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**No such thing as a free lunch?  
Exploring the consistency,  
validity, and uses of the  
'Free School Meals' (FSM) measure  
in the National Pupil Database**

**Tammy Campbell  
and  
Polina Obolenskya**

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Centre for Analysis of Social Exclusion

London School of Economics

Houghton Street

London WC2A 2AE

CASE enquiries – tel: 020 7955 6679

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For further information on the work of the Centre, please contact the Centre Manager, Annie-Rose Nicholas, on:

Telephone: UK+20 7955 6679

Email: a.nicholas1@lse.ac.uk

Web site: <http://sticerd.lse.ac.uk/case>

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Part of this work was produced using the Household Below Average Income (HBAI) data owned by the Department for Work and Pensions and deposited at the UK Data Service (UKDS). The HBAI data are Crown copyright and are reproduced with the permission of the Controller of HMSO and the Queen's Printer for Scotland. Neither the UKDS nor the original data creators, depositors or copyright holders of the data bear responsibility for the analysis in this report. Thanks to the DWP and the UKDS for use of the HBAI data, and to LSE IT colleagues for facilitating and supporting access.

All analyses and interpretations are the authors'.

## **Abstract**

This working paper discusses and synthesises existing literature on correspondences between attribution of Free School Meals (FSM) status in the National Pupil Database (NPD) and family income-level and other circumstances. It then presents new descriptive comparisons of FSM status as recorded in the Reception year of primary school, and other recorded child, national, and area-level factors.

Compounding known issues with patterns of under-recording in the NPD of FSM-entitled children, changing criteria for entitlement to FSM, and fuzziness in definition and usage – in terms of what recorded FSM status is assumed to represent – findings here indicate that the compositions of the FSM vs non-FSM-ascribed groups have changed over time. They suggest moreover that the relationships between area-level factors and FSM attribution may also have altered over the past decade, and point to increased under-ascription of children from low-income families / families living in poverty.

The potential consequences of these findings for mapping of ‘gaps’ in time series comparing FSM and non-FSM-attributed children and for evaluation (and perhaps formulation) of targeted policies and interventions are discussed. Implications of differential attributions of FSM status within a system where ascription is not straightforward nor entirely ‘accurate’ but where it is deterministic of experiences and outcomes begin to be explored, laying the foundations for further research.

Key words: Free School Meals (FSM), National Pupil Database (NPD), Measurement, Education, Schools, Poverty.

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Corresponding author: [t.campbell1@lse.ac.uk](mailto:t.campbell1@lse.ac.uk)

## **1. Introduction**

In England, since national pupil-level data began to be collected by the Department for Education at the turn of the century, eligibility for Free School Meals (FSM) as recorded in the National Pupil Database (NPD) has been used as a proxy for low household income (ONS, 2004). Throughout research, statistical reporting, policy-making, and funding allocation, it has also been used to represent other aspects of family resources and interrelated circumstances (examples include: Department for Education and Skills, 2002; 2004; Department for Education, 2010; 2018a; 2021a; 2021b; 2021c; Renaissance Learning, Education Policy Institute, 2021; Social Mobility Commission, 2021).

FSM status is variously utilised as, 'one of the key factors in the definition of disadvantage used in Department for Education statistics' (Department for Education, 2019); as an indicator of 'socio-economic background' (HM Treasury, 2003; Social Mobility Commission, 2021), or that children are 'working class' (House of Commons Education Committee, 2021; ONS, 2004; Stokes et al, 2015); as an indicator that children are likely to be 'deprived' (Department for Education and Skills, 2003; Office of the Deputy Prime Minister, 2004; ONS, 2004; Department for Education, 2009); or that they live in 'poverty' (Department for Education and Skills, 2003; House of Commons Work and Pensions Committee, 2004; ONS, 2020).

Interrogation of constructions, definitions, uses and appropriations of the FSM measure is important, and will be expanded in future work. In this current early working paper, exploratory foundations are laid through a basic consideration of whether denotation of Reception-aged children as FSM-eligible seems consistently to have picked up an equivalent group of children in the NPD over recent years. Emphasis is placed on comparison with other measures of income-level / poverty, as household income is an

important influence on children's life courses, and therefore worth measuring and accounting for in policy-making (Cooper & Stewart, 2021), and as FSM-eligibility is determined by income-level and receipt of welfare payments contingent on income-level (Department for Education, online).

In addition, some analyses in this paper explore simply whether there is evidence that the somewhat nebulous black box of FSM attribution contains a comparable group of children every year. The paper also begins to consider the implications for interpretation, research, analysis, and policy-making if the groups of children attributed FSM / non-FSM have changed over the years.

This is important because the FSM measure is often used to analyse whether policies are 'working' for the children and families it denotes (whether they are inferred to be low-income / poor families, 'working class' families, 'disadvantaged' families, or 'deprived' families). It is used in analyses, evaluations, and accountability frameworks mapping whether the fortunes, outcomes, and experiences of the children recorded as FSM change over time (for example, Allen & Vignoles, 2007; Department for Education, 2011; Education Endowment Foundation, 2017; Gorard, Taylor & Fitz, 2002; Kirby & Cullinane, 2016; Lupton & Thompson, 2015; Ofsted, 2014; 2015; Macleod et al, 2015; Social Mobility Commission, 2021; Treadaway, 2014; Whitty & Anders, 2014; Vizard, Hills, et al, 2021). For these repeated comparisons of FSM vs non-FSM-denoted children to be directly and naively interpretable, FSM must represent a consistent set of children at each time point: otherwise, changes in outcomes and experiences for the FSM vs non-FSM groups may be an artefact of the changes to the identification and composition of the groups.

## **1.2 A brief overview of existing research on the Free School Meals measure as proxy for household income and predictor of pupil outcomes**

Longstanding limitations of the FSM measure as a proxy for household income are well-established. FSM attribution is binary, so it does not pick up any gradient in current income-levels, nor any other nuances of family circumstance, including security of income, and wealth. Its availability as a measure in the NPD has in the past depended entirely on families claiming their entitlement to their child's free meals and schools consequentially recording them as eligible (the current situation is discussed further later in this paper). Not all eligible families take up FSM, so some FSM-eligible, low-income families are recorded as non-FSM (Iniesta-Martinez & Evans, 2012; Halse & Ledger, 2007).

In addition, the eligibility criteria for FSM do not apply to all families with the lowest incomes. There are a number of reasons for this, including that the welfare entitlements defining eligibility for FSM contribute in themselves to families' total incomes, which pushes FSM-eligible families up the income distribution in comparison to low-income families not receiving these welfare payments (Hobbes & Vignoles, 2009; Children's Society, 2012). Therefore some children who are not FSM-eligible are in fact from lower-income families than FSM-eligible and -attributed children. The FSM measure thus does not delineate a straightforward income-level threshold.

Research has found that whether a child has *ever* been eligible for FSM during their school career is a better predictor of pupil outcomes than recorded FSM at any one given time point (see e.g. Sutton Trust, 2009; Social Mobility Commission, 2020; though note also that in the most recent years the association is less straightforward: Thompson, 2021). Strategic Pupil Premium funding for schools educating more 'deprived' children is consequentially based on a longitudinal 'ever 6' measure, encompassing all children who have been recorded as eligible for FSM at any point over the

preceding six years (Department for Education, 2021b). An 'ever FSM' measure can also be used in research, to circumvent to some extent issues with under-recording in any single year, and to incorporate children who may not be identified at an earlier point but who go on subsequently to be attributed FSM status, or vice versa (Gorard & Siddiqui, 2019). Longitudinal measures can also provide some differentiation between the fortunes of children whose families are attributed FSM for varying numbers of years (Treadaway, 2014).

Despite having seemingly better predictive power and being more strongly associated with outcome measures, cumulative or longitudinal FSM records do not entirely circumvent misalignments between family income-level and FSM attribution, however. Studying secondary-aged pupils over the course of the years up to GCSEs, and comparing FSM eligibility in the NPD to a measure collected through the Longitudinal Study of Young People in England survey, Ilie et al (2017) find that even using extended FSM identification, only 48% of those defined by the survey data as low-income have ever been reported as eligible for FSM.

Survey data on income is not in itself without limitations (Micklewright & Schnepf, 2007). Issues compromising quality and accuracy include those around recall and reporting, completeness of information, and response bias. There is also a related issue of relatively low internal correlation between measures of family 'disadvantage' and 'deprivation' captured through surveys (Cooper, 2017). However, Ilie et al's findings are congruent with Jerrim's (2020; 2021) investigation of an alternative cohort of children, in the longitudinal Millennium Cohort Study. Examining children aged up to age 14, Jerrim finds that 'the correlation between "proportion of time at school eligible for FSM" and [poverty] is...0.69...[but] around one-in-five of low-income children will be missed using this [FSM] measure, while around one-in-five will be incorrectly classified as coming from a low-income family' (2021, p5).

