

# Using the English National Pupil Database to investigate inequalities among pre-school and primary school children

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# Today's talk:

Introduce the English National Pupil Database (NPD)

Discuss findings from two recent projects using the NPD

Briefly touch upon new project starting this autumn

Very briefly mention issues with data access

# The National Pupil Database (NPD)

Pupil-level database of all children aged 2 and upwards  
in state-funded education in England

600,000+ per year-group cohort – currently records  
for over 20 million children

Stretches back to the early 2000s

Until recently, could be accessed on request to the  
Department for Education, the data owners  
(stringent process of application and approval)

## Pupil-level information available to researchers includes:

Anonymised child identifier (link longitudinally)

Whether child claims free school meals (FSM; income proxy)

Ethnicity, home language, date of birth

Reported Special Educational Needs / Disabilities

Exclusions and absences

Whether child is in care

Address (researchers often given LSOA – small area code)

Distance from child's home to school attended / nearest school

Recorded 'attainment' at various ages (5, 6, 7, 11, 14, 16, 18)

School(s) attended

# School-level information includes:

School identifier (link with pupils)

Type of school and governance

School-level test results

Address / locality / geographical information

Funding and finances

## Data linkage – e.g. to:

Geographical information for child's / school's locality  
(e.g. deprivation or employment levels)

Higher Education records

Ofsted school inspections data

Large-scale sample studies (e.g. linked NPD – Millennium  
Cohort Study)

Samples / matched controls in ad hoc individual research  
projects

# The Department for Education (DfE) publishes extensive national Official Statistics using the NPD – including:

Attainment – and breakdowns by key groups (inc. FSM, language, gender, ethnicity, SEND, local area)

Exclusions – and breakdowns by key groups

Absences – and breakdowns by key groups

Recorded Special Educational Needs / Disabilities – with breakdowns

Children in care – with breakdowns

## Recent studies using the NPD have investigated:

Whether schools with a higher proportion of FSM pupils are assessed less favourably by Ofsted (Hutchinson, 2016)

Whether children in poorer areas attend pre-school with less qualified staff (Gambaro, Stewart, Waldfogel, 2015)

Why children in London attain at higher levels than those in other areas (Burgess 2014 vs Blanden et al 2015)

Whether stream placement seems to drive teachers' assessments and perceptions of pupils (Campbell, 2017)



# Inequalities in access to pre-schools

Campbell, T., Gambaro, L., & Stewart, K. (2018) “Universal” early education: who benefits? Patterns in take-up of the entitlement to free early education among three-year-olds in England.’ *British Educational Research Journal*. 44(3), 515–538, doi: 10.1002/berj.3445

# Background

Children in England are educated within school-year cohorts, corresponding to the structure of the academic year (September–August)

All\* English children start primary school in the academic year (September–August) in which they turn five

All English children are entitled to 15 hours free pre-school from the term after they turn three

So autumn-born children are entitled to five terms of free pre-school, spring-borns to four terms, and summer-borns to three terms

\*Though increasingly there are challenges to this, with a little more variation being introduced, this is negligible for our years of interest

# Background

In England, spending on young children is increasingly dedicated to pre-school education as the key early intervention (all else has been cut under ‘austerity’)

Some evidence that high-quality pre-school can be beneficial to children’s development / school readiness – particularly low-income children

But children can only benefit if they attend

Among autumn-borns, who are entitled to the most free pre-school (five terms), who actually accesses their place for longest?

How does take-up vary by income-level?

What other factors relate to differences in take up?

Do other factors account for variation by income-level?

# Data

2011 NPD data: 205,865 children born in autumn (Sept-Dec),  
in the 2006/07-born cohort, attending pre-school

2010 data: linked to establish whether they also attended in  
January of the previous year, taking up their full five terms

NPD also provides measures of low-income (FSM), ethnicity,  
home language, locality of child

