

Window	1 Sept cut-off	1 March cut-off
14 days	4,088	3,766
30 days	8,883	8,120
60 days	17,796	16,265
90 days	26,425	24,309

Modelling strategy

Underlying relationship :

$$Y_{ijcm} = \alpha S_{ijcm} + \beta_1 X_{1ijc} + \beta_2 X_{2ijcm} + \mu_j + \delta_c + \varepsilon_{ijcm}$$

for individual i in local authority j and cohort c in month m :

- Y = whether in work or off welfare in month m
- S = whether youngest child is in school in month m
- X_1 = vector of characteristics that do not vary over time
- X_2 = vector of characteristics that vary over time

But S is endogenous (and unobserved)

Modelling strategy

Use Z , instead of S :

$$Z_{ijc} = 1\{A_{ijc} > 0\}$$

A = child's age relative to cut-off (e.g. 0 = 1 Sep; -1 = 2 Sep; 1 = 31 Aug)

Z = indicator for being born on or before the cut-off (31 August)

$$Y_{ijcm} = \alpha_0 Z_{ijc} + \alpha_1 A_{ijc} + \alpha_2 A_{ijc} Z_{ijc} + \beta_1 X_{1ijc} + \beta_2 X_{2ijcm} + \mu_j + \delta_c + \varepsilon_{ijcm}$$

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• Cluster s/es by DoB

Parents' characteristics either side of the cut-off

Characteristic	Parents of older children	Parents of younger children	Difference
Male	0.029	0.027	0.002
Number of children	2.010	1.985	0.025*
Age	29.840	29.483	0.357**
Non-white	0.125	0.125	0.000
Employment history	0.156	0.158	-0.002
Welfare history	0.104	0.103	0.002
Disabled	0.057	0.057	0.000
Local employment rate	0.656	0.656	0.000
Observations	23,181	23,992	

Sample: lone parents with youngest child born Jul/Aug compared to Sep/Oct in Policy 1 areas
See Table 1 for tests at other cut-offs

Robustness: is there a discontinuity in work history?