### **1.3 Time series comparisons of children eligible for Free School Meals**

Since individual children's FSM status began to be recorded in the NPD, twenty years ago, criteria for eligibility for Free School Meals have fluctuated. In 2001, children whose parents / carers received 'income support (IS), income based jobseekers allowance (IBJSA) or support under part VI of the Immigration and Asylum Act 1999' were eligible (Hansard, 2007). Criteria were amended several times in the intervening years, and currently (2021) encompass receipt of the following:

- 'Income Support;
- Income-based Jobseeker's Allowance;
- Income-related Employment and Support Allowance;
- Support under Part VI of the Immigration and Asylum Act 1999;
- The guaranteed element of Pension Credit;
- Child Tax Credit (provided you are not also entitled to Working Tax Credit and have an annual gross income of no more than £16,190);
- Working Tax Credit run-on - paid for 4 weeks after you stop qualifying for Working Tax Credit;
- Universal Credit - if you apply on or after 1 April 2018 your household income must be less than £7,400 a year (after tax and not including any benefits you get).'

(Department for Education, online).

Not only have the benefits qualifying families to be eligible for FSM changed over the years, but the criteria to qualify for qualifying benefits have also altered (e.g. Department for Work and Pensions, 2010; Child Poverty Action Group, 2020). Therefore, based on eligibility alone, it is apparent that the composition of the groups of children likely to be recorded as FSM vs non-FSM will have altered over time. Additionally, as Noden (2002; see also Gibson & Asthana, 2000) describes, the 'the economic tide washing in and

out' impacts overall proportions of children eligible for FSM under the given criteria within each period, and interacts with these qualifying criteria, potentially problematising comparisons over time between FSM and non-FSM-attributed children that do not 'strip out any effects of the economic cycle' (Noden, 2002, p 411).

This is important because, as noted above, the FSM measure is used in research, evaluation, and policy-making to compare the experiences, progress and outcomes of children across different cohorts, and to construct time series. Compositional equivalence across years of the FSM (and non-FSM) groups is a necessary condition for the legitimacy of unattenuated repeated cross-sectional descriptive comparisons. Time invariance in the FSM measure is already called into question by the mutability of FSM eligibility criteria. If there is an underlying change in the characteristics of families who are identified in the NPD as FSM vs non-FSM (because eligibility criteria for either FSM itself or the welfare payments defining entitlements change, because patterns of claiming / FSM ascription change, and / or because of other shifting factors that impact the proportions and make-up of the FSM vs non-FSM-denoted segments of the population of school children) contrasts over time and cohorts are problematic. Differences may be an artefact of dissimilarity in who is attributed FSM status in the NPD. Variation in the magnitude of differences between groups, and 'closing' or 'widening' of 'gaps' may be due to children being categorised differently, rather than to equivalent children having different outcomes and experiences.

Many previous quantitative explorations of the validity and utility of FSM in proxying family circumstance have focused within a single cohort or at a single cross sectional time point. However, as discussed, research into the association between cumulative times / combinations of times attributed FSM within a child's trajectory has been instrumental in devising Pupil Premium allocation criteria. Additionally, debates about measures of school

segregation and changes over time in social segregation have necessitated consideration of what FSM represents (e.g. Allen & Vignoles, 2007; Gorard, Taylor & Fitz, 2002; Gibson & Asthana, 2000; 2002; Noden, 2002). More recently, Thomson (2021; 2019; 2018; 2017; 2016) has published several pieces which begin to scrutinise change in which children are encompassed by the FSM measure, and Gorard and colleagues have also continued to consider issues of and influences on equivalence over time. There are echoes of Noden's (2002) warning about the influence of the 'economic tide' in Gorard et al's (2021) highlighting of contextual factors such as patterns in attendance at private school as impacting the numbers and therefore proportions of all children who will be low-income and therefore eligible for FSM in state schools.

The current working paper continues in the direction of examining change over time by considering the equivalence of the children recorded as FSM in successive Reception year group cohorts: whether FSM seems to be capturing the same 'type' of Reception children, and the same proportion of children who may be from low-income families, in different years.

#### ***1.4 Why examine FSM in the Reception year?***

The focus here is on children's FSM status in their first year of school, Reception, for several reasons. Firstly, FSM in Reception is used often in research and in the Department for Education's statistical reporting. For example, it is used to delineate children's likelihood of being attributed a 'Good Level of Development' in the Early Years Foundation Stage Profile (EYFSP) at the end of this first year of primary school (Department for Education, 2021a). FSM vs non-FSM EYFSP statistics are used by the government and researchers to track change and differences over time and place, and to indicate whether 'gaps' in children's 'development' are 'narrowing,' and to infer whether early years policies are therefore 'working'

(e.g. Andrews et al, 2017; Archer & Merrick, 2020; Archer & Oppenheim, 2021; Department for Education, 2016; Stewart and Reader, 2020).

Secondly, the known limitations of the binary single-time-point cross-sectional FSM measure are perhaps greatest for Reception children, who have only just entered the school system. For older children, the arguably somewhat better (at least in terms of associative / predictive power) 'ever FSM' or 'number of times recorded as FSM' measures can be used (though even these extended definitions are limited in the extent to which they capture precariousness, security, or instability of income, which are important dimensions of families' experiences and resources, particularly in a context where precarious and 'atypical' work is becoming more prevalent [Child Poverty Action Group, 2020; Oppenheim & Milton, 2021]). The initial risk that children will not yet have claimed FSM or have been identified as eligible is more pronounced when they have only just entered school (Iniesta-Martinez & Evans, 2012), and so the measure's accuracy in picking up and representing children from low-income families (or from families otherwise conceived as in need of policy focus due to 'disadvantage' or 'deprivation') is of most concern at this point.

Thirdly, a challenge to the validity of the FSM measure as a proxy for low-income particularly pertinent to these youngest, Reception children occurred in 2014, with the introduction of national Universal Infant Free School Meals (UIFSM) for all those in Reception to Year 2. Holford and Rabe (2020) estimate that children in Years 1 and 2 who had entered school in the Reception year when UIFSM were introduced are recorded in the NPD as claiming FSM at 'a rate of around 1.2 percentage points lower' than children in previous cohorts. This suggests that, as would seem inevitable, given a situation where registering with the school for FSM will not affect whether their child receives actual meals, family sign-up drops. This 'undercounting' and also whether sign-up drops equally across children's other characteristics and across local areas is important to compositional

equivalence of the FSM measure over time, place, and cohorts, and to research, analyses and policy-making premised on equivalence.

Note importantly that the desirability and effectiveness of Universal Infant Free School Meals are supported by a multitude of value-based arguments and by empirical evidence (e.g. Kitchen et al, 2013; Holford and Rabe, 2020). It is not the aim of this paper in any way to analyse or evaluate the introduction or continuation of the UIFSM policy itself. Neither is it in any way the aim of this paper to suggest that any apparent effects of the introduction of UIFSM on the FSM measure in the NPD bear any relevance or should make any difference at all to the prolongation of UIFSM.

### ***1.5 How exactly is FSM status attributed?***

A question begged by the relatively small proportional drop for Year 1 and Year 2 children post-2014 (Holford and Rabe, 2020) is why the decrease in identification when meals became universal is not greater. This in turn raises explicit questions about the means by which schools identify and record children as FSM-eligible.

Publicly available documentation shows that it does not appear to be only through their families' deliberate self-identification and sign-up for meals that children are flagged as FSM-entitled; it is also through other means. Some schools and local authorities use administrative checks and methods of attribution which do not necessarily seem – at least ostensibly – to involve the family themselves as actively claiming the resources for their children to which they are entitled. It is not clear from this documentation whether families are always aware of the implications of checks or indeed of their existence (Ealing Council, online; Newham Council, online; Roberts et al, 2021; Strictly Education, online; Tower Hamlets Council, online). To the authors' knowledge, methods of identification (family self-ascription / claim vs other) are not currently documented in a form that can be utilised

by researchers, mapped, or interrogated. The extent to which there is systematic variation across time, schools, and local authorities in these practices, and the association between their use and patterns of identification and FSM attribution, is therefore unquantified.

Large variations by local authority in under-claiming, as well as systematic variation by characteristics at the family level, have however in the past been documented cross-sectionally, by comparing HMRC records, reported FSM in the NPD, and data from the Longitudinal Study of Young People in England (Iniesta-Martinez & Evans, 2012). This work used data from January 2012, and found that among all 4- to 15-year-old children eligible according to HMRC records for FSM, 14% were not recorded as eligible in the NPD. This varied greatly by Local Authority, with 'under-registration' rates reaching over 30% in some Authorities, while in others all eligible children were registered. There is also evidence that identification practices vary at the school-level (Carpenter et al, 2013). Variation in identification practices across families, place, and years is then itself an additional source of inconsistency in the FSM measure.

### ***1.6 In summary: what do we know about how well FSM status proxies family income?***

The existing research tells us that FSM eligibility is limited as a measure of household income. At best, it can be used at the national level to show indicative, crude average differences between outcomes and experiences for the (ever-)FSM group – those who claim / are known by the school to be eligible based on receipt of criterion welfare support and income criteria – and the non-FSM group: who are higher-income on mean average, but who also include low-income, non-eligible families, and families who are eligible but who have never claimed or been identified as eligible.