## Low-income measure: future FSM

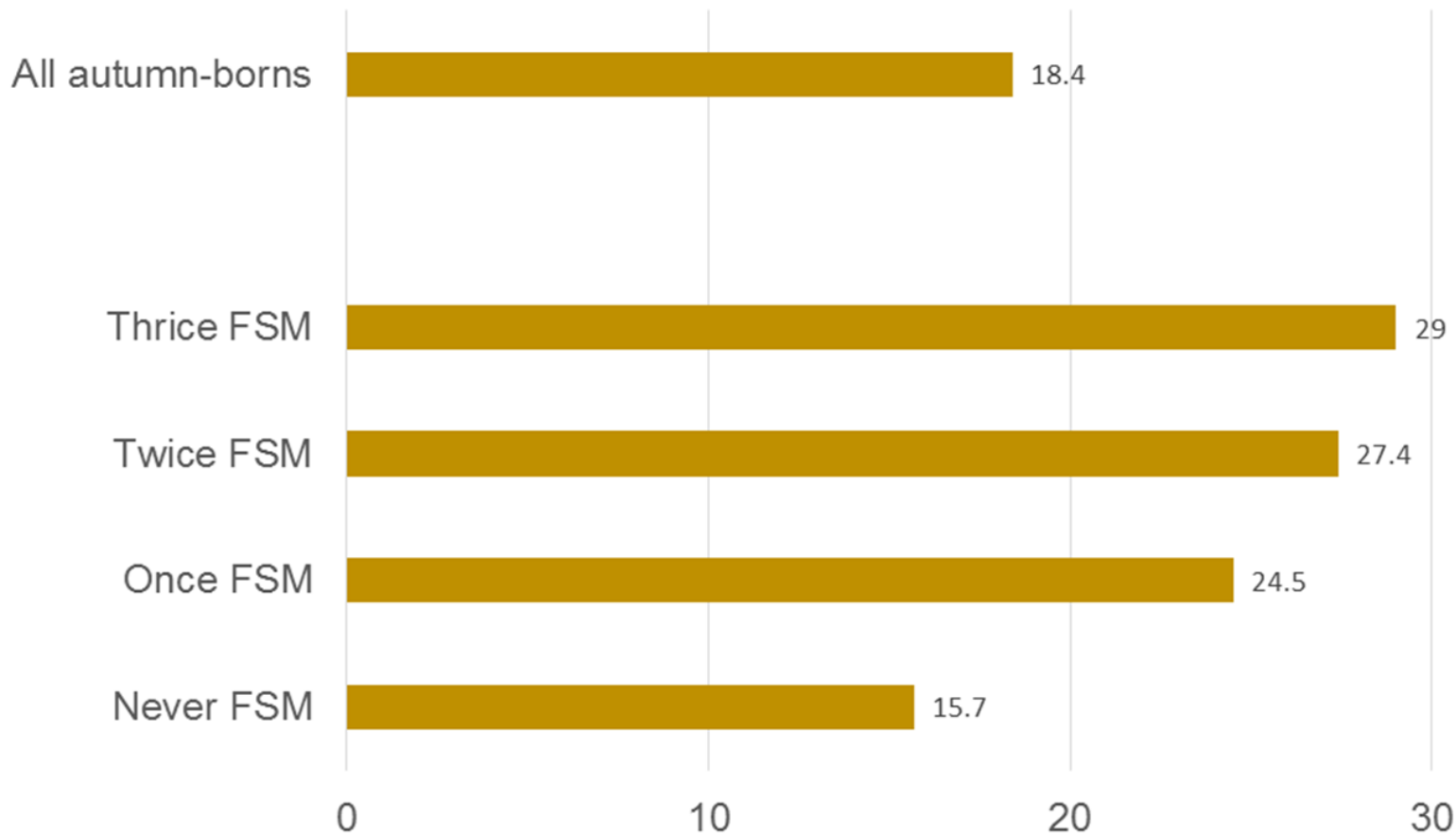
No measure of family income-level at pre-school stage