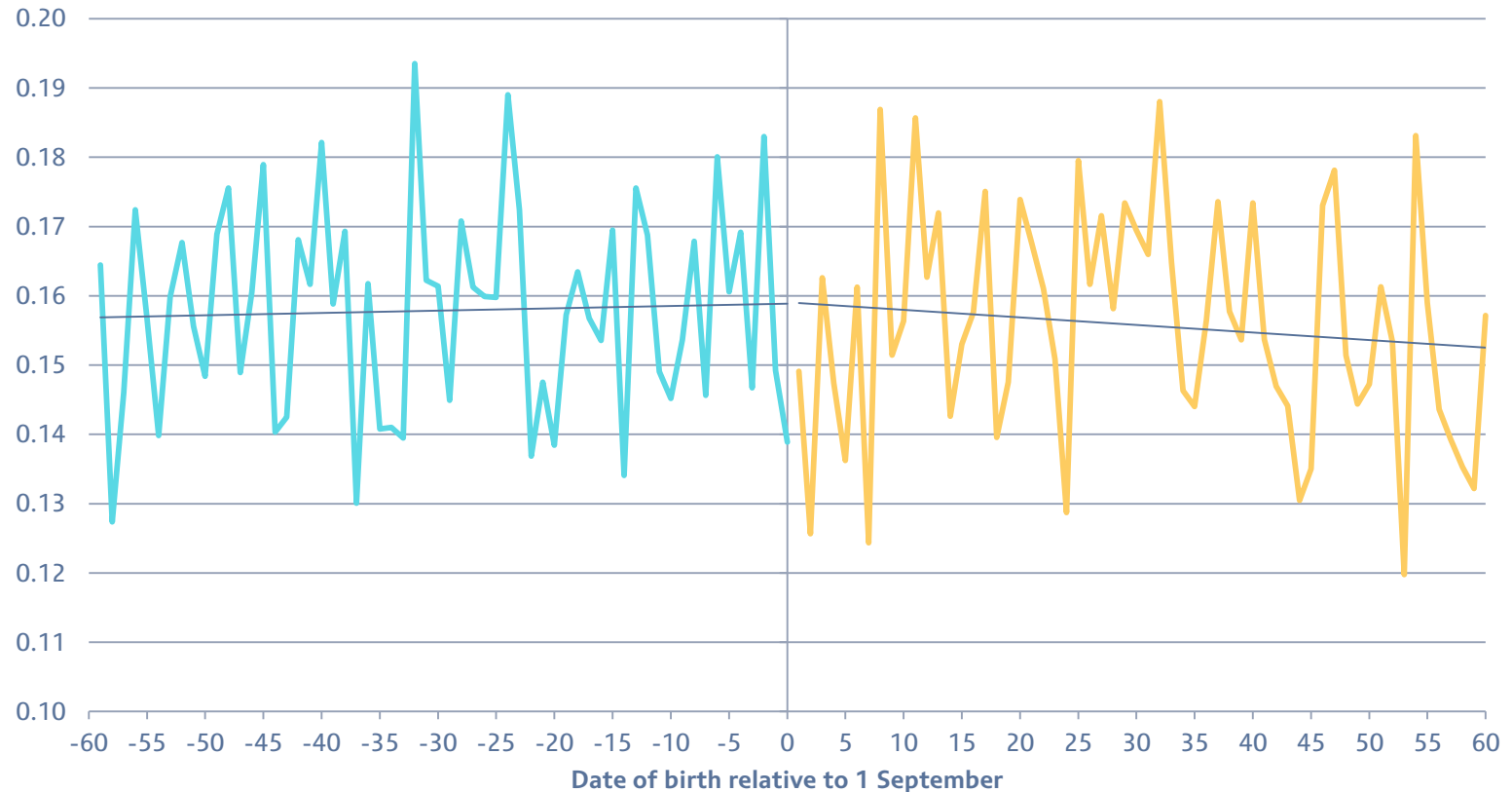


Figure shows proportion of 18 months before sampling that lone parent spent in employment for children in our main sample born on each day relative to 1 September (1=31 August). Figure also shows a linear trend estimated separately either side of 1 September cut-off.

Robustness: is there a discontinuity in density of DoBs?

