Clustering by characteristic among pre-school children: preliminary patterns, and potential consequences

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CASE

Nuffield Foundation

Research questions:

1. To what extent are children clustered by characteristic within pre-school settings in the year immediately preceding school reception? (Income-level; EAL; ethnicity)

2. Does the constitution of a child's pre-school peer group appear to influence her/his early progress through primary school? (FSP; PST; KS1; behavioural measures)

3. What are the drivers of any clustering across pre-schools? (Residential patterns; nature of provision; local choice)

Why are these questions of interest?

- Early education and care (increasingly) prioritised for spending, in part as an attempt to close developmental gaps and raise the early attainment of 'disadvantaged' and 'deprived' children(1)

- All three-year-olds currently eligible for 15 hours of provision – expansion underway to include low-income two-year-olds / two-year-olds with disabilities, and to increase funded hours(1)

- But multiple factors influence potential for positive impact upon children

(1) https://www.gov.uk/government/news/fairer-early-years-funding-plan-launched ; https://www.gov.uk/government/consultations/30-hour-free-childcare-entitlement ; https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/504568/take-up_of_government-funded_childcare_by_2-year-olds.pdf

…why are questions of interest, continued…

- Peers matter: evidence on older children, and on (mostly) US pre-schoolers(2)
- Possible mechanisms: intra-child interactions, and influence of peers on staff-child interactions
- Fragmented market of disparate providers: school nurseries (47%), private nurseries (33%), voluntary sector (15%), independent school nurseries (3%), LA-run (1%), …(3)
- Families in different circumstances likely to attend different settings, leading to clustering in settings e.g. by income-level

(2) Sacerdote (2011); Henry and Rickman (2007); Schechter and Bye (2007); Mashburn et al (2009); Shager (2012); Sylva et al (2004), (3) Percentages within our analytical sample

Data and sample

- Combined 2010-11 Spring School Census and 2011 Early Years Census (all / **only** children receiving funded preschool places at Spring 2011)
- Restricted to one school year cohort born September 2006 – August 2007
- Children in childminding networks and in settings with fewer than five cohort children excluded (9,377/617,645 – 1.5% of the cohort)
- Data for 608,268 three / four-year-olds attending funded pre-school provision in 2010-11

…data and sample, continued…

- Cohort children's data linked to their (previous year's) 2009-10 Spring School Census / 2010 Early Years Census, where available

- Also linked to 2011-12, 2012-13, 2013-14 Spring Schools Censuses; FSP scores; Phonics Screening results; KS1 scores; school-level datasets

Challenges, approaches, and wish-list for DfE

- Measuring family income-level of pre-schoolers
- Undocumented / documented peers - only funded places are recorded
- Timing / days of attendance
- 6% of the sample disappear after pre-school

- - we use ‘future FSM:’ ‘always,’ ‘sometimes,’ ‘never,’ ‘ever’
- - we restrict to peers within one defined cohort, who should all be documented
- - we are going to play with samples including settings of different sizes and types
- - assumptions and strategy for income-level; more problematic for EAL / ethnicity

Measures of pre-schoolers' family income (and other characteristics);

Records for all children in attendance;

Records of days and sessions attended...

...would help not just our current research but e.g. further comprehensive research into effectiveness of different types of pre-school provision

Low-income ('future FSM') children

- Evidence / assumption that children FSM in R, yr1, yr2 likely also to be low-income in pre-school

- Evidence that children from low-income families score worse on cognitive tests, have lesser vocabularies, score higher for problematic behaviours (e.g. SDQ), and attain at lower levels - over time and throughout education(4)

