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

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Introduction

- 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

What has already been done?

- Gelbach (2002)

  - QoB as instrument for kindergarten enrolment (2SLS)

  - Finds enrolment increases labour supply 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 youngest child joins pre-school more likely to be in work, and work more hours (Argentina: late 1990s)

    - No impact of pre-school eligibility on labour supply (US: 1999-2000)

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What does this paper do (and add)?

- What do we do?

  - Use birth date cut-offs for school and nursery entry in England to estimate causal link between school entry and parental labour supply

  - Use administrative data and focus on lone parents on welfare

- What do we add?

  - Detailed estimates of the impact of school (age 4-5) and nursery (age 3) entry on parental labour supply for England

  - Estimates of precise timing of labour supply response

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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 September after turn 4
  - 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

- Nursery: eligible for p/t place from term after turn 3
  - Three discontinuities; difference in nursery entry ~4 months

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So what are we estimating?

- Do not observe school enrolment, so formally estimate impact of eligibility for school/ nursery on labour supply (ITT)
  - But expected start date strongly predicts actual start date
- How much childcare is on offer?
  - Nursery: 2.5 hours per day during term-time
  - School: 6.5 hours per day during term-time compared to 2.5 hours per day during term-time

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

Percentag

sep oct nov dec jan feb mar apr may jun jul aug

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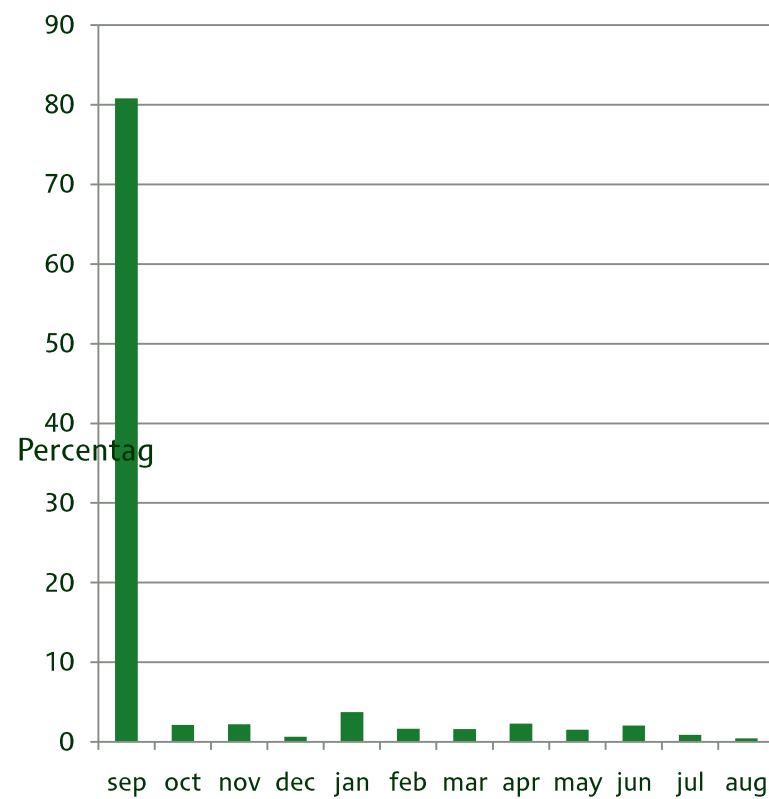
Data and sample

- UK administrative data on welfare receipt and employment spells for individuals who have received welfare since June 1999

  - Detailed work and benefit outcomes & histories, but limited personal characteristics: age, sex, ethnicity, number of children, DoB of YC

- Admissions policies

- Local area characteristics

- Main sample: 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 47,173 children born in a sixty day window (30 days either side) around 1 September cut-off in our main policy area

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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)

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Modelling strategy

Instead we use Z instead of S to estimate reduced form models:

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

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

for individual i in local authority j and cohort c:

- Y = whether in work or on welfare in month m
- S = whether youngest child is in school (unobserved)
- X_1 = vector of characteristics that do not vary over time
- X_2 = vector of characteristics that vary over time
- A = child's age in days (e.g. 0 = 1 Sep; 1 = 2 Sep; -1 = 31 Aug)
- Z = indicator for being born before the cut-off