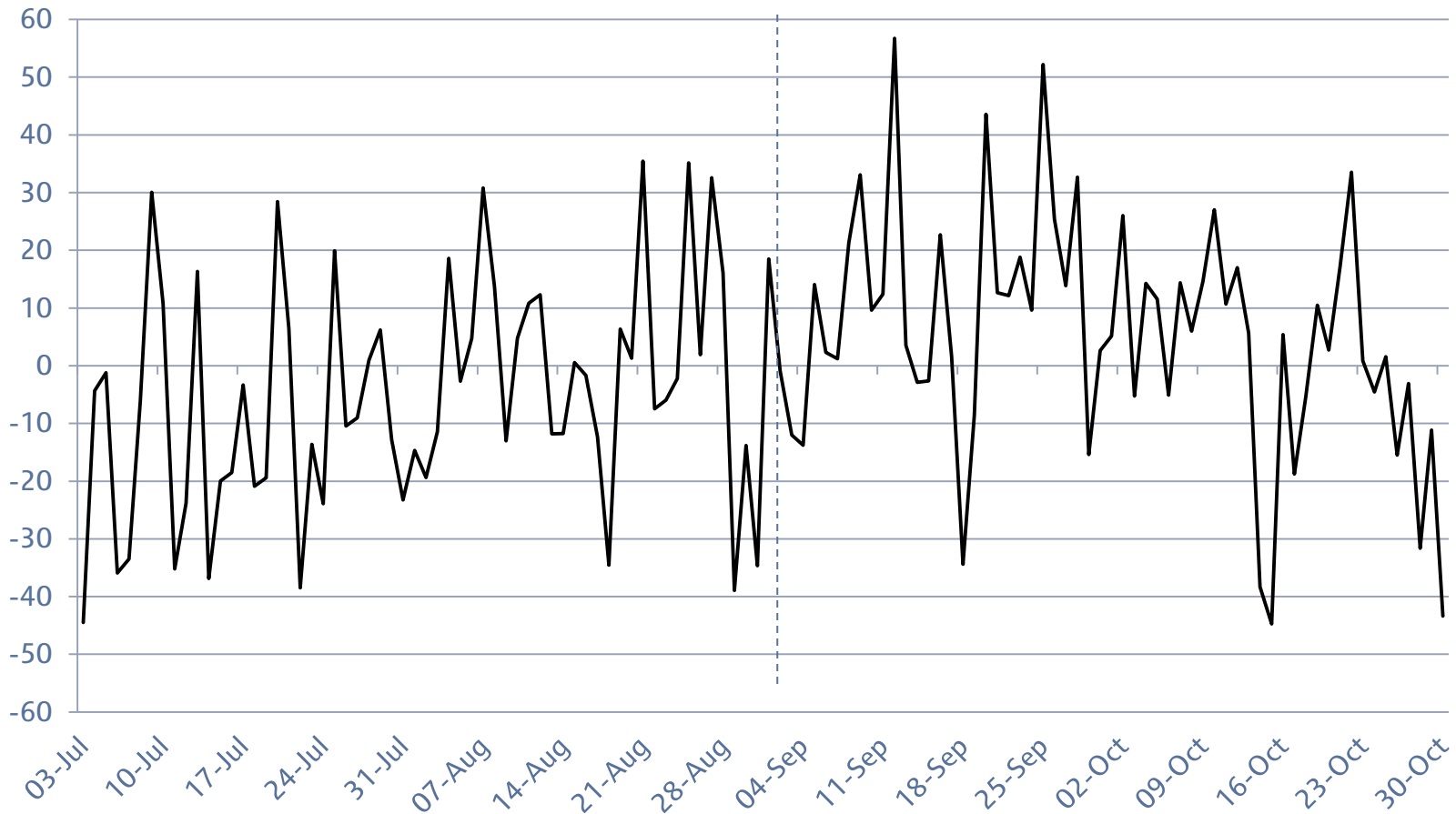
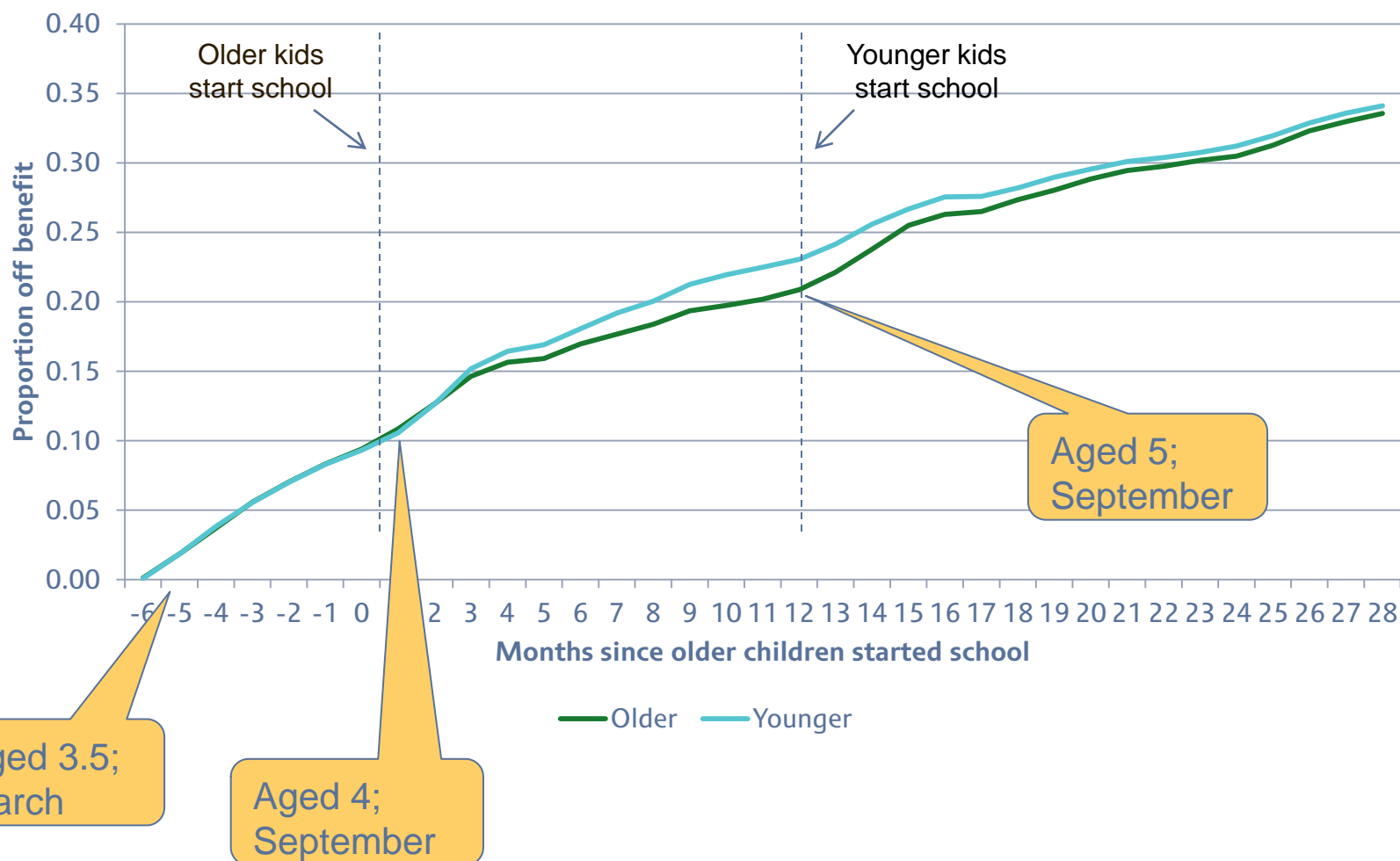