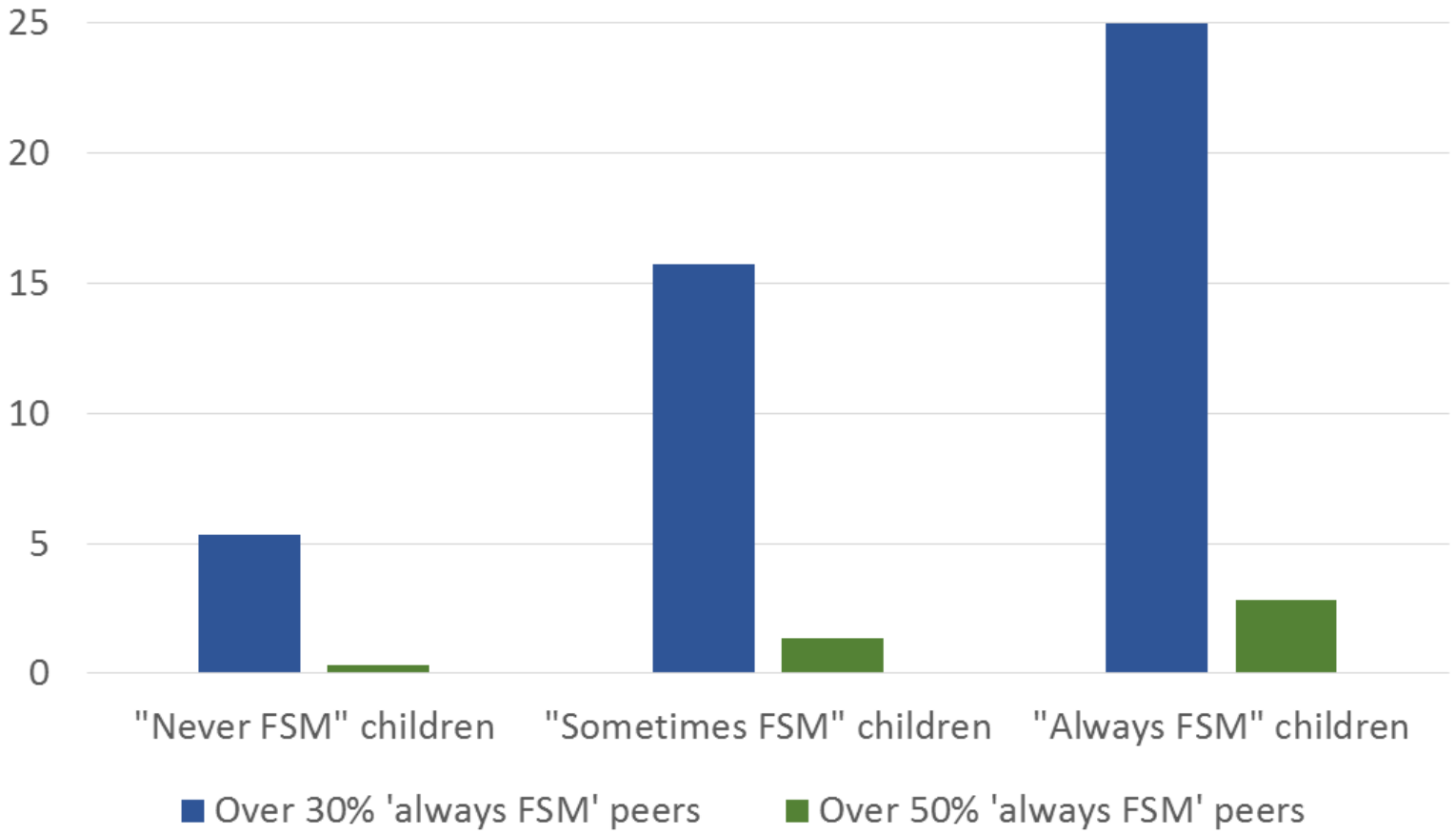
- To what extent are low-income ('future FSM') pre-schoolers clustered with similar peers?

(4) http://www.suttontrust.com/wp-content/uploads/2010/02/Sutton_Trust_Cognitive_Report.pdf; http://socialwelfare.bl.uk/subject-areas/services-activity/education-skills/resolutionfoundation/129050On_your_marks.pdf; https://www.gov.uk/government/organisations/department-for-education/about/statistics#latest-statistical-releases

Pre-schoolers placed in three main categories:

- ‘Always FSM’ = FSM in reception, year 1, AND year 2 (11.5% of sample)
- ‘Sometimes FSM’ = FSM once or twice across reception, year 1, year 2 (11.5% of sample)
- ‘Never FSM’ (71.3% of sample)
- …and ‘Ever FSM’ combines ‘Always FSM’ and ‘Sometimes FSM’