Particularly problematic, if an aim of policy is to use FSM identification to best serve and focus upon those children whose families have the lowest incomes, or who are most 'disadvantaged' or 'deprived,' is the fact that the non-FSM group contains 'a deprived and perhaps super-deprived' subgroup (Gorard, 2011). This includes some extremely vulnerable children whose parents are ineligible for welfare payments (and therefore ineligible for FSM) due to the policy of 'No Recourse to Public Funds' (NRPF)<sup>12</sup> (Pinter et al, 2020; Sustain, online). The non-FSM group thus contains children from low-income families including destitute refugees, and those with NRPF in 'deep, long-term poverty' (Child Poverty Action Group, 2020) who are likely to meet any definition of 'deprived' or 'disadvantaged.' It also includes a 'hidden population' of 'irregular migrant' children, who are entitled to access school, but who experience 'wide-spread destitution and no entitlements to free school meals' (Sigona & Hughes, 2012). So while the non-FSM group have higher incomes (and more 'advantaged' circumstances) on average (DfE, 2017), the distribution of family incomes within the group is extremely dispersed and varied and reaches, in fact, below the minimum of the FSM group.

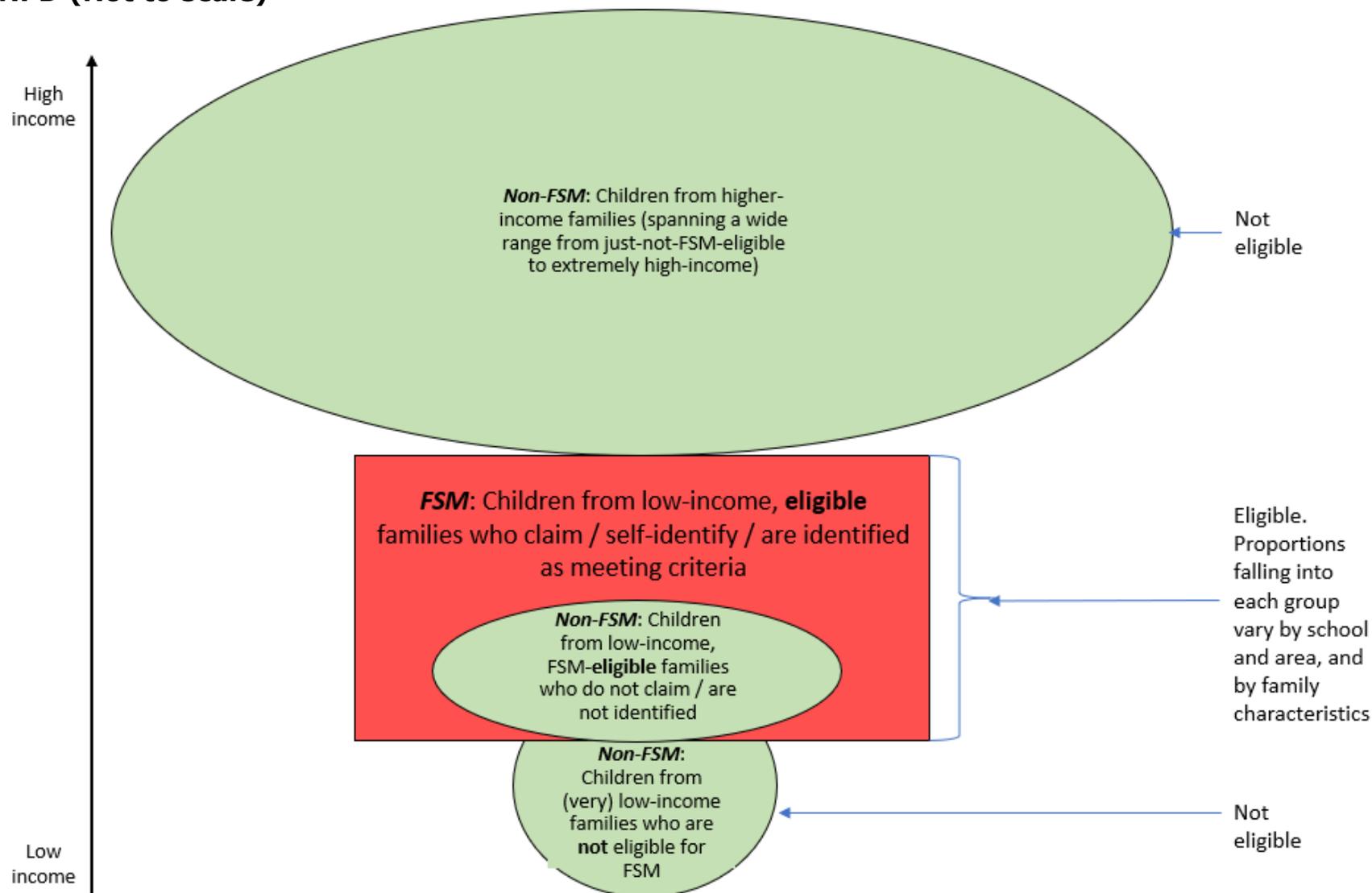
Figure 1 (not to scale) illustrates what the current evidence suggests about the groups of Reception children who are denoted in the NPD as FSM and non-FSM, and the rough correspondence of this to family income-level.

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<sup>1</sup> See <https://www.nrpfnetwork.org.uk/information-and-resources/rights-and-entitlements/immigration-status-and-entitlements/who-has-no-recourse-to-public-funds-nrpf>: 'A person will have no recourse to public funds when they are "subject to immigration control", as defined at section 115 of the Immigration and Asylum Act 1999.'

<sup>2</sup> Note that during the Coronavirus pandemic, free school meals were extended to this group: but the data used in this working paper precede the pandemic.

**Figure 1: What current evidence suggests about children who are attributed FSM vs non-FSM in the NPD (Not to scale)**



## **2. The current analyses**

This paper begins to contribute to unpicking further and understanding the uses and limitations of the FSM measure by interrogating changes over time in the pupils who are attributed in the NPD's Spring School Census at January of their first (Reception) year. This includes considering the time before and after introduction of UIFSM, examining correlates and consistency of correlates with the FSM measure within the NPD, exploring how rates of FSM map on to estimates of household income / poverty among families with Reception-aged four / five year olds over the years (as measured in the Department for Work and Pensions' Households Below Average Income survey data) and examining the correspondences between FSM rates and local area factors including child deprivation rates (IDACI). The paper concludes by discussing potential implications of the use of the FSM-at-Reception measure in research and statistical reporting, particularly in time series analyses comparing FSM and non-FSM children, and by outlining intended directions for continuing research into the uses and constructions of FSM.

Detailed below are several sets of descriptive analyses of the NPD, spanning children in Reception between 2010 and 2020. The majority of analyses use information from two separate approved usages of NPD data, whose attached projects both necessitate an understanding of what the Reception FSM binary represents. Gaining access to NPD data is a lengthy and uncertain process, so it is practical to conduct this work in a timely fashion so it can be used within the scope of existing projects, rather than to request additional data for which there would be unknown timescales. The data for each project spans different year-groups and cohorts of children, and this accounts for the apparently haphazard coverage of years in different components of the analyses.

Firstly, this paper adds to previous research indicating undercount in the NPD of FSM-eligible children, through:

1. Comparison of estimated national child poverty rates among four/five year olds and of recorded rates of FSM for correspondingly aged Reception children over the past decade.
2. Comparison of individual children's recorded FSM-eligibility in the Reception year to Year 3 (when Free School Meals are not universal), in the years leading up to and immediately after the introduction of Universal Infant Free School Meals for Reception – Year 2.

Secondly, it explores indications that the composition of Reception-aged FSM and non-FSM attributed groups may have changed over time, by:

3. Examining the changing composition of the FSM and non-FSM groups in terms of children's ethnicity (as recorded in Reception).

3a. Comparing this to survey-estimated national child poverty rates among four/five year olds classified as being in different ethnic groupings.

4. Examining the changing composition of the FSM and non-FSM groups in terms of whether children are recorded as speaking languages in addition to English in the Reception year.

Thirdly, it investigates changing correspondences between area-level factors and FSM-attribution to Reception children, by:

5. Examining variations in correspondence between attribution of FSM-eligibility in Reception and area child-deprivation levels (IDACI).

6. Examining changes in the proportion of FSM / non-FSM children living in areas classified as urban vs rural.

7. Examining changes in the proportion of FSM-classified children living in each government office region and each Local Authority.

7a. Comparing this to survey-estimated national child poverty rates among four/five year olds by region.

## **2.1 Data**

### **2.1.1 National Pupil Database census data**

The National Pupil Database (NPD) is a census of all children in state-funded statutory education. After approval by the Department for Education and training on secure and safe use, it can be accessed for research by accredited analysts. De-identified pupil-level data can be linked over the years and across component datasets using anonymised identifiers.

For the purposes of this paper, the data is structured into cohorts: children born during a given period who become eligible for school entry at the same time point, the vast majority of whom are then are educated together in a year-group. Year-groups in England correspond to the structure of the academic year, which runs from September to August: thus a cohort comprises children born from September 1<sup>st</sup> one year to August 31<sup>st</sup> the next year. Children in the cohorts born between 2004/05 and 2014/15, who are in Reception in January of the years from 2010 to 2020, are included.

The cohort born in 2009/10, who entered reception in September 2014 and whose FSM status is picked up in the January 2015 Spring Schools Census are the first to be eligible for Universal Infant Free School Meals.

### **2.1.2 Households Below Average Income survey data**

Estimates of child poverty rates for families with Reception-aged children (aged four or five) are calculated using the Department for Work and Pensions' Households Below Average Income (HBAI) survey (DWP, 2021a).

HBAI is a main source of data on household income and is widely used for the analysis of poverty in the UK. Poverty measures in HBAI are calculated using total household income, containing contributions from earnings, state support, pensions and income from investments, among others, and net of tax. The total net household income is then adjusted (equivalised) for household size and composition.