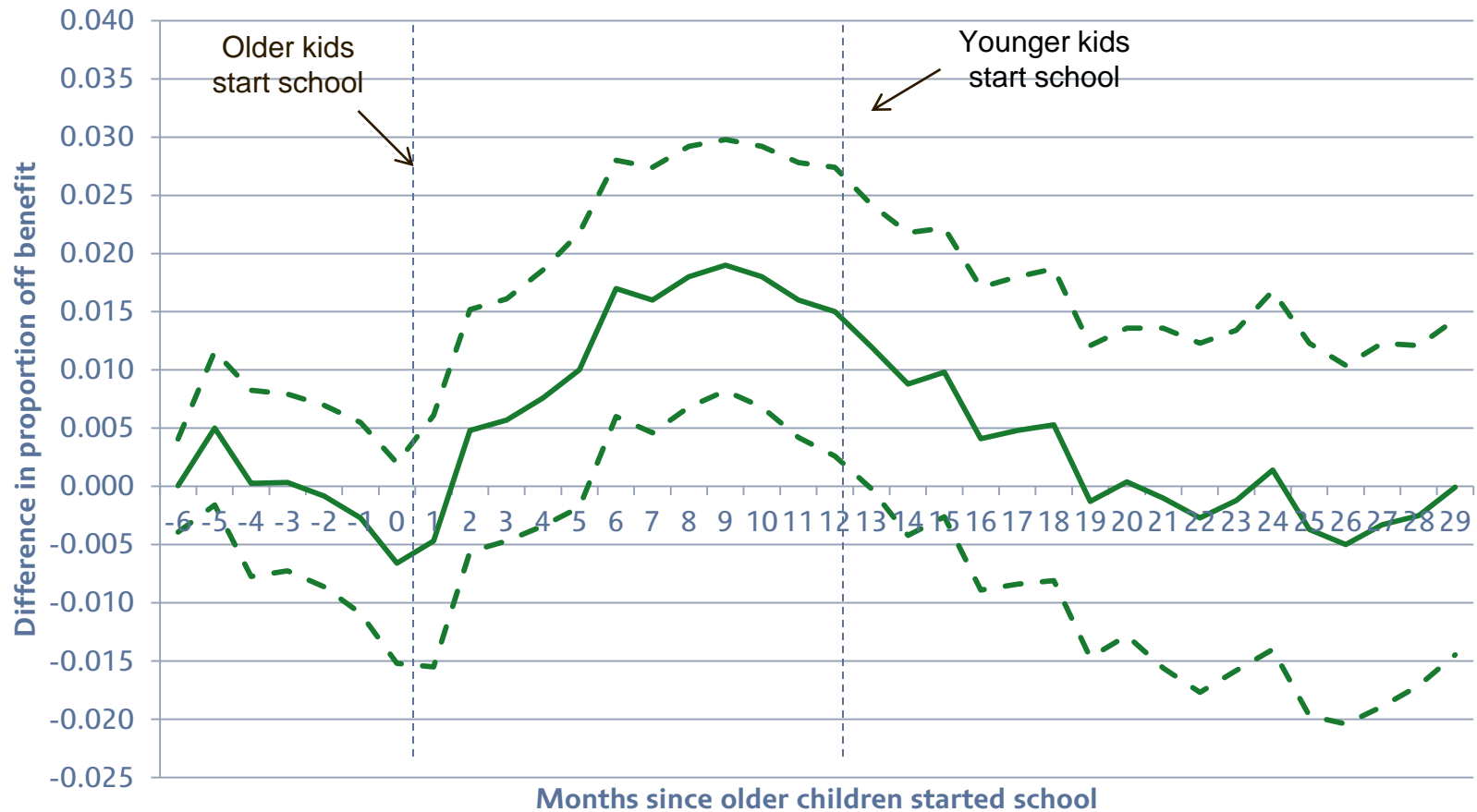


