

Evaluating the Impact of Nursery Attendance on Children's Outcomes

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The aims of this project

Our research questions

Broad objective: to assess the impact of the quantity and quality of Early Years Education and Care (ECEC) in the UK.

Natural variation in ECEC participation is generated from two aspects of the free entitlement

- The roll out from the late 1990s (although we look from 2002)
- The age-discontinuity in entitlement

Our work is therefore an evaluation of ECEC as delivered through the free entitlement, and of the free entitlement itself.

The importance of quality is assessed by matching children's outcomes to the characteristics of the nurseries where they received the free entitlement. This data is used directly and also combined with the age-discontinuity strategy.

Note: Our analysis is based on looking at the free entitlement as it is, which is not the same as assessing its potential.

A thorough investigation of the free entitlement is particularly important in light of recent extension to 30 hours.

Blanden J, Del Bono E, McNally S, Rabe B. (2016) “Universal pre-school education: the case of public funding with private provision”. *Economic Journal*, 126 (May), 682-723.

Blanden, J. Del Bono, E., Hansen, K. and Rabe, B. (2017b) “The impact of free early childhood education and care on educational achievement: a discontinuity approach investigating both quantity and quality of provision”. University of Surrey School of Economics Discussion Paper No. 06/17.

Blanden, J., Hansen, K. and McNally, S. (2017a) “Quality in Early Years Settings and Children’s School Achievement”. Centre for Economic Performance (CEP) Discussion Paper No.1468, London School of Economics.

Policy background

In 1998 New Labour announced a free entitlement to part-time early education for 3 and 4 year olds.

This followed a similar policy for 4 year olds introduced in 1996 by the previous Government.

Policy was universal for 4 year olds in 2000 but expanded more slowly for 3 year olds.

We consider England only although there are similar policies in the devolved nations.

Most of the expansion in free places occurred in the private, voluntary and independent (PVI) sector.

Half of children are in public sector nursery schools and classes, the other half are in the PVI sector.

Policy background

Maintained v PVI settings

| Maintained sector | PVI sector |
|---|--|
| Nursery schools & nursery classes in primary schools run by Local Authority | Day nurseries & playgroups/preschools run by private, voluntary or independent providers; childminders |
| Restricted hours in morning or afternoon sessions | Day nurseries: full-time care, playgroups: restricted hours |
| One qualified teacher per class | 50% of staff must hold level 2 qualification |
| Staff to child ratio 1:13 | 1:8 or 1:13 if qualified teacher or EYP |
| | Less than a third of children have a QTS/EYP in their class. |

Policy background

The entitlement was originally for 2.5 hours per day for 5 days a week, 33 weeks a year (arguably a child development focus).

It was expanded to cover 15 hours a week over 38 weeks a year and to be taken flexibly over fewer days.

Importantly for us entitlement is related to date of birth and children are eligible to start the term after they turn 3.

3 discontinuities: 31st December, 31st March and 31st August

| Month of birth | Entitlement start | Terms before reception year |
|----------------------|-------------------|-----------------------------|
| September – December | January | 5 |
| January – March | April | 4 |
| April – August | September | 3 |

General comments on methodology

All our analysis is based on administrative data

Advantages:

- Includes all children in state schools in England, and almost all children receiving the free entitlement
- Related to the aims of the Early Years Foundation Stage
- Comparable to recent work on schools
- Data is already being collected

Disadvantages

- We are restricted to outcomes observed at the end of the Reception and beyond and we don't have detailed information on family background and prior ability. Requires a persuasive research design
- It may miss the long-term/more subtle benefits observed in other studies.
- Our measures of quality are limited by what is available, and only available in the PVI sector. However, they are of direct policy interest.

Investigating the roll-out of the free entitlement

Children in some areas were already receiving free ECEC before the policy was introduced meaning that little changed (control group).