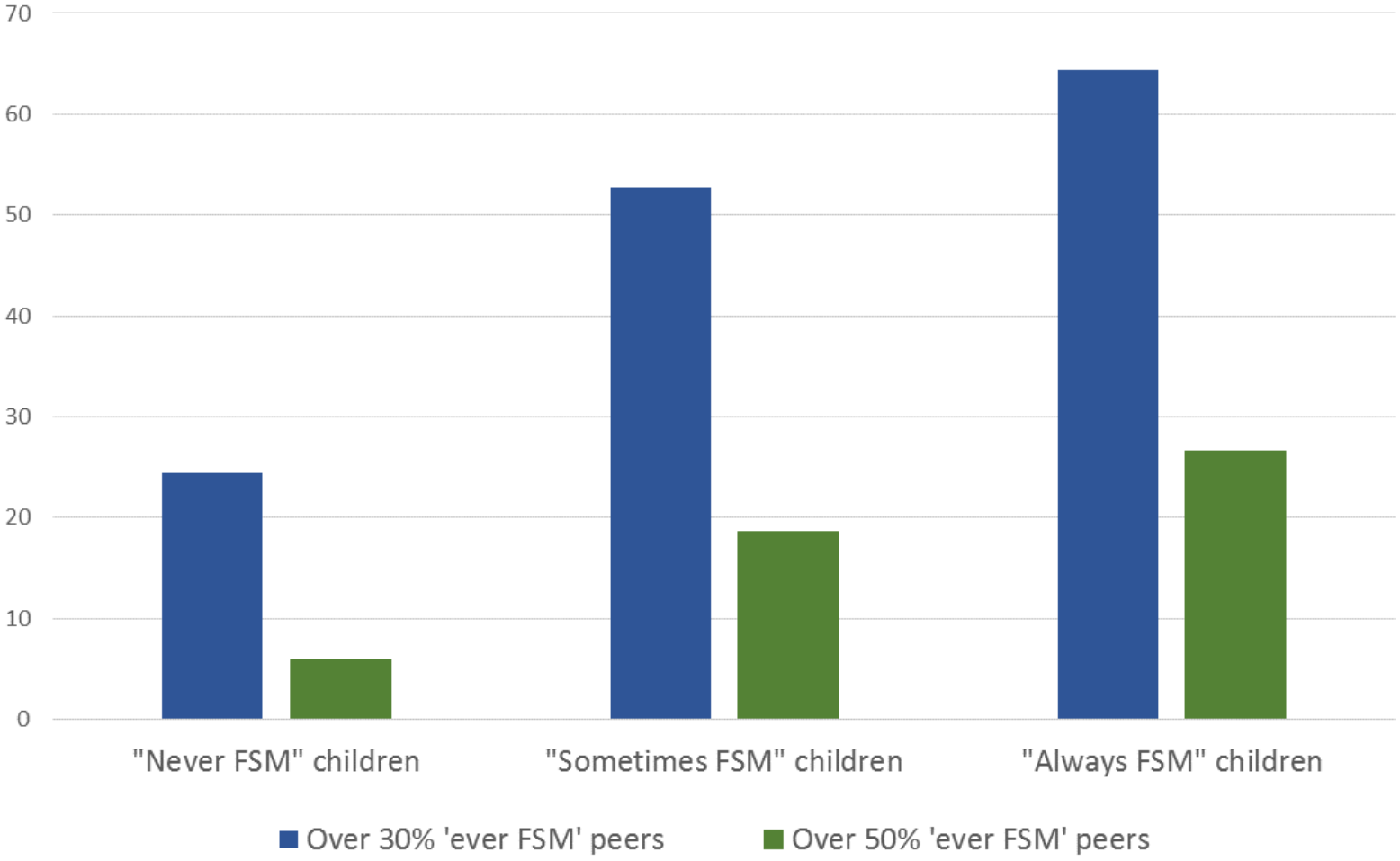
National proportion of children of different FSM-types with higher proportions of ‘always FSM’ pre-school peers



n = 608,268

Children who are themselves ‘always FSM’ are more likely to be with a higher proportion of ‘always FSM’ peers

National proportions of children of different FSM-types with higher proportions of ‘ever FSM’ pre-school peers