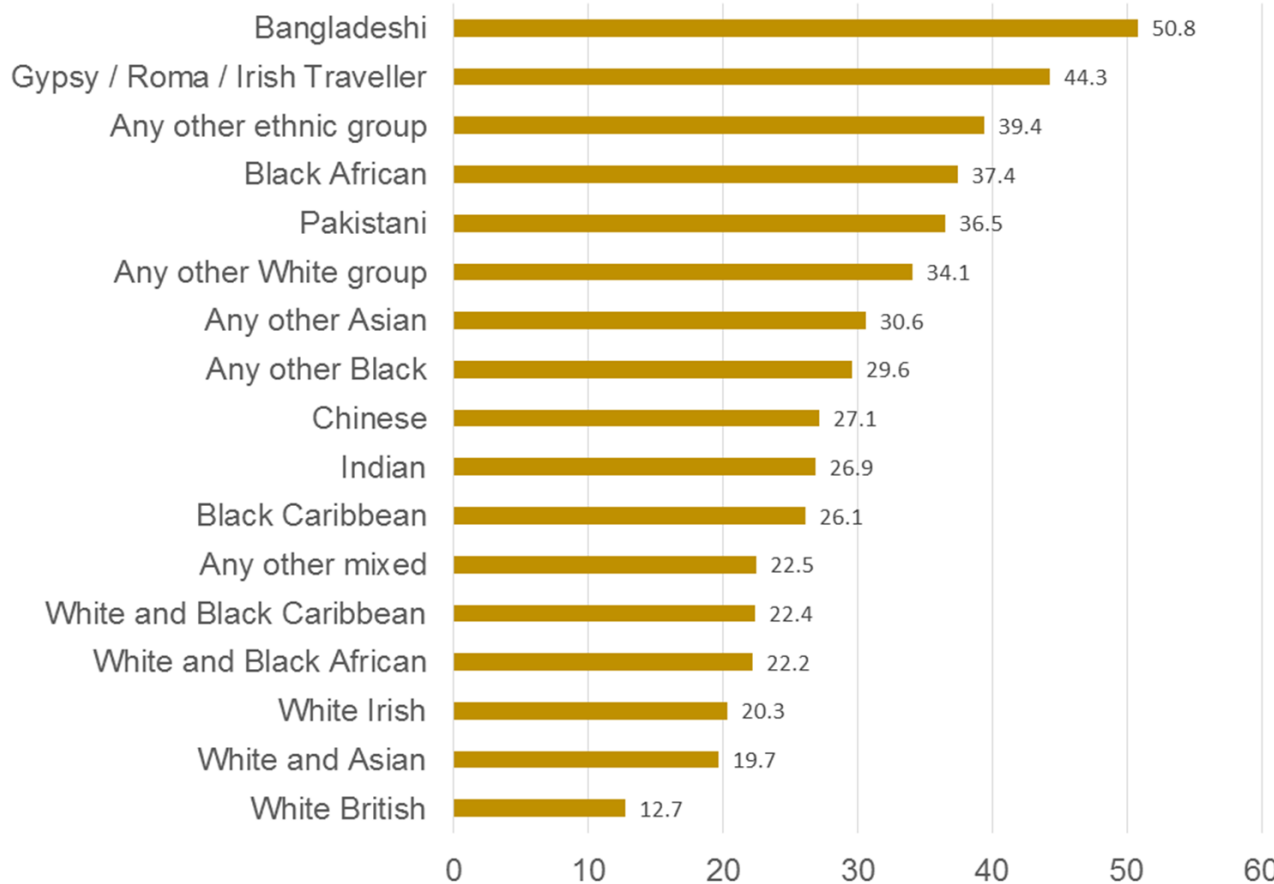
Link data forward to primary school – receipt of free school meals (FSM) recorded: low-income proxy

Times FSM in the first three years of primary school:

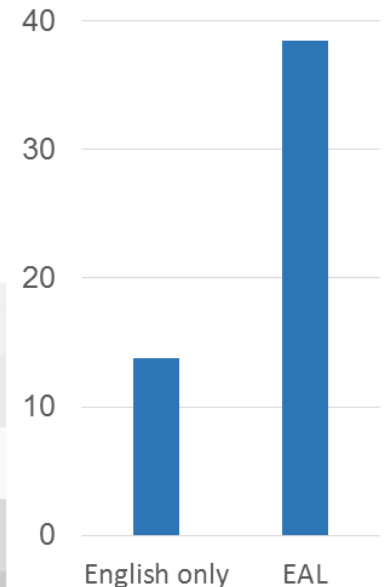
- Never (77%)
- Once (5.5%)
- Twice (5.9%)
- Thrice (11.7%)