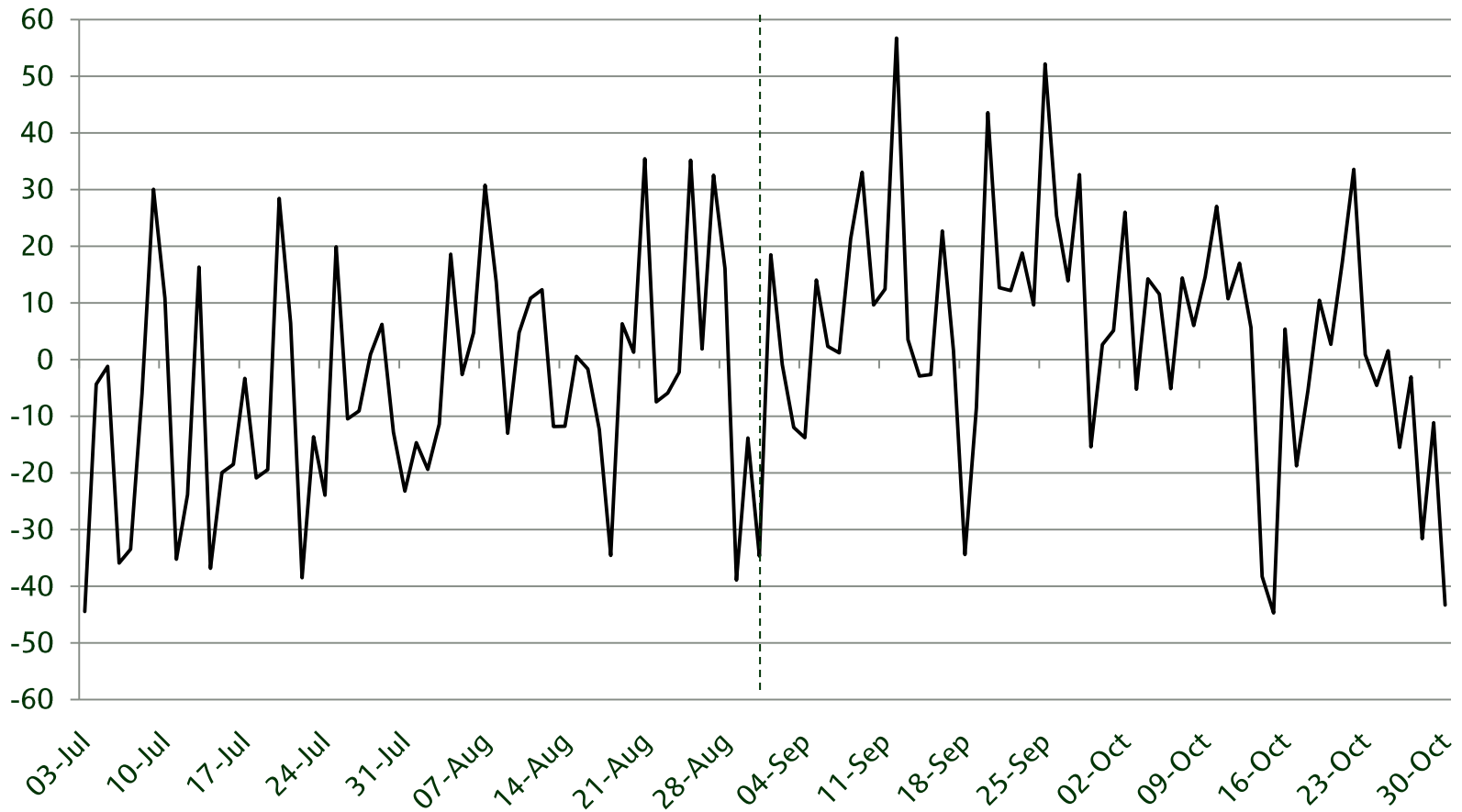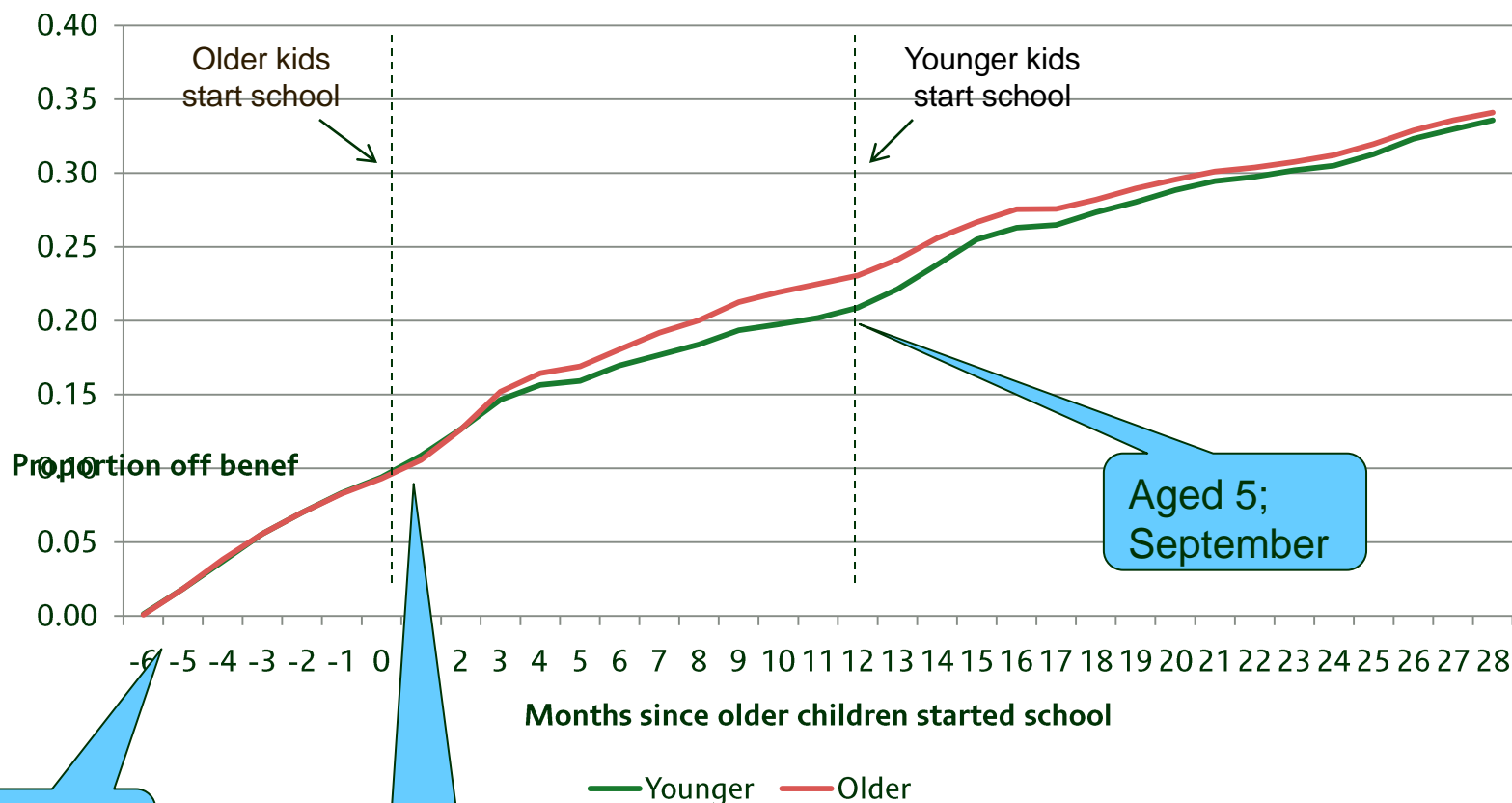# Is there a discontinuity in density of DoBs?