In other areas the timing of the introduction varied. By 2002 fewer than 30 percent of 3 year olds were receiving a free place in Bath, Kent and East Sussex.

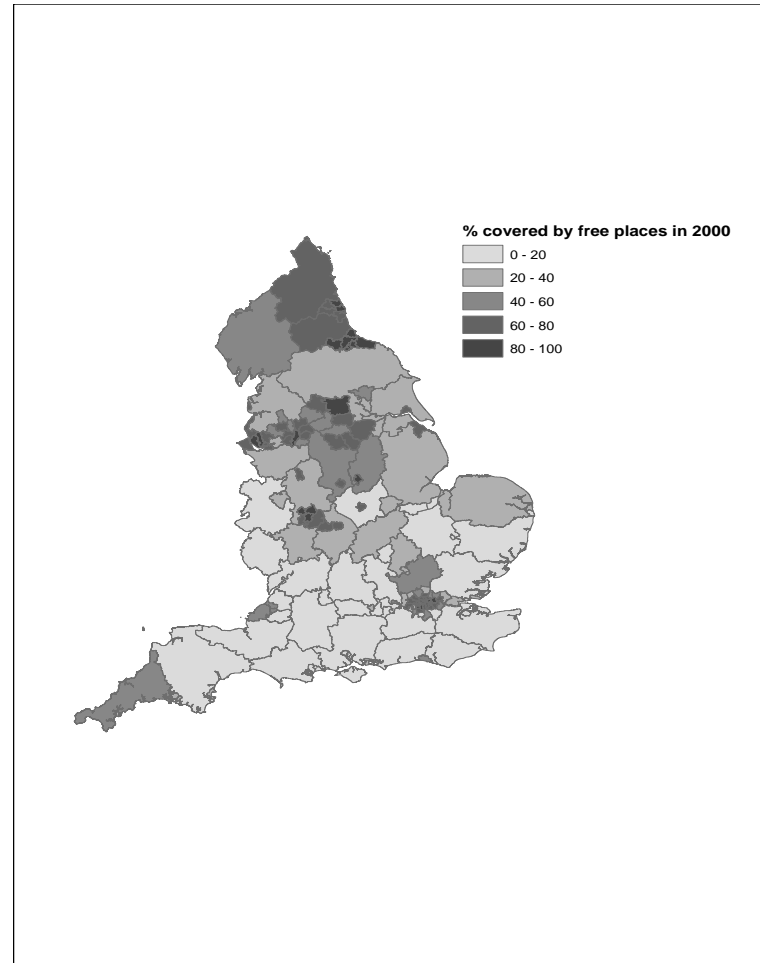
If the policy mattered we would expect to see improvements in school results related to the timing of the introduction of free places in each area.

We match administrative data on results at the end of Reception (and in KS1 and 2) to information from DfE on the number of children in each cohort receiving a free place. We consider children in their preschool years from 2002-2007 (about 3 million).