# How does non-take-up of free pre-school vary by income-level?





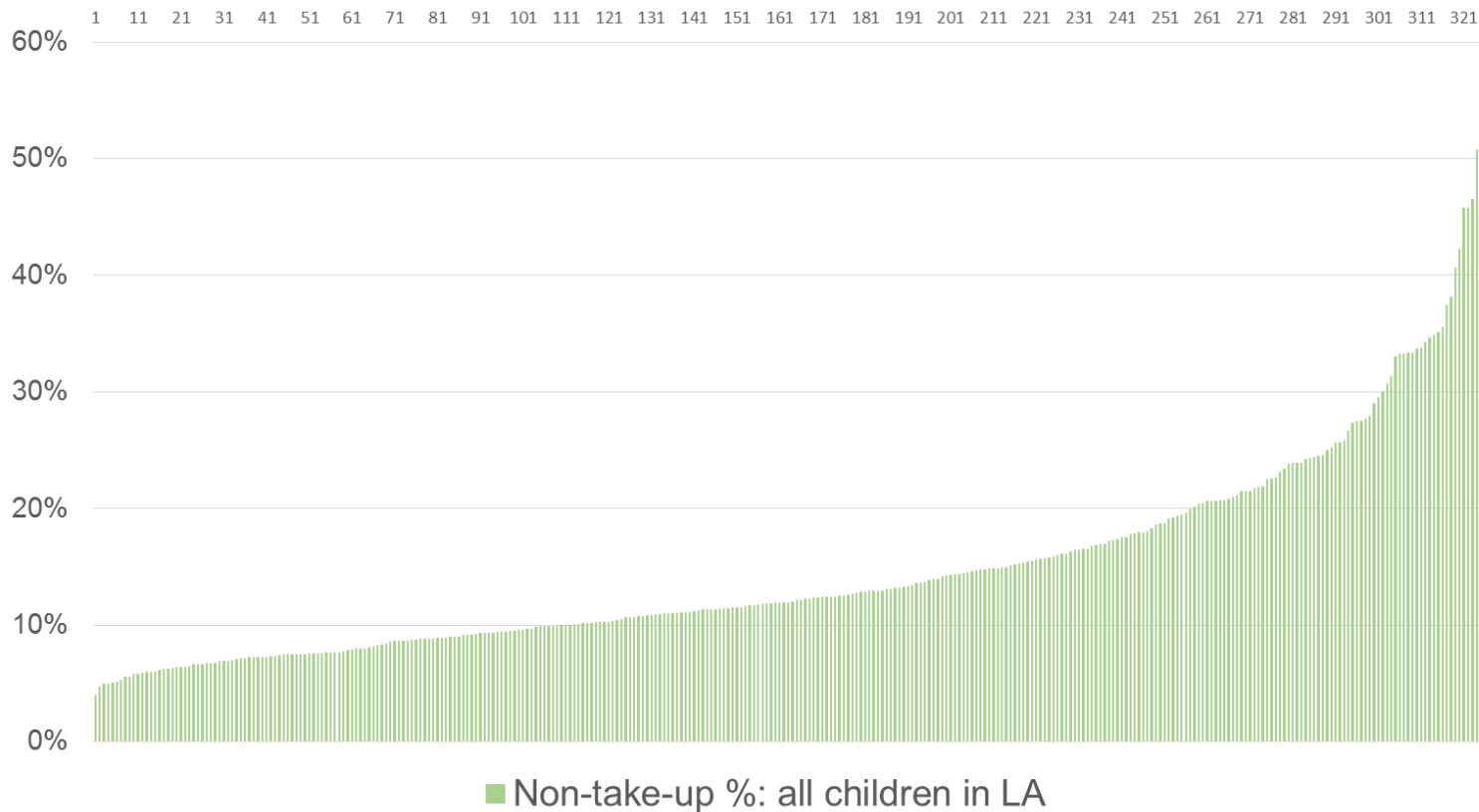
Wide variation in non-take-up by ethnicity and home language