Figure shows residuals from regression of births/day on dummies for DoW and Bank Holidays (estimated on all children in wider sample)

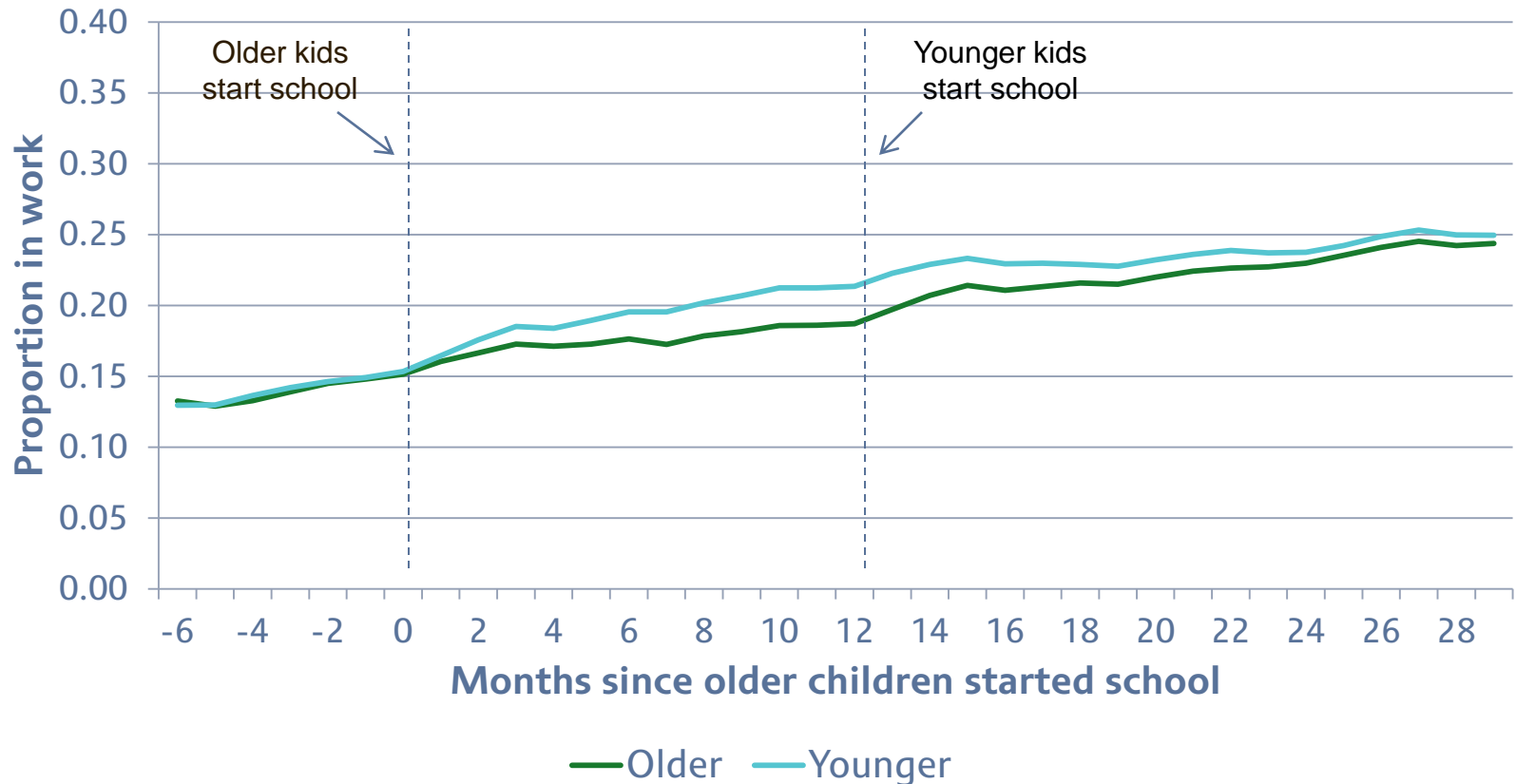
Proportion of lone parents off benefit by DOB YC (Jul/Aug vs. Sep/Oct) in Policy 1 areas