Figure shows residuals from regression of births/day on dummies for day of week and Bank Holidays

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Proportion of lone parents off benefit by date of birth of youngest child (Jul/Aug vs. Sep/Oct)

Difference between proportion of parents of older (Jul/Aug) and younger (Sep/Oct) children off benefit
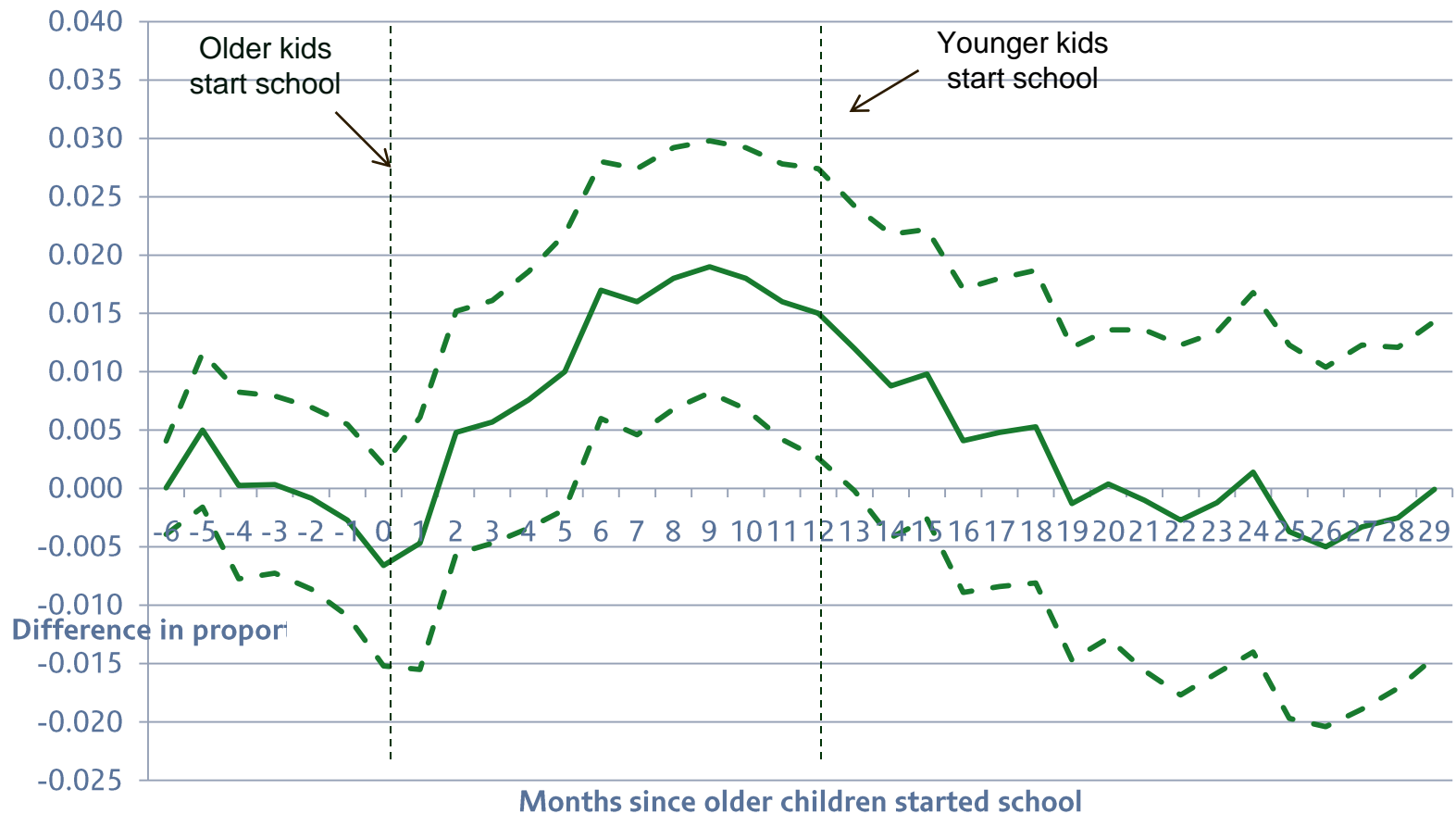
Main results

- Youngest child being eligible to start school does increase flows off welfare and into work, by about 2 ppts (10-15%)

  - No robust evidence of anticipation effects

  - Impact peaks 8/9 months after school starts (May/June)

  - Impact largest amongst parents who have recently been on NDLP and whose welfare claim had lasted less than 12 months at sample entry