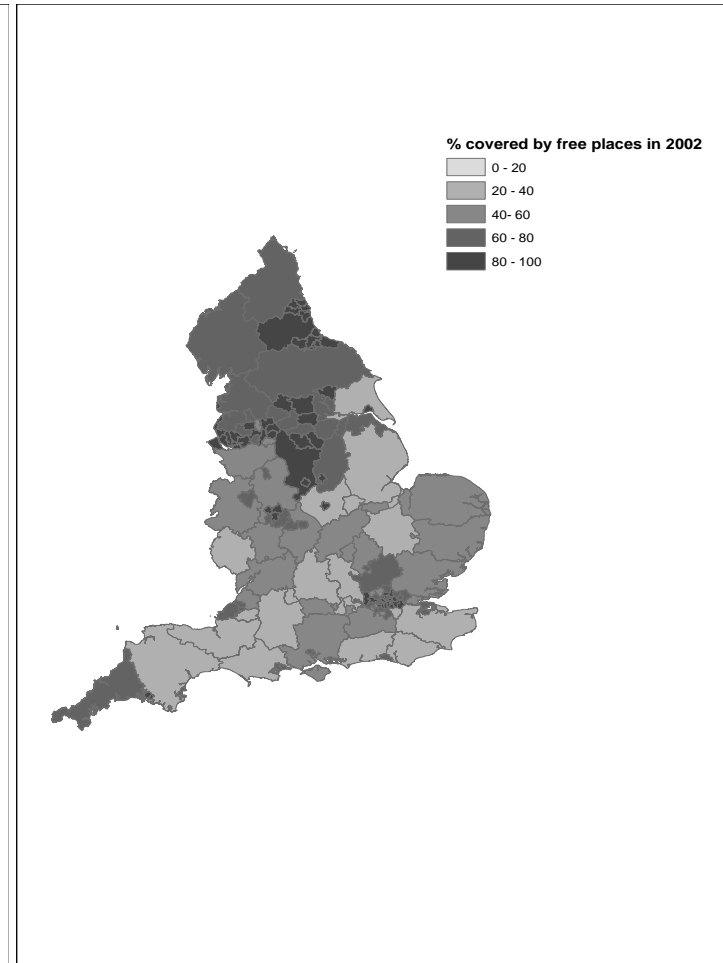
It is crucial that we take account of other local changes and our econometric model takes account of local employment, wages, Sure Start and previous differences in trends in children's outcomes.

Free places for 3 year olds by LEA

2000



2002



2007



Exploring matched data on quality

Information used

PVI providers that receive funding for delivering the free entitlement must complete the Early Years Census (EYC) each January.

Information on each child in attendance is matched with their record in the NPD for three cohorts (in preschool 2008-2011).

The EYC provides information on type of provision, staff and child numbers and numbers of staff who are qualified teachers (QTS) or have Early Years Professional Status (EYP).

We also match in information on the setting's rating on the closest Ofsted inspection performed. We can find these for 80% of the children in our settings.

We have limited information on maintained settings.

Exploring matched data on quality

Methodological issues

We relate children's performance in the Foundation Stage Profile to the information we have on the setting they attend.

But parents choose the settings attended and correlations between children's ability and their parents choices will lead to biased findings (e.g. if well-off parents tend to choose Outstanding settings).

We take into account family characteristics, peer characteristics and only compare between children who go on to attend the same school.

Within the PVI sector there is little evidence that particular types of family select strongly into particular types of nursery.

Staff qualifications and Ofsted ratings are imperfect measures of quality, but have been a focus of Government policy so are worthy of investigation.

We also study differences in outcomes between nurseries, a type of 'unobservable' quality.

Exploiting the date of birth discontinuity

The age-based entitlement leads to a sharp difference in the number of terms of free ECEC received by children just a few days apart in age.

To pick up the impact of this we focus on three cohorts of children who are born within 4 weeks of 31st December or 31st March, a sample of 600,000.