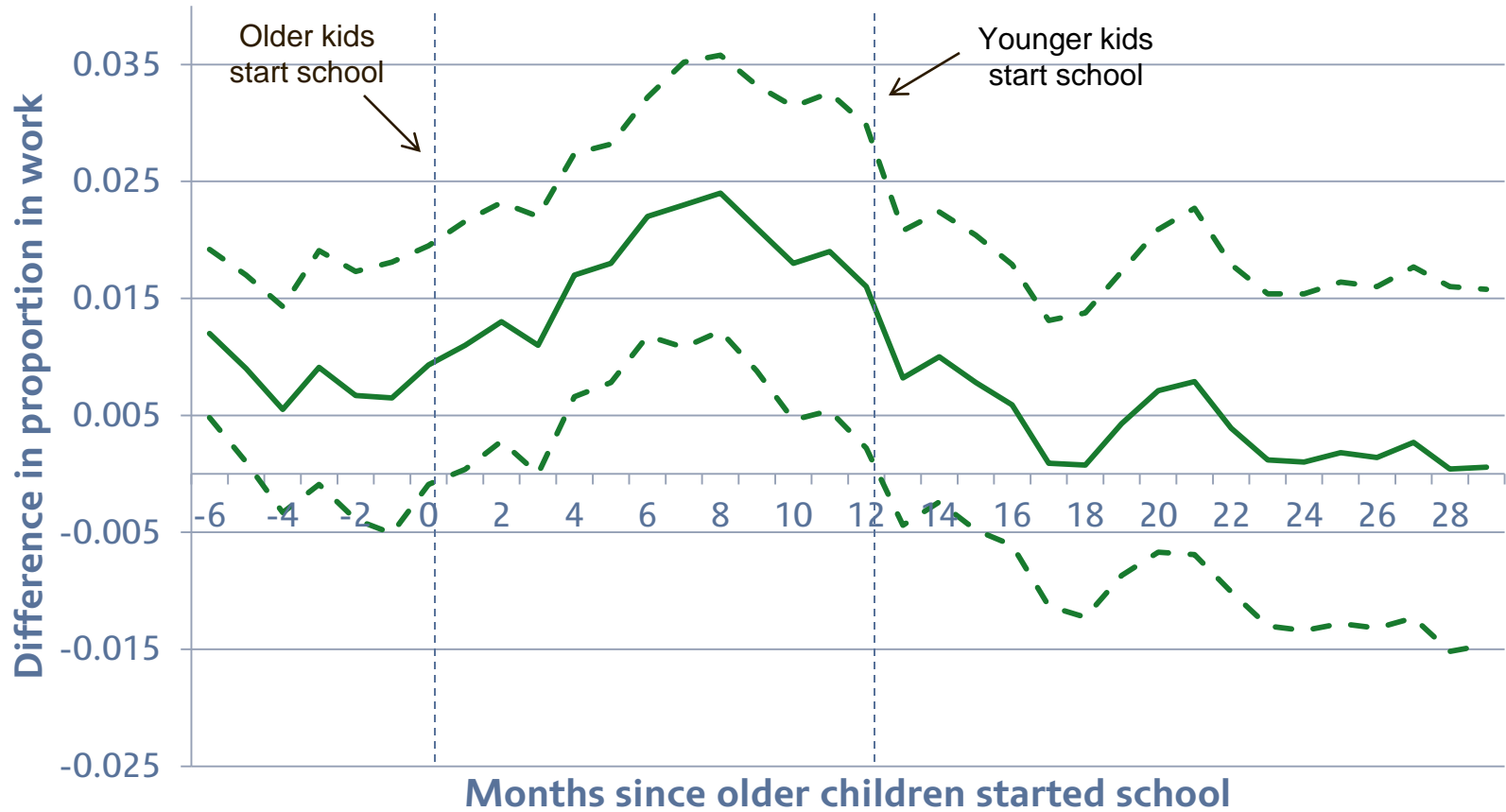
Difference between proportion of parents of older (Jul/Aug) and younger (Sep/Oct) children off benefit in Policy 1 areas