Four measures of poverty are reported in this paper. A child is considered to be in relative poverty if their net equivalised household income is 60% below the median in that year, while the absolute measure (or poverty against a fixed threshold) captures income that is 60% below the median in 2010/11, adjusted for inflation. The two measures are calculated on a before and after housing costs<sup>3</sup> basis, with the latter being a better reflection of the disposable income available to families, but the former more closely aligned with FSM eligibility, because eligibility does not take account of housing expenses. In line with DWP's methodology (DWP 2020), some estimates from HBAI are presented as three-year rolling averages.

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<sup>3</sup> Housing costs include rent, mortgage interest payments, buildings insurance, etc.

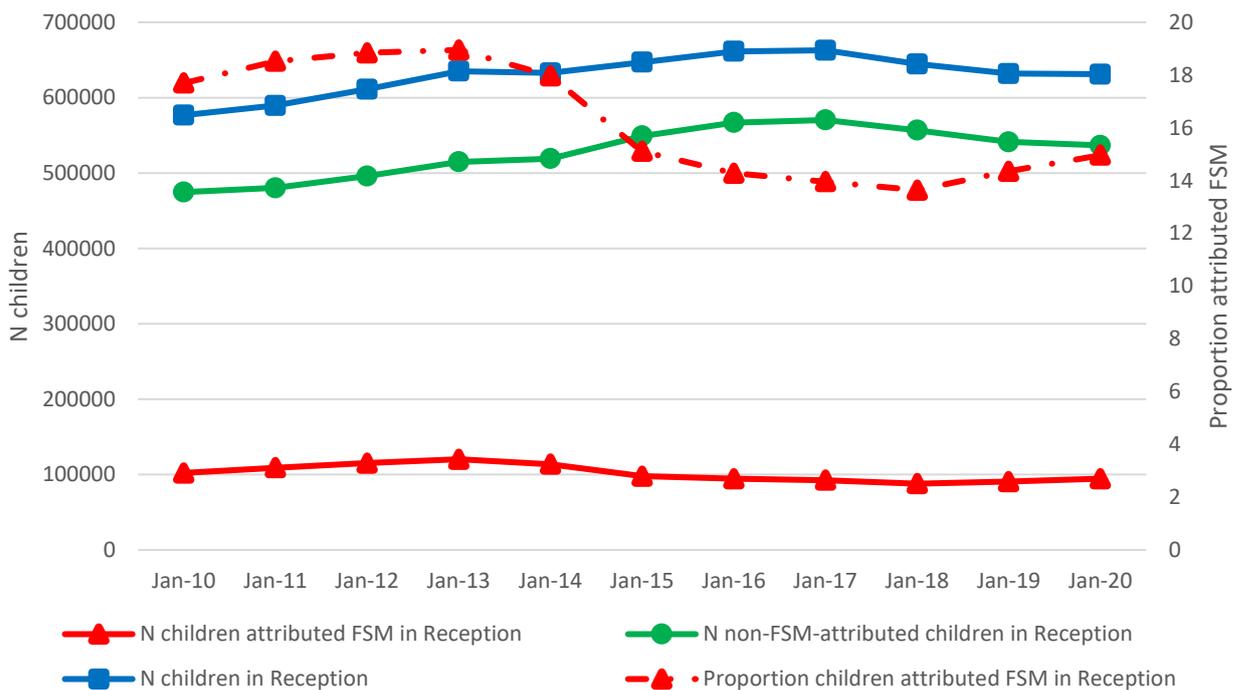
Note importantly that data from the NPD are census data, while data from the HBAI survey are point estimates, which will contain measurement error and uncertainty. Data from the NPD also contain error and uncertainty, as detailed regarding the FSM measure throughout this paper. Comparison of data from different sources is used to inform interpretation and build theories and understanding, but no source or measure is definitive, perfect or unproblematic.

### 3. Findings

#### 3.1 Changes to the proportion of Reception children attributed FSM over the past decade

Figure 2 shows the proportion of Reception children recorded as FSM-eligible each year in the January Spring Schools Census (right vertical axis; dotted red triangle line) as well as the absolute numbers of children (all children, children denoted FSM, children denoted non-FSM: left vertical axis) present in Reception each year.

**Figure 2: Proportion Reception children attributed FSM status in the NPD: January 2010-2020**



Source: Authors' analysis of NPD Spring School Census data, 2010-2020.

### **3.2 Indicators of undercount of FSM-eligible Reception children**

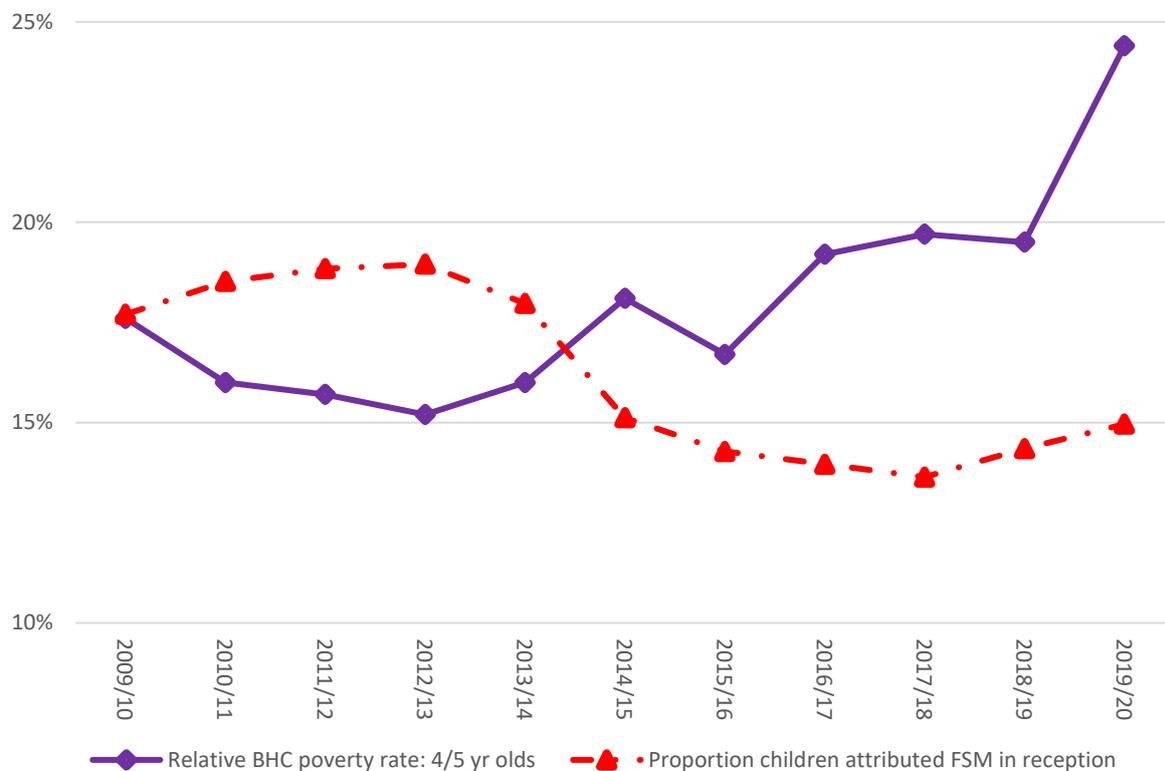
Figure 1, above, shows a fall in the number and proportion of children attributed FSM status in Reception in January 2015: the school year UIFSM were introduced. The following analyses suggest that this fall reflects undercount of children who are eligible on the basis of their family's circumstance but who are no longer attributed as eligible, rather than an improvement at this point in the income levels of the families of Reception-aged children.

#### ***Child poverty estimates and recorded FSM rates***

Children in Reception are aged four or five, so Figure 3 and Figure 4 show estimated national proportions of children in England aged four and five living in relative (before housing costs) poverty and anchored (before housing costs) poverty. The figures also show, for comparison, the proportion of Reception children attributed FSM status in the NPD each year.

Before the introduction of UIFSM, the proportion of four and five year olds denoted as FSM in their Reception year was above the proportion of children of the same age estimated as living in poverty. In the year UIFSM were introduced, this tendency reverses – and this holds when considering either relative or anchored poverty rates (before housing costs; Annex A shows the equivalent charts using income after housing costs).