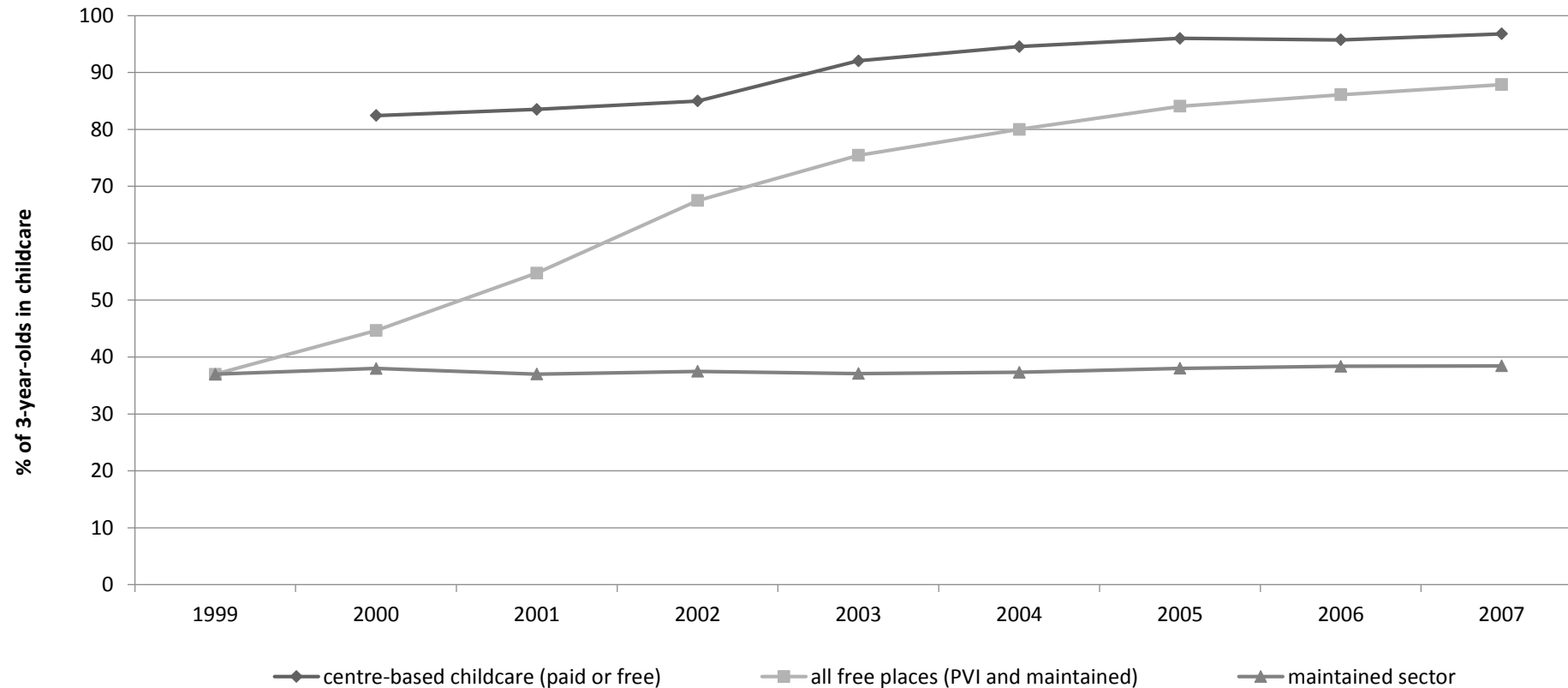
We compare outcomes for those born either side of the entitlement taking care to control for age (a few weeks makes a difference at young ages).

We drop children who attend schools that have staggered starts related to term of birth (only 4%).

We drop children born on 1st Jan as a high proportion foreign born, also 1st April for symmetry.

Key findings

Attendance grew much less steeply than free places



Source: DfE statistical releases

Free places increased by 50 percentage points, take up increased by 15 percentage points

Key findings

The policy leads to a substantial transfer to families

Much of the £2bn a year spent is a transfer to families who would have paid for ECEC at age 3+ anyway.

- Between 1999 and 2007 the percentage of three year olds in England benefitting from a free early education place rose by about 50 percentage points - from 37% to 88%, but the number of children attending rose from 82% to 96%.
- A statistical model at area level shows that for every 4 children given a free place, only one additional child used early education who would not have done otherwise.
- Analysis of the Family Resources Survey shows that about one in ten children actually join ECEC in the term after their third birthday when they become eligible for the free entitlement. Interestingly 5% of children anticipate eligibility after Christmas by starting in September.

Any effect on children's outcomes of the free entitlement potentially combines effects on participation, maternal employment and family income.

Little impact of quantity

We consider both the overall effect of a free place and the impact of being eligible for an additional term. In both cases impacts are either zero or very small.