Proportion of lone parents in work by DOB YC (Jul/Aug vs. Sep/Oct) in Policy 1 areas



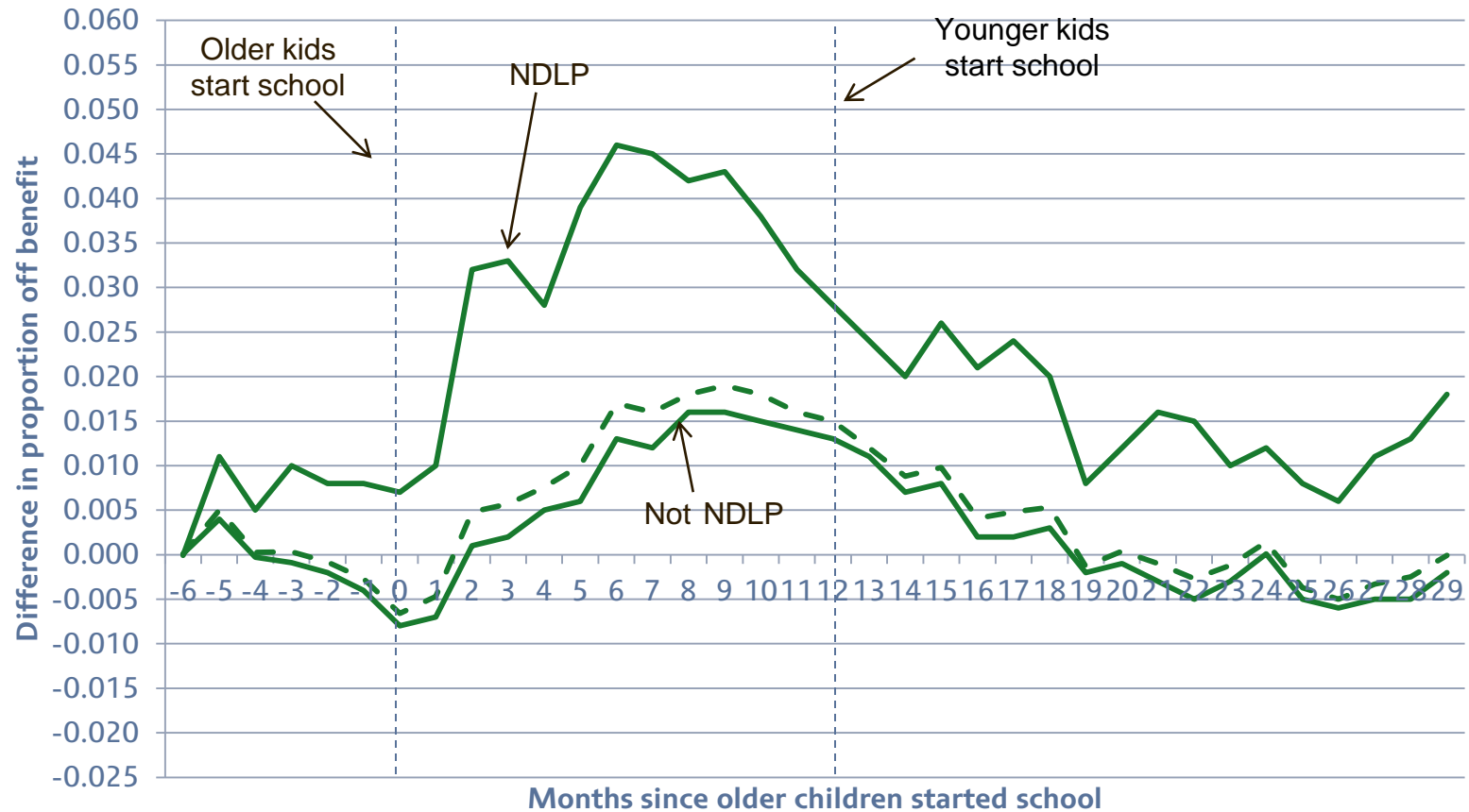
Difference between proportion of parents of older (Jul/Aug) and younger (Sep/Oct) children in work in Policy 1 areas