**Figure 3: National proportion of children attributed FSM status in Reception, and estimated child poverty rates (relative poverty rate before housing costs) among 4/5 year-olds, 2010-2020**

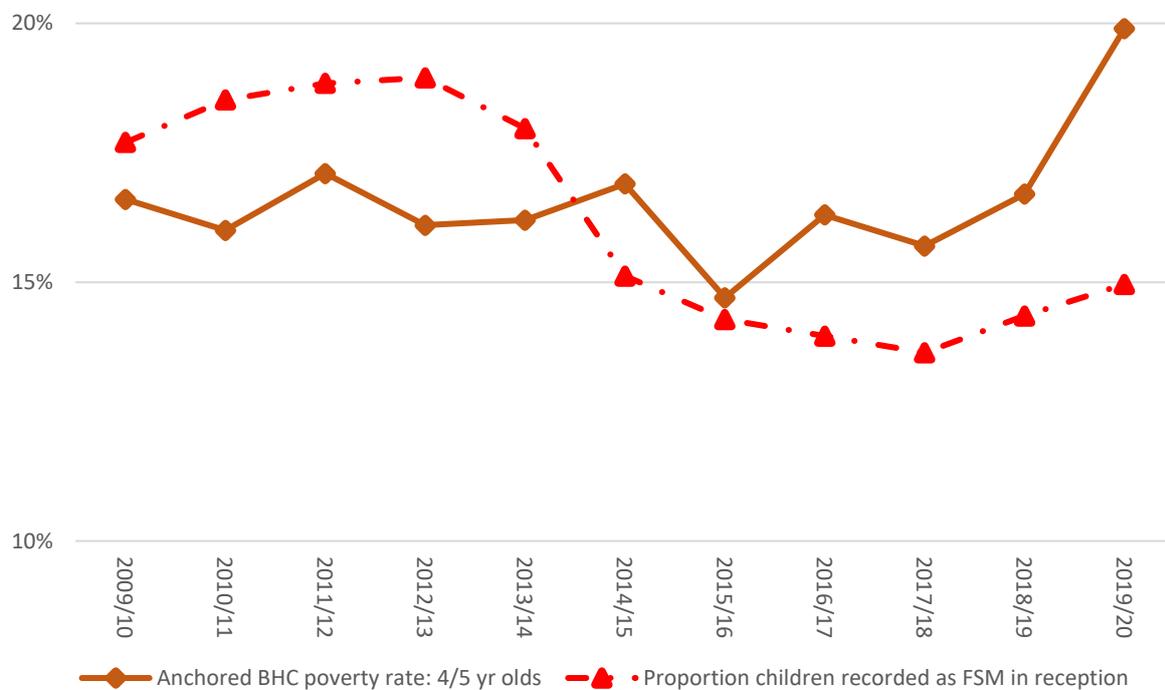


Source: FSM proportions are Authors’ analysis of NPD Spring School Census data, 2010-2020. Ns as in Figure 2. Child poverty rates are authors’ analysis of HBAI data (DWP, 2021a). Ns: 2009/10= 1130, 2010/11=1143, 2011/12=900, 2012/13=968, 2013/14=883, 2014/15=926, 2015/16=916, 2016/17=885, 2017/18=804, 2018/19=822, 2019/20=833.

While the picture here is not underpinned by entirely straightforward measurement, and definitions of child poverty in themselves change over time (for more detail on this, see e.g. Social Mobility Commission, 2021), what this suggest is that the rise in pupils recorded as non-FSM, and the fall in the proportion children recorded as FSM, is not underpinned by a fall in child poverty. The fall in FSM-denotation in the NPD happens despite a rise in recorded child poverty, and coincides with the introduction of UIFSM, suggesting that many children who would have been registered as FSM in previous years were not, post-2015. There are additional factors contributing to the growing incongruity between FSM rates and child

poverty rates, too: many are documented by the Child Poverty Action Group (2020), who estimate that by the time just 'prior to the [2020] pandemic, 1.2 million schoolchildren in England who lived below the UK's poverty line were not entitled to free school meals.' The extent to which the continuing incongruity can be attributed to reporting differences due to UIFSM as opposed to these other factors requires further investigation and clarification.

**Figure 4: National proportion of children attributed FSM status in Reception, and estimated child poverty rates (anchored poverty rate before housing costs) among 4/5 year-olds, 2010-2020**



Source: FSM proportions are Authors' analysis of NPD Spring School Census data, 2010-2020. Ns as in Figure 2. Child poverty rates are authors' analysis of HBAI data (DWP, 2021a). Ns: 2009/10= 1130, 2010/11=1143, 2011/12=900, 2012/13=968, 2013/14=883, 2014/15=926, 2015/16=916, 2016/17=885, 2017/18=804, 2018/19=822, 2019/20=833.

***FSM-eligibility in the Reception year compared to Year 3 in the years leading up to and immediately after the introduction of UIFSM***

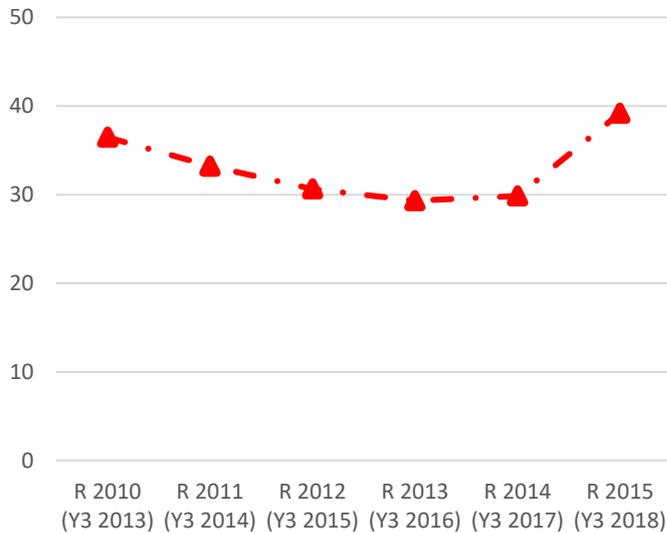
Figure 5 shows an uptick in new claimants of FSM at Year 3 for the cohort who were in Reception in January 2015, when UIFSM were introduced. While 29.9% of children who were not recorded as FSM in Reception in 2014 were recorded in Year 3, for the cohort in Reception in 2015, this rises to 39.2%. So there is a rise of nearly 10 percentage points in children newly FSM-attributed at Year 3 (when free school meals are not universal, and registration is required to receive meals), compared to the preceding year. This is consistent with the idea that fewer eligible children are picked up by the measure when they do not need to claim in order to receive actual meals, and indicates, along with other research (e.g. Holford and Rabe, 2020) that the introduction of UIFSM has resulted in lower rates of FSM attribution. Again this suggests that post-2015, Reception children who previously would have been recorded as FSM are now denoted non-FSM.<sup>4</sup>

Note once more that this finding is in no way relevant to evaluation of the desirability or efficacy of UIFSM as a policy.

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<sup>4</sup> The data available for analyses only allow mapping to Year 3 in 2018: in future work, this mapping will be extended to check the discontinuity in subsequent cohorts

**Figure 5: Proportion children who were NOT attributed FSM status in Reception who ARE attributed in Year 3**



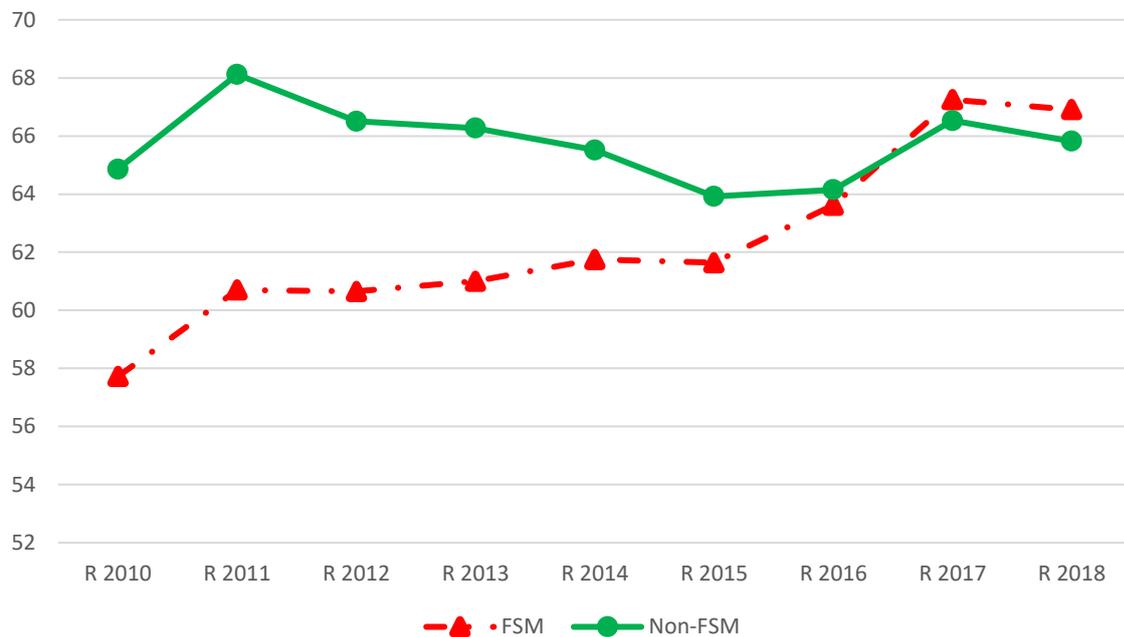
Source: Authors' analysis of NPD Spring Schools Census Data 2010-2018. Reception 2010 N=576,770; 2011=589,532; 2012=611,191; 2013=635,135; 2014=632,870; 2015=646,933

### **3.3 Indications that the compositions of the Reception-aged FSM and non-FSM attributed groups have changed over time**

#### ***Changing composition according to ethnicity***

Figure 6 shows the proportions of FSM-classified and non-FSM classified children, respectively, recorded as White British in the NPD. There is a rise in the proportion identified as White British among children denoted as FSM-eligible, from 57.7% in 2010, to 66.9% in 2018. The proportion of White British children in the non-FSM-attributed group remains more stable (64.9% in 2010; 65.8% in 2018).