- The increase in free places improved Foundation Stage Profile (FSP) scores from a score of 87.5 to a score of 89.2 on average.
- Evidence indicates that the small benefits come from increased participation rather than other channels. Effects are larger in the LEAs where participation increased most.
- Assuming all benefits are felt by the children who took up a place, affected children gained an additional 6 points in the FSP.
- Even among groups who benefited effects do not last, nothing at KS1 or 2.
- There is a zero or very small overall benefit of being entitled to an additional term. Our results are never greater than half the size of the impact of spending an additional term in Reception (Cornelissen et al, 2013).

Key findings

Observable markers of quality matter little

There is weak evidence that the measures we have of quality from administrative data affect children's outcomes, but this may mask important unobserved quality effects.

- Having a QTS/EYP in a PVI nursery means that children have a FSP score of one third of a point higher, where the total number of points available is 117.
- Attending a nursery rated 'outstanding' rather than good is associated with moving up less than one level on just one of the 13 scales that make up the Foundation Stage of primary education at age 5.
- However there are important differences in the outcomes of children who attend different settings – possibly differences are linked to unobserved quality aspects. Parallels with the teacher quality literature, teachers matter but their quality is not related to experience, qualifications etc.

No clear story that disadvantaged children benefit more

We consider all our results by the subgroups that can be identified in the NPD in expectation that disadvantaged children benefit more from ECEC. Results are mixed.

- Our study of the roll-out provides limited evidence that disadvantaged groups benefited more at age 5, but there were no longer-term benefits.
- There is (tentative) evidence in the opposite direction on term of birth. Children on free school meals do worse if they receive an extra term.
- Results from the EYC give a mixed picture. Children living in better off areas benefit slightly more from a graduate working with them but children speaking English as an additional language benefit more from attending an Outstanding nursery.

Key findings

Little evidence that there are quantity effects if high quality

In ongoing work we are investigating if the impact of exogenous differences in quantity vary by setting quality.

- Our research design is strengthened by looking at eligibility effect for children attending nurseries of different types, i.e. considering the interaction of quality and quantity.
- There's a hint that children benefit very slightly from an extra term at an Outstanding nursery but effects are still very small. No differences by setting type and staff qualifications.

Possible challenges to our research designs

Are we measuring outcomes appropriately?

- We are measuring the policy against its own benchmark of success.
- We can see that there is variation in outcomes between nurseries.
- However it's possible that we might be missing longer-term non-cognitive benefits.

Are we measuring quantity of ECEC appropriately?

- Things may have changed since the roll-out.
- How likely are we to find an effect of one extra term? (although Cornelissen et al results suggest we should be able to).
- These specific focuses allow us to get a robust research design.

Are we measuring quality appropriately?

- Perhaps not, but we are measuring proxies that are regularly discussed by policy makers.

Is the research design for the 'quality' paper leading to bias?

- Possibly, but understatement of the effect of qualifications would only happen if less able children are taught by graduates. It seems more likely that the bias goes in the other direction.

Questions raised

For policy

It is striking that the most important impact of the policy is cash support for parents. What is the free entitlement for?

Why doesn't an extra term of ECEC have the same benefits as an extra term in infant school?

Do we need more evidence on the importance of qualifications? Insisting on them could be a barrier to entry for those with more important 'quality' characteristics.

Would the free entitlement work better if it was targeted but higher quality?

What would a 'high quality' free entitlement look like?

How could a high quality free entitlement be achieved?

Questions raised

For research

What else can we learn from administrative data? What information should be added to it?

How can we measure quality in a way that is amenable to improving it? Or should we concentrate on measuring outcomes directly?

We know that management practices matter in other educational settings. What is their relevance here for improving outcomes?

How can settings be incentivised to improve quality? Does funding matter?

To what extent can we learn from research on schools and teachers? Bearing in mind that the early years market has its own complex features.

How can we effectively use randomised control trials in this area?

- What should be different from the approach used in schools? Should more focus be placed on training?