Main results

- Being eligible to start school does increase flows off welfare and flows into work, by about 2 ppts (10-15%)
- No robust evidence of anticipation effects
- Impact peaks 9 months after school starts (May/June)
- Variants
 - Impact in Policy 2 areas (September and March cut-offs)
 - Impact of eligibility to nursery place for parents whose YC is 3
 - Impact by sub-group

Difference between proportion of parents of older (Jul/Aug) and younger (Sep/Oct) children off benefit in Policy 1 areas, by whether on NDLP when sampled



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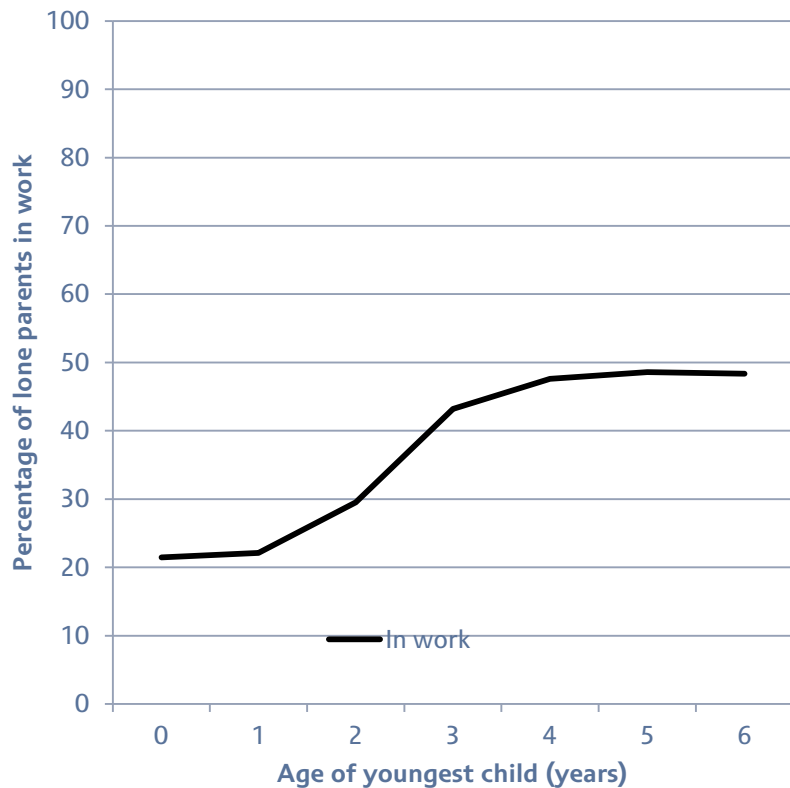
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 - Impact by sub-group
- Sensitivities
 - Size of window: 14, 30, 60, 90 days either side
 - Omit children with DOB close to cut-off
 - Use quadratic control for age
 - Placebo: test for impact on parents whose YC is 2, 6 & 10 and test for impact on parents whose YC is 4 at irrelevant date

Conclusions

- Youngest child being eligible to start school has a small but significant effect on labour supply of low-income lone parents
 - Effect takes some time to appear (4-6 months), suggesting LPs start looking for work when their youngest child starts school
 - Difference peaks at around 1.7 ppts (10%) for benefits and around 2.4 ppts (15%) for work, 8-9 months after youngest child starts school
- Small effects for large subsidy amongst a responsive group. Suggests:
 - School entry important, but not critical. Justification for requiring lone parents to look for work when YC is 5?
 - Expansion of childcare programmes to disadvantaged 2 year-olds will have minimal impact on employment
- Shows power of administrative data

Lone parents' labour supply and age of children

As young children age, more lone parents work...



...and use of childcare changes considerably