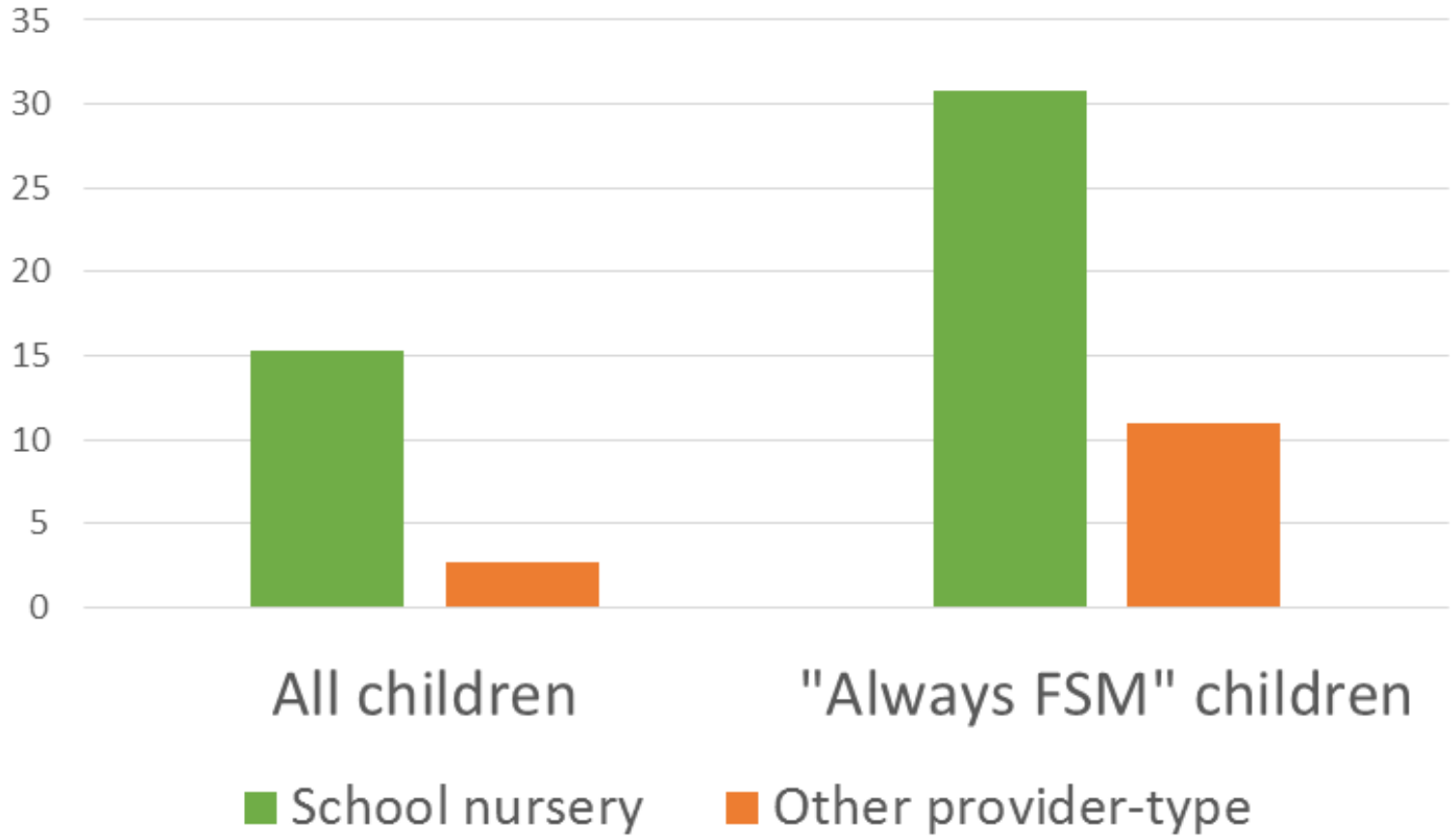


n = 608,268

‘Ever FSM’ = ‘always FSM’ or ‘sometimes FSM’

Children who are themselves ‘always FSM’ are more likely to be with a higher proportion of ‘ever FSM’ peers