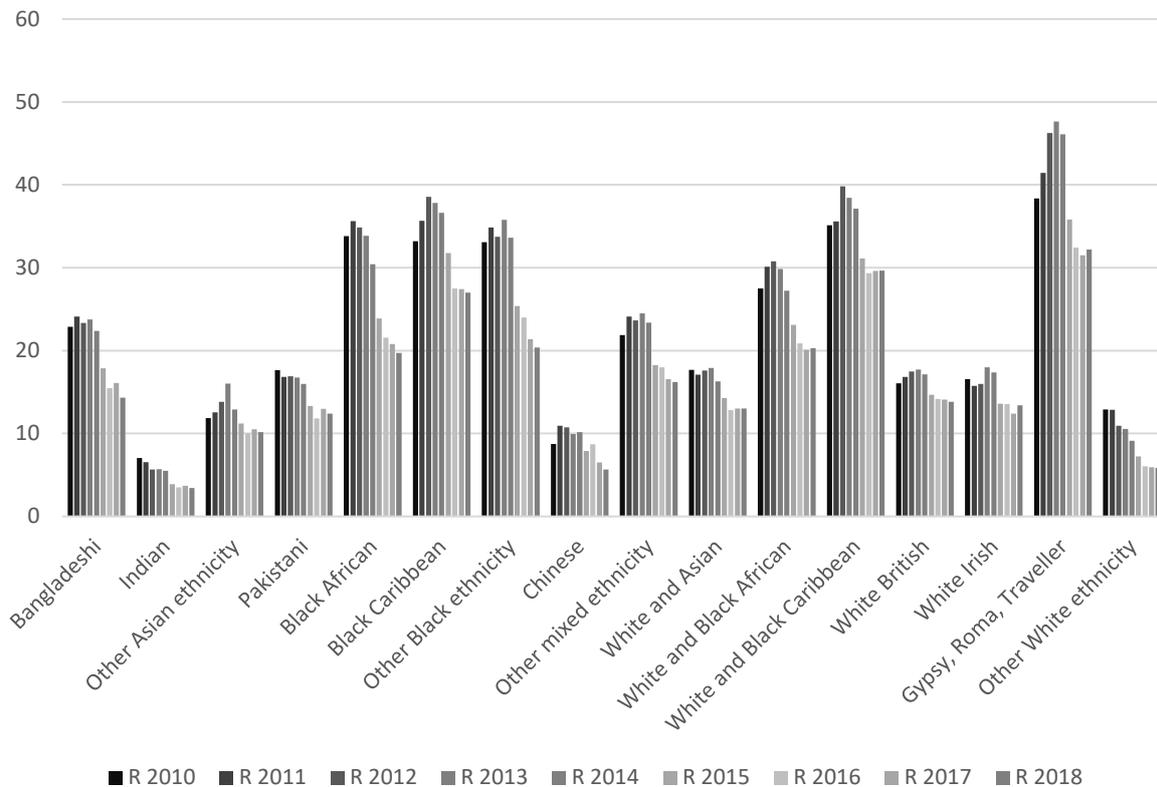
**Figure 6: Proportion children attributed FSM status in Reception and children not attributed FSM in Reception who are recorded as White British in the NPD each year**



Source: Authors' analysis of NPD Spring Schools Census data 2010-2018. N in Reception 2010= 576770; 2011=589532; 2012=611191; 2013=635135; 2014=632870; 2015=646933; 2016=661282; 2017=662882; 2018=644671

Figure 7 reverses this tabulation and shows the proportion of children recorded as belonging to each ethnic group (as classified in the NPD) who are attributed FSM in the years spanning 2010-2018. In line with Figure 6, it illustrates a relatively small drop in the proportions of White British children attributed FSM, and a much steeper drop for children in many other groups.

**Figure 7: Percentage of Reception children of each recorded ethnicity who are attributed FSM status each year**

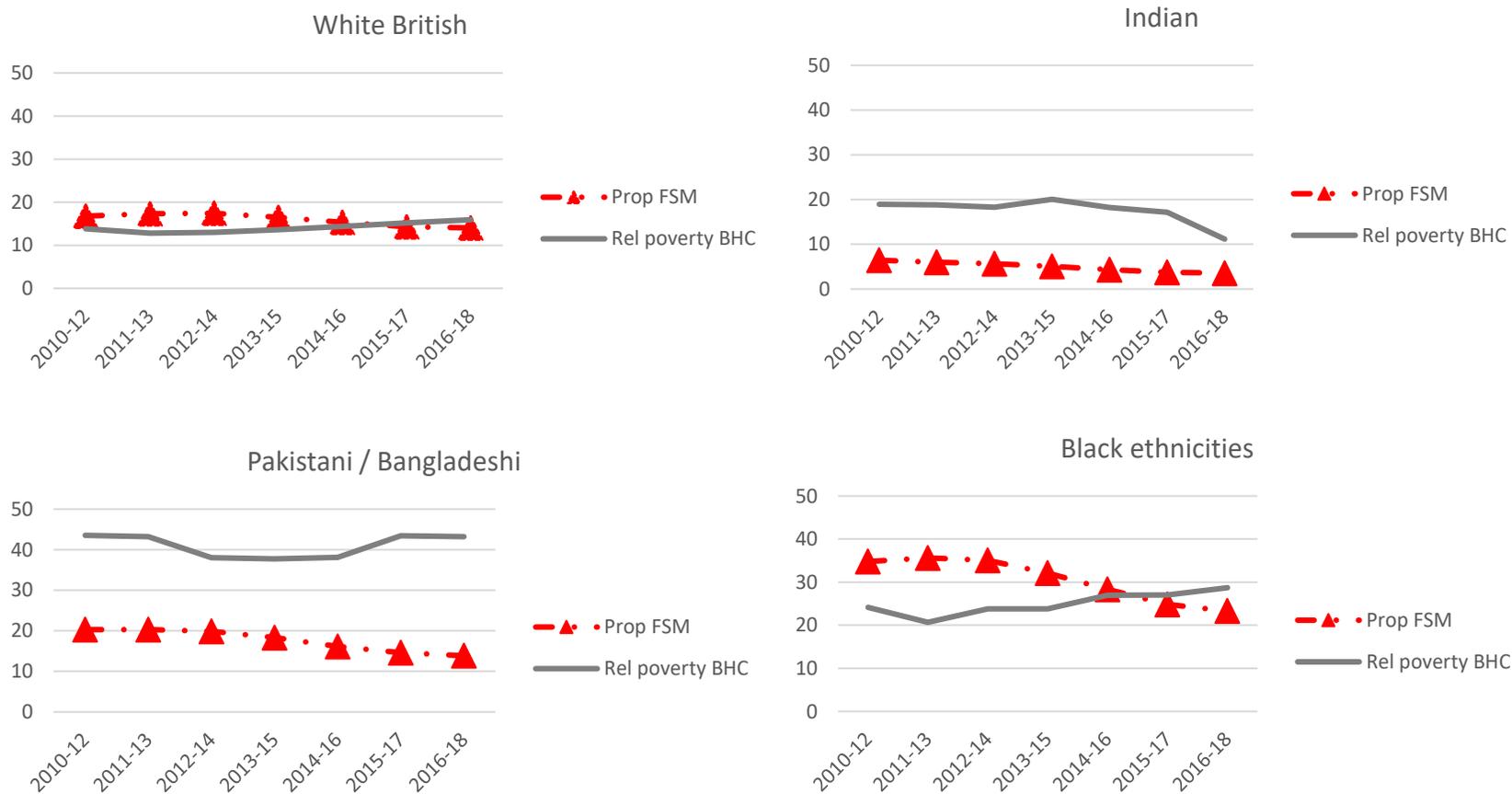


Source: Authors' analysis of NPD Spring Schools Census data 2010-2018. N in Reception 2010= 576770; 2011=589532; 2012=611191; 2013=635135; 2014=632870; 2015=646933; 2016=661282; 2017=662882; 2018=644671

Figure 8 compares, within selected ethnic groupings, the proportion of children denoted as FSM in the NPD and the proportion of children estimated as living in relative poverty, before housing costs, in the HBAI survey data. Three-year averages are used for both sets of data, because of small sample sizes in HBAI survey. The NPD categories of 'Black African,' 'Black Caribbean,' and 'Other Black ethnicity,' and HBAI categories of 'Black,' 'African,' and 'Caribbean' are combined, respectively, to form a 'Black ethnicities' category (again because of HBAI sample sizes). For the same reason, the 'Pakistani' and 'Bangladeshi' categories are combined in both datasets. Note that for each dataset, this smooths findings rather than obscuring or contradicting differences among the underlying subgroups.

The resulting rough comparisons (Figure 8) suggest several things. The first is that Indian, Pakistani, and Bangladeshi families have been recorded as FSM-eligible at a notably lower rate than the rates of poverty indicated for these groups, across the years. This may be because undercount of FSM-eligible children is greatest for these groups, or it may be for other reasons: perhaps fewer families of these ethnicities who are living in poverty meet the criteria for FSM-eligibility. The second is that the fall for Pakistani and Bangladeshi children in proportions attributed FSM is not reflected by a fall in estimated child poverty rates for this grouping. The third is that there has been a reversal over the years in the relationship between proportions recorded as FSM-eligible for children of Black ethnicities and to a lesser extent White British children, with rates of FSM-attribution higher than child poverty estimates in earlier years, but lower in the latest years. The fourth is that rates of FSM-attribution correspond most closely to estimated rates of child poverty for the White British group.