But other pupil-level factors do not account for variation by income-level



# Wide variation in attendance by local authority

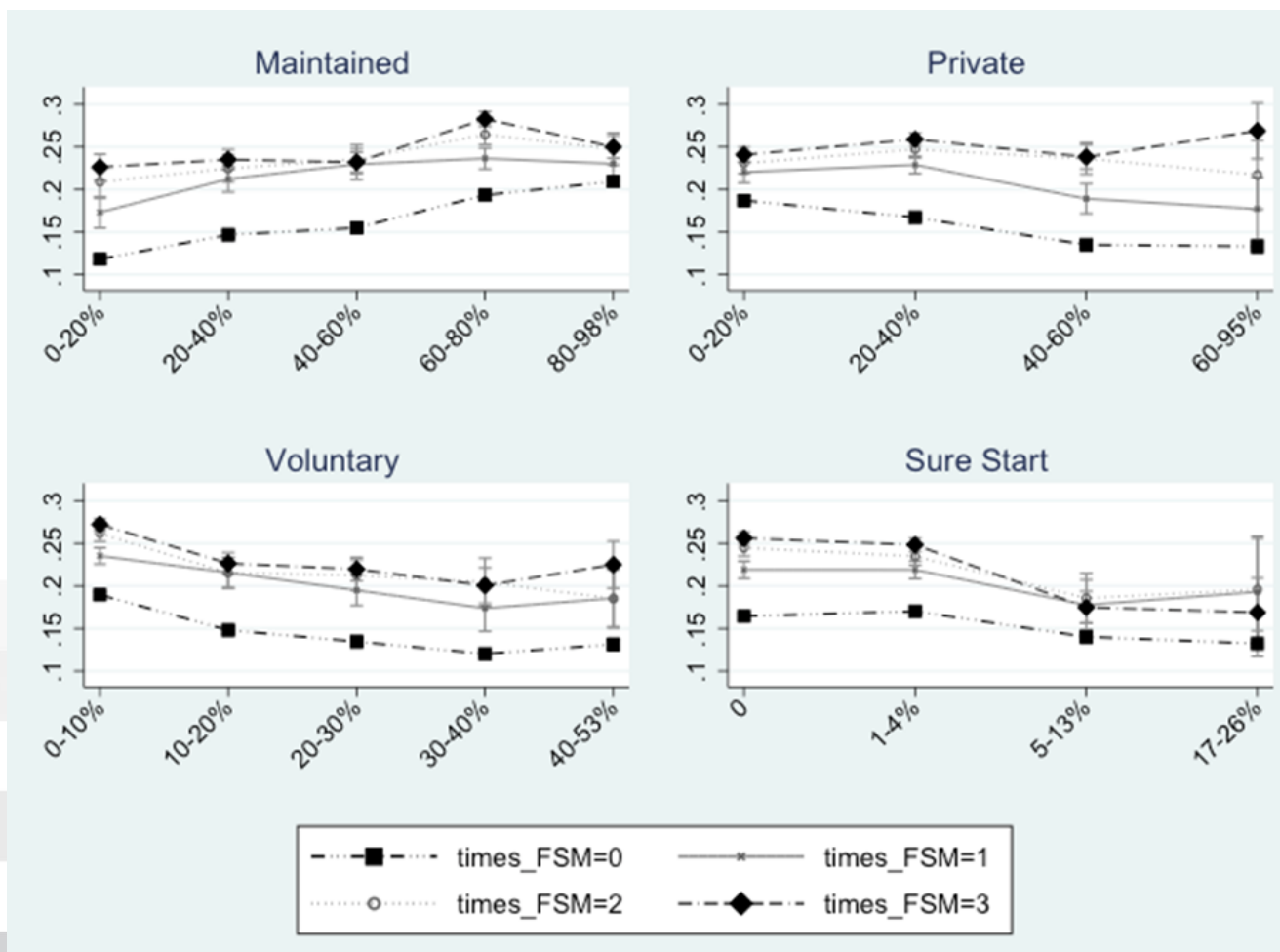


Ranges  
from 4%  
non-take-up  
to 53%

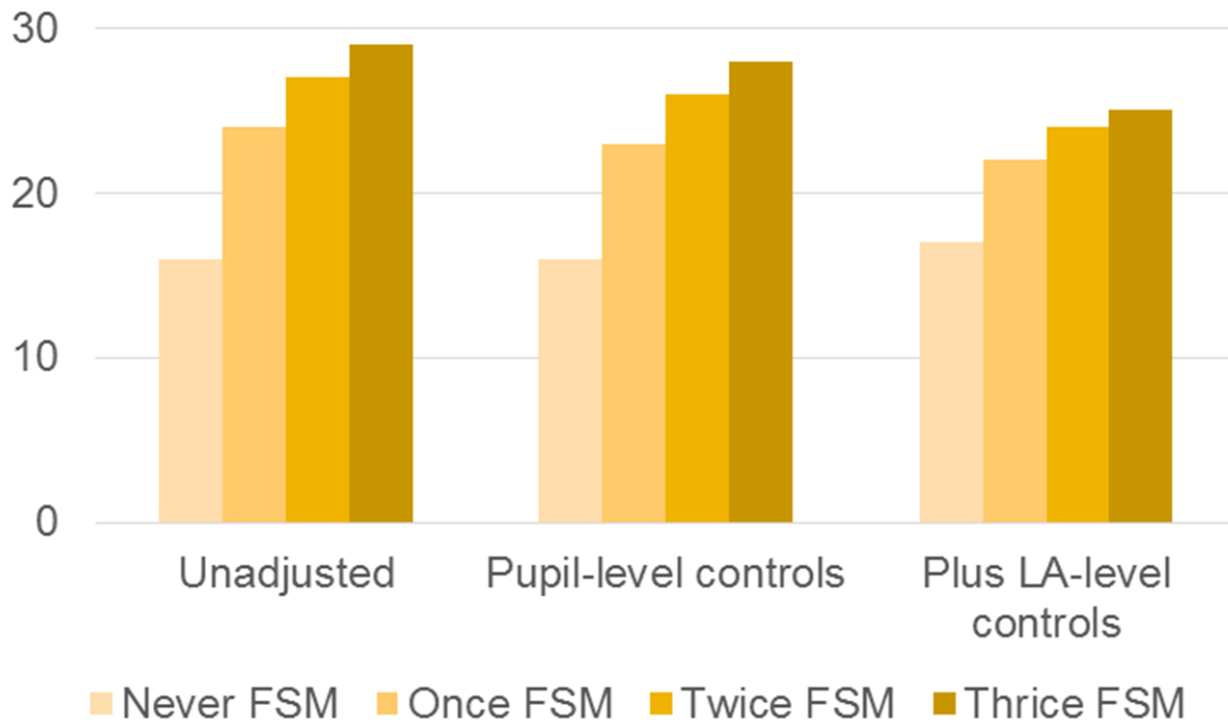
## Variation in local factors

|  | Min | Max  | Mean | Median | Standard Deviation |
|--|-----|------|------|--------|--------------------|
| <b>IDACI (% children in area in v low income households)</b> | 0   | 99.4 | 22.7 | 18.3   | 17.0               |
| <b>Local authority provision</b>                             |     |      |      |        |                    |
| <b>Maintained</b>  | 0.2 | 97.8 | 46.6 | 47.5   | 25.5               |
| <b>Voluntary</b>   | 0   | 52.6 | 14.2 | 10.5   | 12.5               |
| <b>Private</b>   | 2.2 | 94.3 | 32.0 | 29.6   | 16.6               |
| <b>Sure Start</b>  | 0   | 25.8 | 1.1  | 0      | 3.2                |
| <b>All other provision</b>                                   | 0   | 79.7 | 6.1  | 4.7    | 8.5                |

# Local provision make-up is associated with access to free pre-school



## What accounts for variation in access by income-level?



**Never-thrice gap  
= 13pp vs 8pp**

Predicted probability  
of non-take-up;  
logistic regression

Pupil-level controls  
+ IDACI and local  
provision make-up

**Abundance of private sector provision = bigger gap**  
**More Sure Start = smaller gap**

# Secure transitions? Inequalities in journeys from pre-school to primary school

Work in progress (with Ludovica Gambaro and Kitty Stewart)

Working paper out in the autumn

Same data – whole cohort born 2006/07,  
who started school autumn 2011 (N = 611,816)