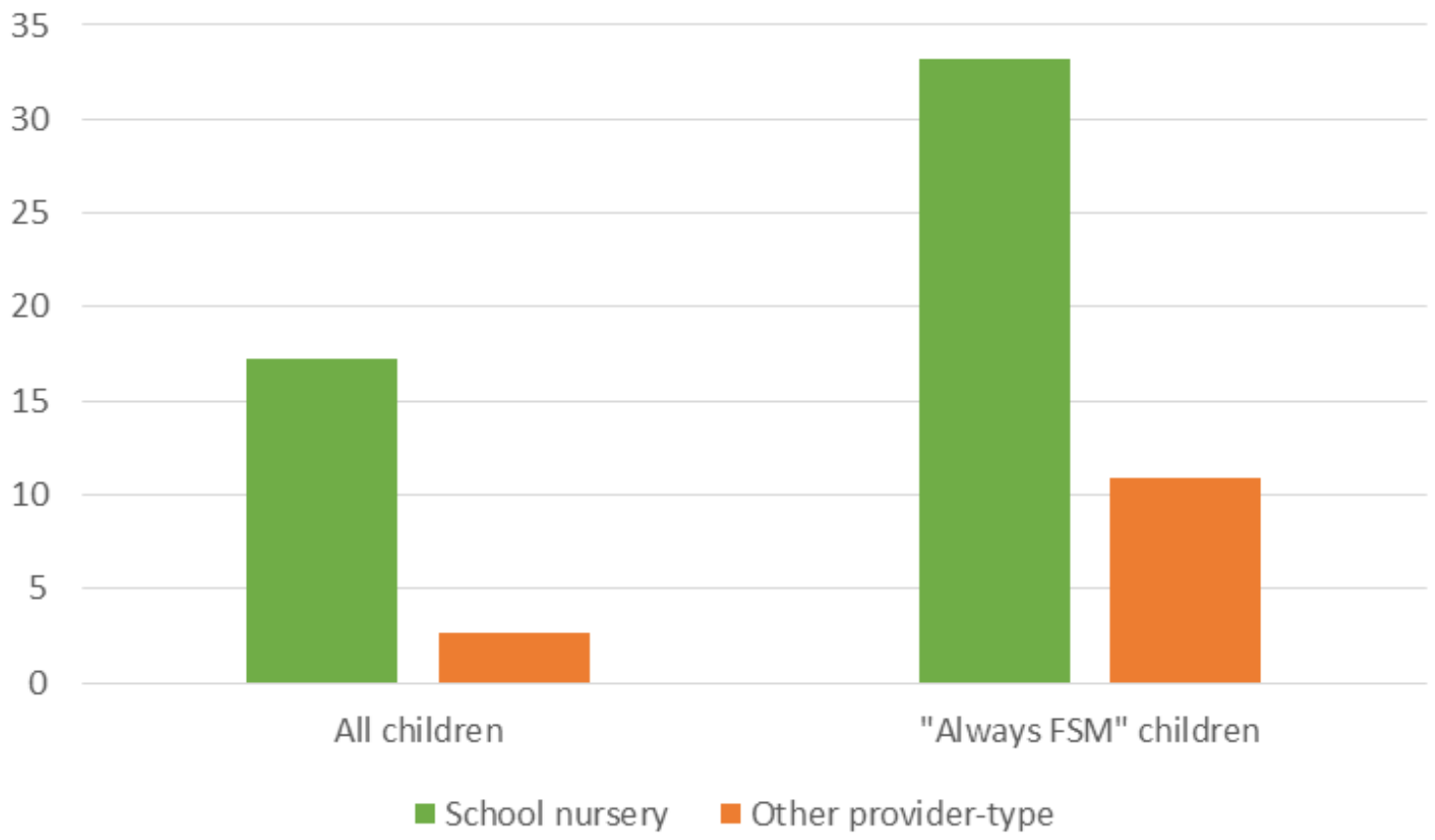
Extent of clustering varies by pre-school type: proportion of children with over 30% ‘always FSM’ peers



‘Always FSM’ children in school nurseries are most likely to be with over 30% other ‘always FSM’ peers