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

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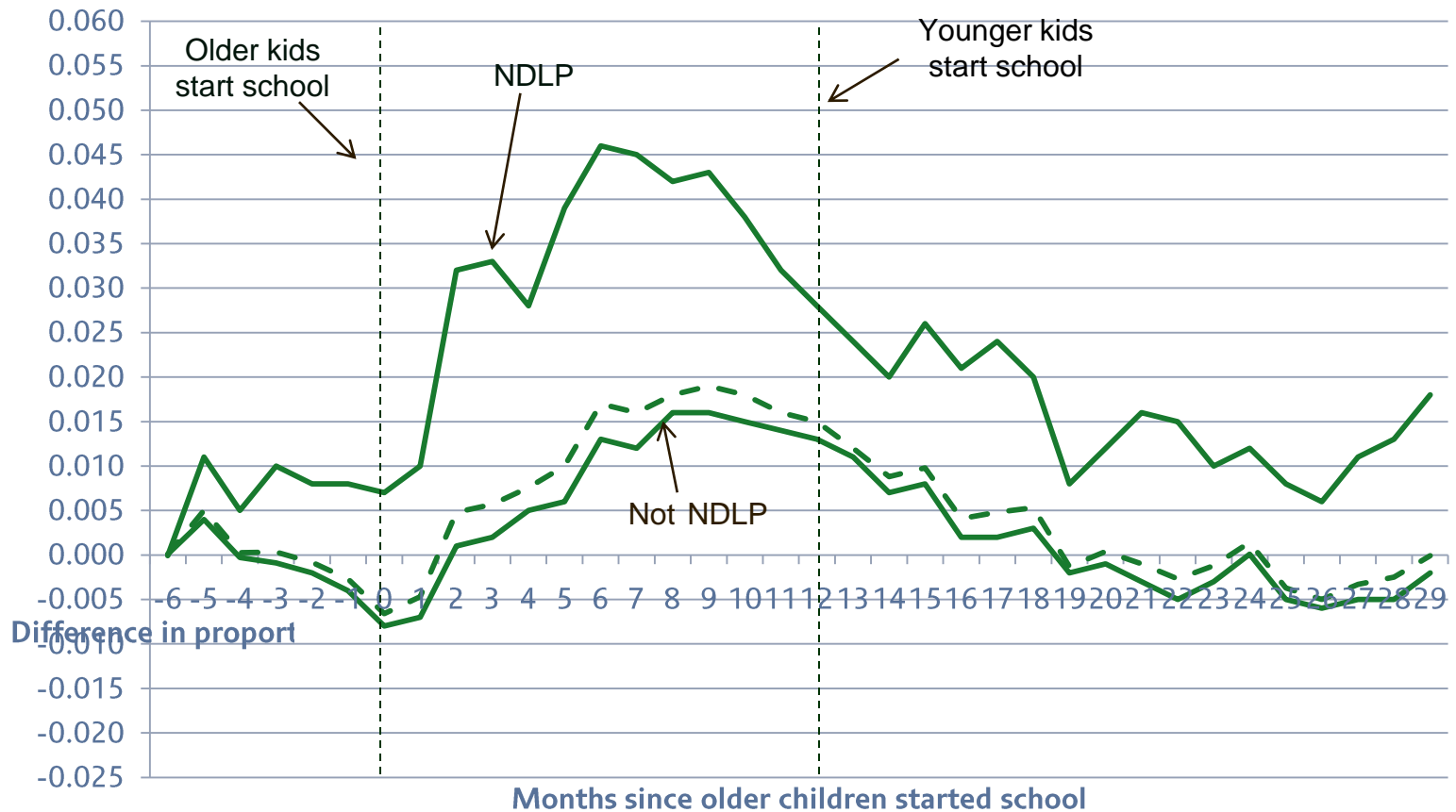
Specification and placebo tests

- Specification tests:
    - Size of window: 14, 30, 60, 90 days either side
    - Omit children with DOB close to cut-off
    - Use quadratic control for age

- Placebo tests:
    - Test for impact on parents whose youngest child is 2, 6 & 10
    - Test for impact on parents whose YC is 4 at an irrelevant date

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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 may not start looking for work until their youngest child starts school

    - Difference peaks at around 1.9 ppts (10%) for benefits and around 2.4 ppts (15%) for work, 8-9 months after youngest child starts school

- Limited evidence of a smaller effect of eligibility for nursery on LS

- 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

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