**Figure 8: Comparing the average percentage of Reception children within each recorded ethnicity grouping who are attributed FSM status within each three-year period, to the percentage estimated through HBAI survey data as living in relative poverty (BHC) in the same period**



Source: FSM proportions are authors' analysis of NPD Spring Schools Census data 2010-2018. Ns: 2010-2012=1,777,493, 2011-2013=1,835,858, 2012-2014=1,879,196, 2013-2015=1,914,938, 2014-2016=1,941,085, 2015-2017=1,971,097, 2016-2018=1,968,835. Child poverty rates are authors' analysis of HBAI data (DWP, 2021a). Ns: 2009/10-2011/12=998, 2010/11-2012/13=940, 2011/12-2013/14=861, 2012/13-2014/15=874, 2013/14-2015/16=857, 2014/15-2016/17=855, 2015/16-2017/18=812.

Together, Figure 6-8 are interesting because children's recorded ethnic group is a predictor of their experiences in education (e.g. House of Commons Education Committee, 2021). One possibility raised by these patterns is that apparent differences over time in experiences and outcomes of Reception children denoted FSM and Reception children denoted non-FSM may be attributable not (only) to the fortunes of children from comparable low-income and higher-income families (or families who are 'deprived' or not) diverging or converging, but to changes in composition of the ethnic background of children denoted FSM.

Note that interpretations here rely on the accuracy and consistency of ethnic group classification in the NPD; if there are changes to (self-) ascription or recording of ethnicity, the picture and (changes in) associations between children's various characteristics and their experiences and outcomes will be complicated further. Note also that comparisons in Figure 8 are preliminary, as they combine ethnic groups, average over years of data, and use only one estimate of child poverty: relative poverty before housing costs.

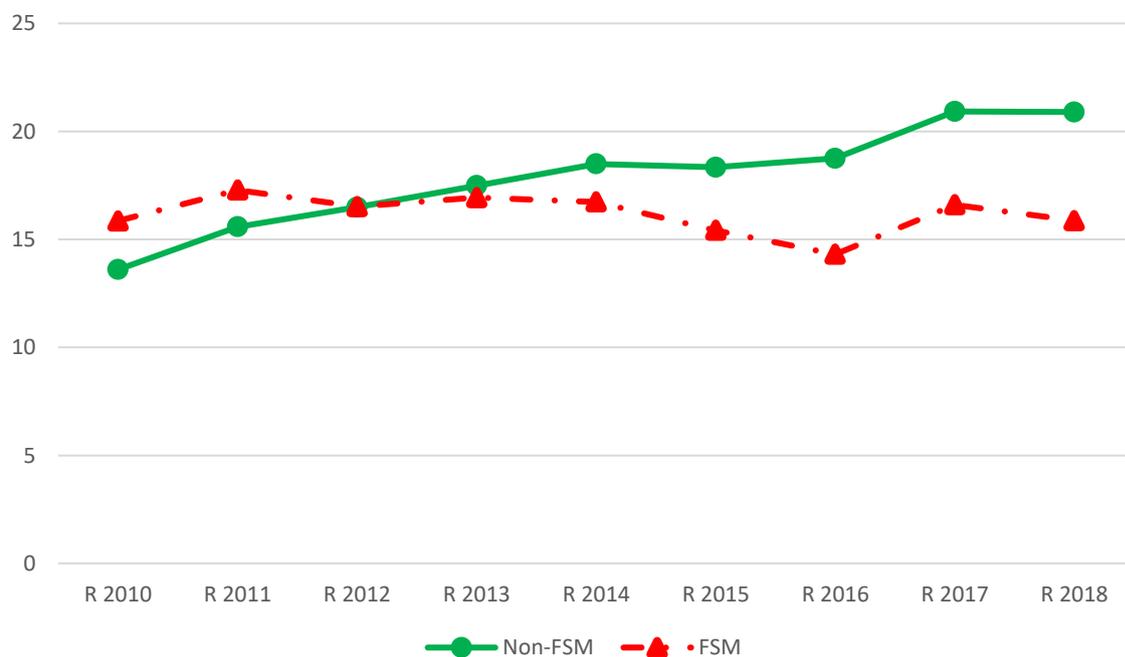
***Changing composition according to whether children are recorded as speaking languages in addition to English***

Among FSM-attributed children, the proportion classified as speaking languages in addition to English (EAL) has remained relatively stable over the years, while for children recorded as non-FSM, the proportion recorded as having EAL has risen overall (Figure 9). Figure 10 shows the tabulation reversed: the proportion of children recorded as having EAL / not EAL attributed FSM status each year. This is potentially congruent with Figure 6, above, showing that the proportion of FSM-denoted children recorded as White British has increased, while the proportion of non-FSM-denoted children recorded as White British has remained more stable. In terms of both ethnicity and language background, there therefore appears to be a

change in the constitution of the non-FSM-attributed and FSM-attributed groups (again, assuming accuracy and consistency of the EAL measure).

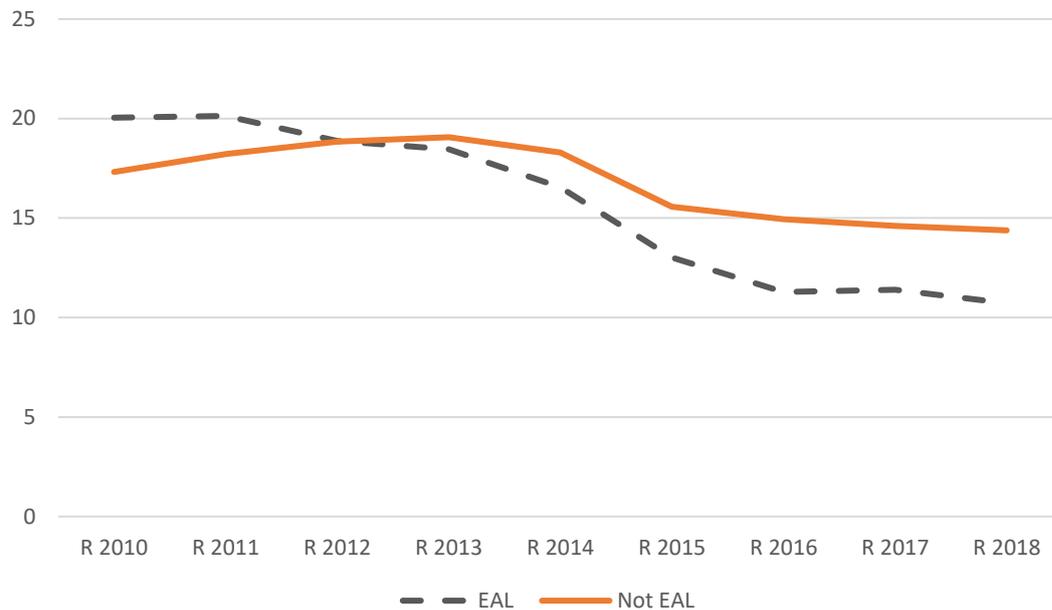
At the high-level, on average, children recorded as having EAL in the NPD have trajectories and experiences that differ from children recorded as speaking only English, and differences are particularly pronounced in the Reception year (Strand et al, 2015). Once more, this problematises attributions of change over time made solely on the basis of children’s FSM status: because it may be the rise in the proportion of non-FSM-recorded children who also have EAL that to some extent drives or accounts for change.

**Figure 9: Proportion children attributed FSM status in Reception and children not attributed FSM in Reception who are recorded as speaking languages additional to English (EAL) in the NPD each year**



Source: Authors’ analysis of NPD Spring Schools Census data 2010-2018. N in Reception 2010= 576770; 2011=589532; 2012=611191; 2013=635135; 2014=632870; 2015=646933; 2016=661282; 2017=662882; 2018=644671

**Figure 10: Percentage of Reception children recorded as EAL / not EAL attributed FSM status each year**



Source: Authors' analysis of NPD Spring Schools Census data 2010-2018. N in Reception 2010= 576770; 2011=589532; 2012=611191; 2013=635135; 2014=632870; 2015=646933; 2016=661282; 2017=662882; 2018=644671

A key question raised by Figure 6-10 is whether the change over time in composition of the FSM group according to ethnicity and language background results from real differential improvements or detriments to the financial situations and circumstances of families with Reception-aged children that correspond to these demographic characteristics – or whether there is systematically different under-identification or attribution to children of FSM status aligning with these characteristics. The figures begin to suggest that the latter plays a part.

Thus the apparently changing composition of the FSM-attributed group is interesting when making comparisons of FSM to non-FSM children over time for at least two reasons. Firstly, if the changing composition reflects true fluctuations in differences in low-income levels between ethnic and language groups, ethnicity and language may partially explain differences over time in the fortunes of children denoted FSM, because in themselves

these factors are independently associated with children's experiences in education, and interrelate with and attenuate FSM as a predictor (e.g. Halse & Ledger, 2007).

Secondly, if, instead of (or as well as) this, the changing composition of the FSM group reflects differential patterns of under-attribution to children of FSM that covary with recorded ethnicity or home language, this may also obscure, confound or bias estimates, and the extent to which exploration of the fortunes of children from low-income families can be followed using the NPD's FSM measure.