n = 608,268 / n = 69,712

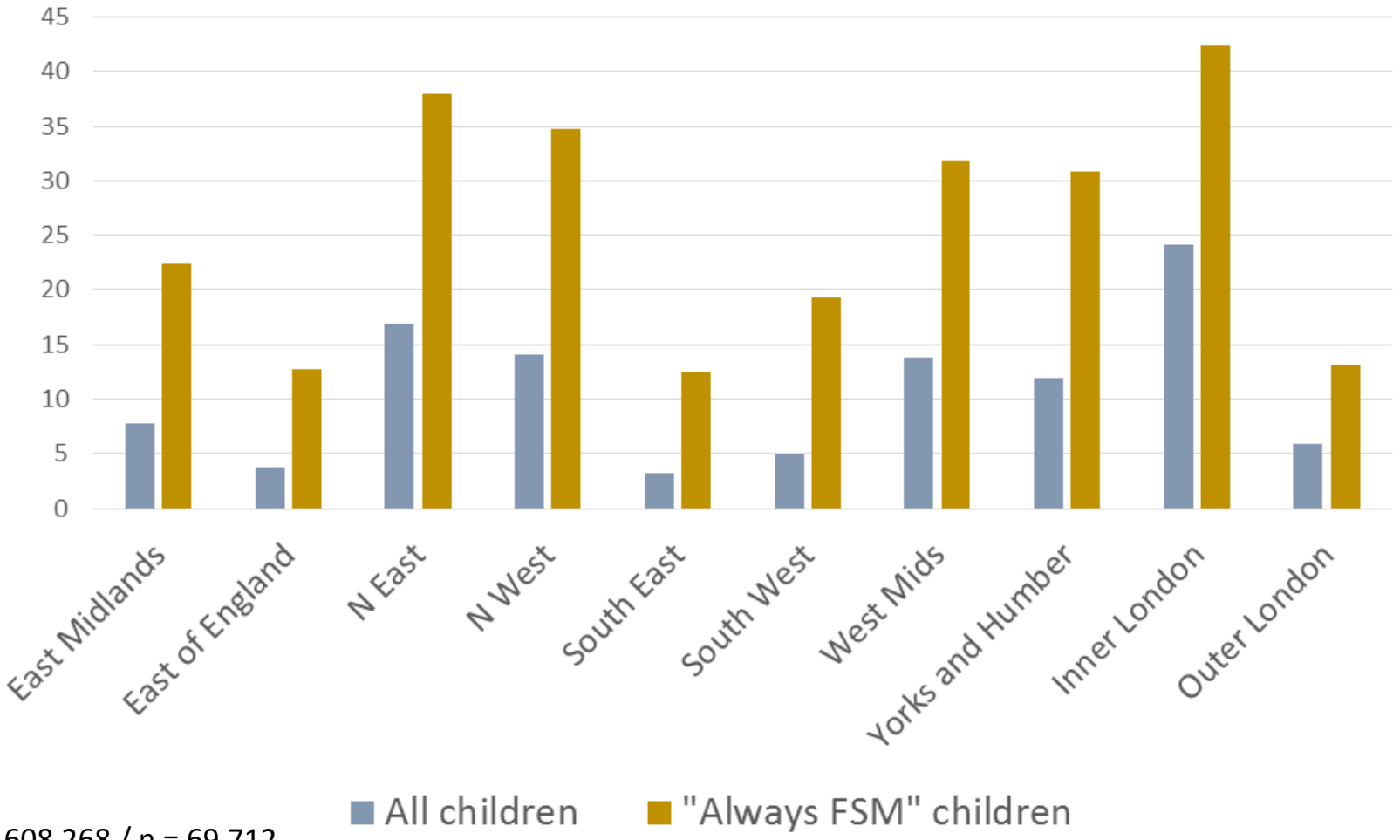
Proportion of children with over 50% ‘ever FSM’ peers



‘Always FSM’ children in school nurseries are most likely to be with over 50% ‘ever FSM’ peers