# Secure transitions? Inequalities in journeys from pre-school to primary school

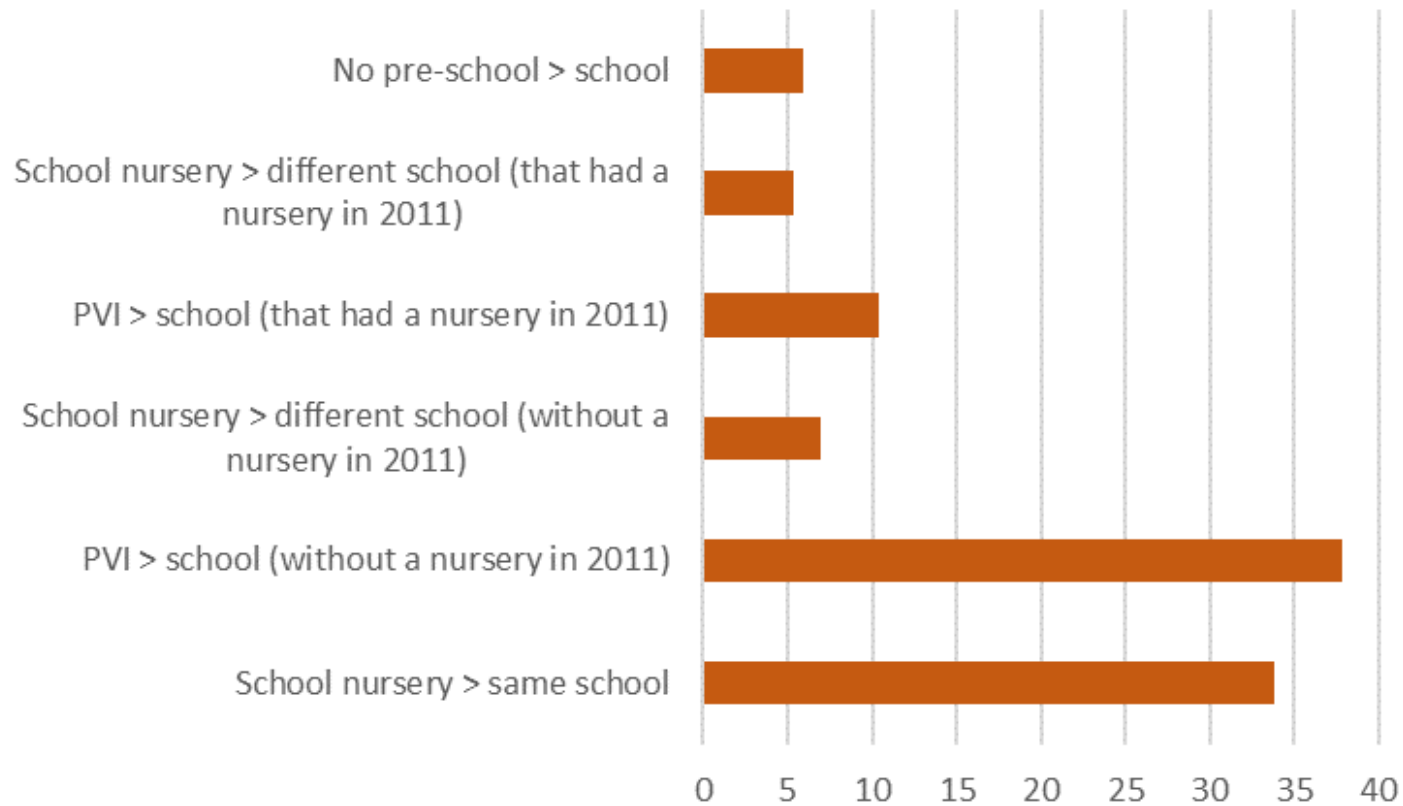
Transition to primary school is a crucial step in children's lives, in the short and long term

Particularly in England, where formal education begins, for most, at just four

Evidence that continuity and familiarity are important factors in a good transition