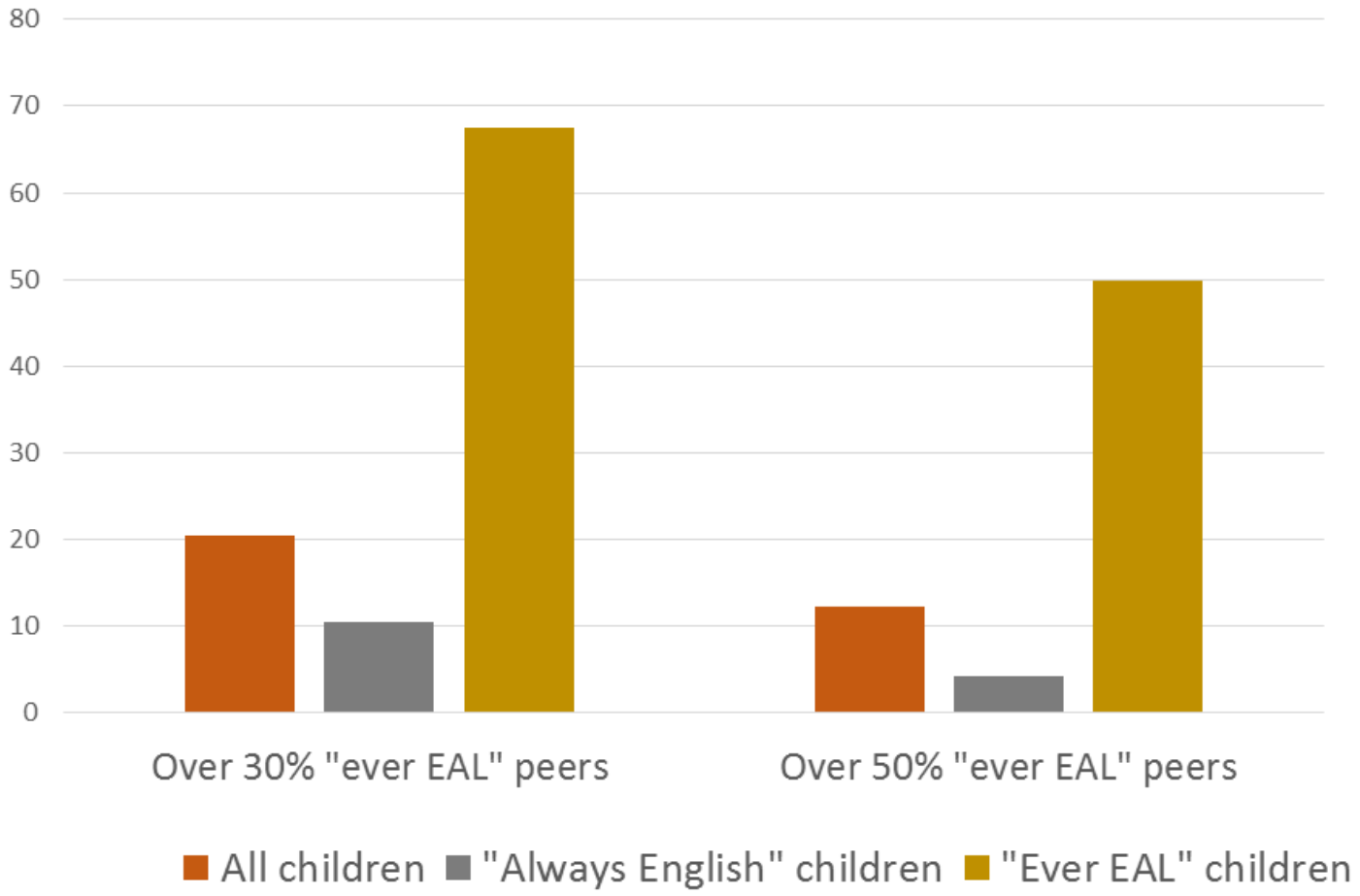
n = 608,268 / n = 69,712

Regional variation: proportion of children with over 50% ‘ever FSM’ peers



n = 608,268 / n = 69,712

Evidence of clustering of EAL children: Proportion with higher numbers of EAL peers



17% of cohort categorised as 'ever EAL'

50% of 'ever EAL' children in settings with over 50% 'ever EAL' peers

What next?

- Continue unpicking distributions by FSM and EAL, and by ethnicity
- Interactions between these factors – EAL / not x FSM / not, etc…
- Examine relationships between pre-school peers and outcomes in early primary school
- Examine potential drivers of patterns and clustering

Associations between pre-school peers and outcomes in early primary school

- No baseline before pre-school – observational data
- Potential confounding effects of parental choice, unobserved differences in provision, in children's characteristics, etc…
- Planned approach is to experiment with different samples, including different preschool-types, and areas with different / more or less choice
- For example: school nurseries seem more consistent in quality.[(5)] Limiting sample to these settings may better isolate potential peer influences (though pay-off is generalisability)

(5) http://www.nuffieldfoundation.org/sites/default/files/files/Quality_inequality_childcare_mathers_29_05_14.pdf

Questions, comments?

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