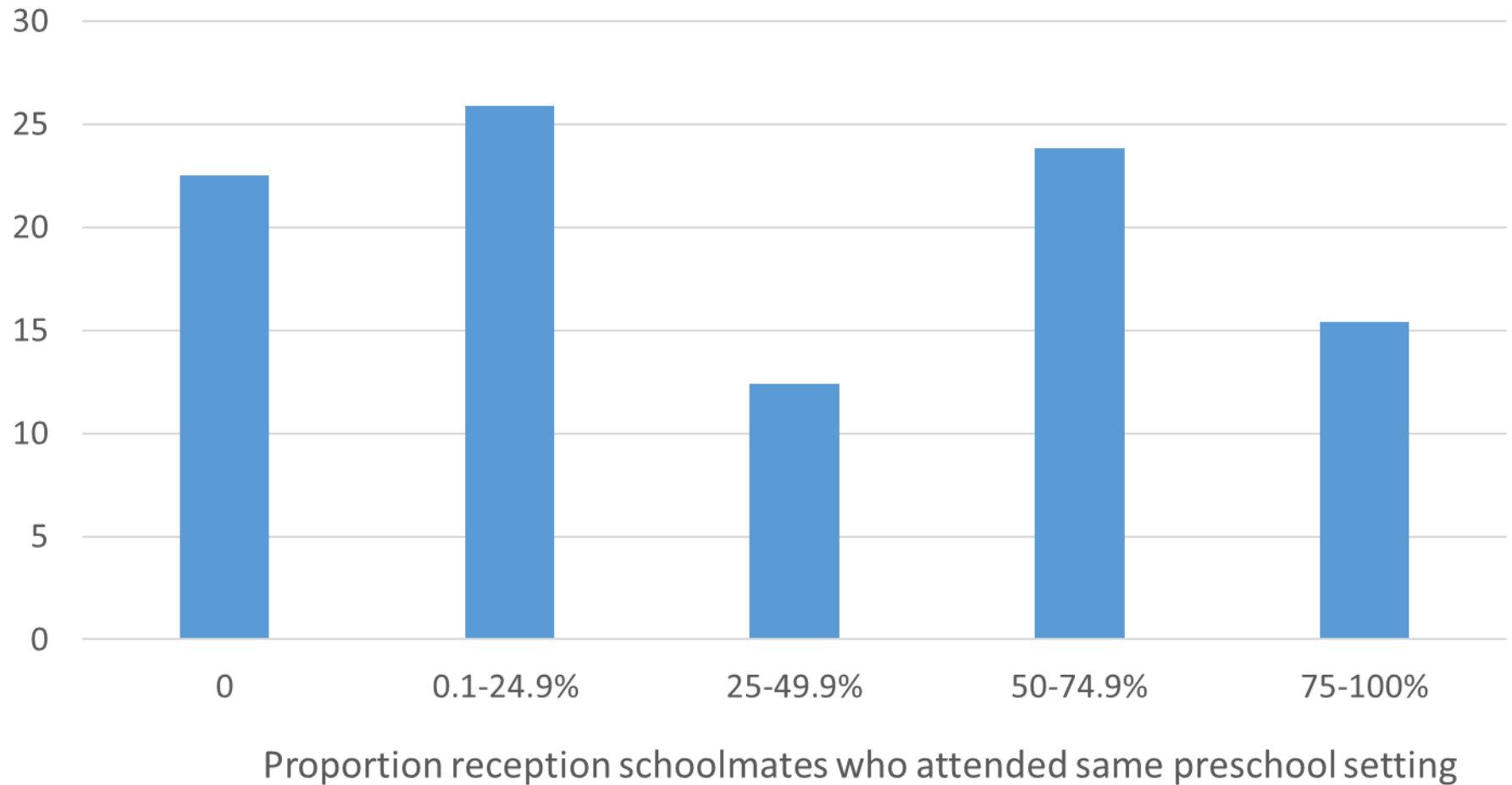
Which groups of children have more/less continuity (of peer group, institution) during their journey?

# Different / same environments



FSM (poorer) children more likely to move to a different school; also Black Caribbean and Black African Children; also children with SEND

## Proportion children with each level familiar peers in school setting



Children with English as an additional language more likely to make transition with no peers; also Black Caribbean children and summer-borns



# New project: Month of birth and special educational needs diagnoses in primary school: inequalities, interactions, and trajectories

In England, children are educated in year-group cohorts, running from September birthdays to August birthdays

Summer-borns are the relatively youngest; 1/5<sup>th</sup> of a life younger than autumn-born peers on starting school

Summer-borns score lower throughout education, and are much more likely to be attributed special educational needs / disabilities (SEND)

# ...new project

Use 10+ years of NPD data to look longitudinally across cohorts and along children's trajectories through primary school

How does birth month, in combination with income-level, ethnicity, home-language, gender, affect children's propensity to be attributed SEND / different SEND-types?

How does this change over time and between cohorts?

How do early SEND trajectories/attributions relate to children's attainment?

# Emergent issues with data access

Previously, DfE sent researchers cuts of the NPD to be stored securely and analysed in institution

DfE making changes in light of General Data Protection Regulation

Currently proposing move to secure lab access only

To be continued...



# Thanks...

...to Dr Nichola Shackleton and the University of Auckland

...to the Nuffield Foundation / British Academy for funding

...for listening

Questions or comments?

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