### ***3.4 Changing correspondences between area-level factors and FSM-attribution to Reception children***

#### ***Variation in correspondence between attribution of FSM-eligibility in Reception and area child-deprivation levels (IDACI)***

The Income Deprivation Affecting Children Index (IDACI) score is a measure at the small area Lower Super Output Area (LSOA) level of the proportion of children aged 15 or under living in income-deprived households. It is used in education research and policy-making in various ways, including contextualising the environment in which children live, and allocating funding to schools (Department for Education, 2018b).

IDACI scores are produced by the Ministry of Housing, Communities, and Local Government, and linked within the NPD to individual children's records, using the postcode of their home address. As an area-level measure, the scores do not depend on individual children being defined or identified in the school context; by the same token however, they do not apply at the individual level. Instead they represent the proportion of children in the individual's LSOA of residence classified as income-deprived.

Because IDACI scores thus represent all families with children aged under 15 in the LSOA, they are limited in validity in proxying even probabilistically the likely family circumstances of individual Reception children, who are aged 4/5. Nevertheless, comparing the IDACI score recorded for Reception children in the NPD to their recorded FSM status can potentially contribute to building understanding of the nature of the FSM measure and changes to this over time.

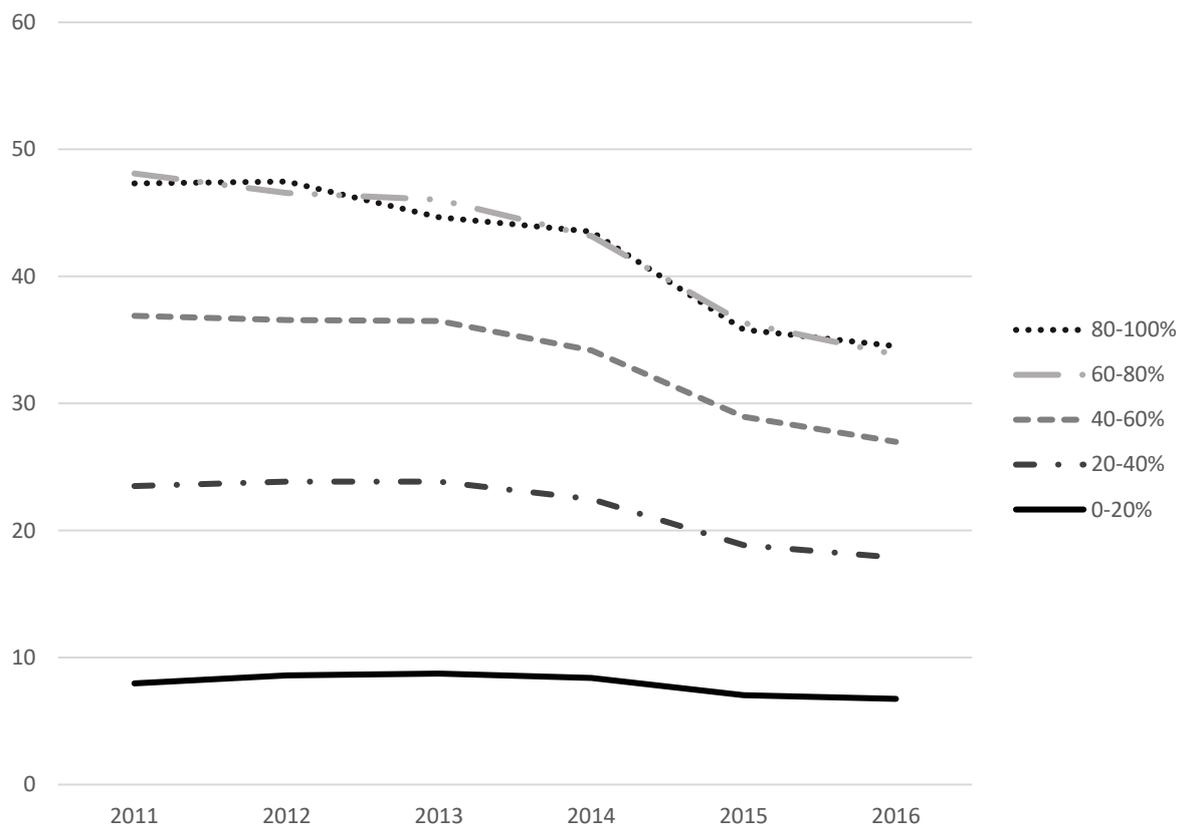
Figure 11 shows the proportion of children living in areas with each IDACI level (areas where 0-20% of 0-15 year-olds are classified as living in income-deprived households, where 20-40% are classified as such, and so on up to 80-100%) who are denoted as FSM in Reception. It covers the years 2011-2016, because these years span one period of IDACI classification, devised in 2010 and anchored using estimates from 2008 (Department for Communities and Local Government, 2011). Figure 11 shows, as would be expected, that children in higher-poverty areas are more likely to be denoted as FSM.

It also shows, however, that the fall between 2014 and 2015 in the proportion of children denoted FSM was sharper in areas where more children were recorded at the start of the period as living in low-income families. Potentially, this suggests a compounding of the effects of under-identification after the introduction of UIFSM: the FSM measure now seems to pick up fewer children whose own family is low-income, and fewer who live in areas where many other families are also low-income. Given that area-level deprivation is an influential component of children's family circumstance and environment, this may be problematic if FSM is used to target resources to children most likely to require additional support.

The pattern here contrasts with other estimates of changes in the concentration of child poverty, including projections from the IFS suggesting a 'marked increase' in concentration between 2013-2015 and

2019-2021 (Hood & Waters, 2017). Figure 11 suggests that children who continue to be denoted as FSM post-2015 are possibly somewhat more likely than previously to be dispersed and to live in relatively more affluent areas. Annex A shows the same pattern according to IDACI rank quantile rather than absolute value cuts, and is consistent. This very tentatively suggests that areas with less concentrated poverty may be less likely to under-attribute FSM status to individual Reception children after the introduction of UIFSM: though there may be other / additional explanations for this pattern, such as changing demographics in the ages of children in low-income families.

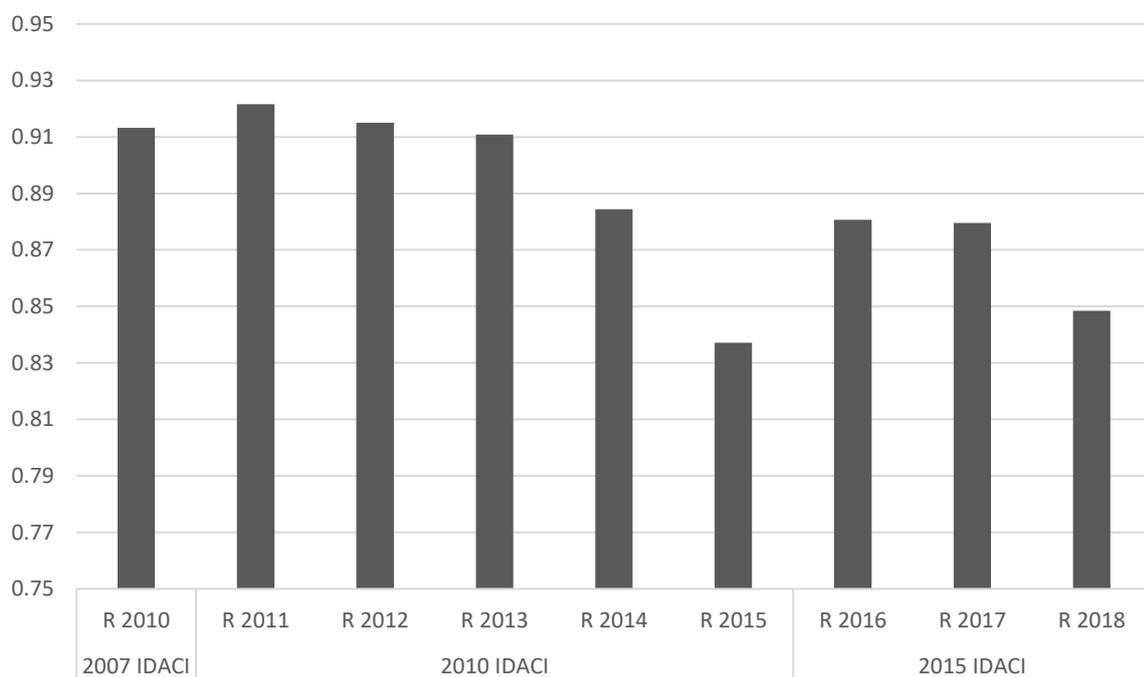
**Figure 11: Proportion Reception children living in areas with each level of deprivation affecting children (IDACI) attributed FSM status in Reception each year**



Source: Authors' analysis of NPD Spring Schools Census data 2011-2016. N in Reception 2011= 587,650, 2012=609,406; 2013=633,175; 2014=631,176; 2015=645,207; 2016=659,677

Figure 12, below, considers the IDACI-FSM correspondence from a different angle. Using Local Authority (LA)-level figures, it shows the national correlation between proportion children denoted as FSM in Reception in the LA, and mean IDACI score of Reception children living within the LA.<sup>5</sup> Overall, between 2010 and 2018, the correlation between LA-level mean IDACI and proportion of Reception children denoted FSM within LA becomes weaker (from .91 to .85, with a particular dip to .84 in 2015, on introduction of UIFSM). This corresponds to the probability of increased undercounting of children who meet FSM eligibility criteria (though, again, there may [also] be alternative explanations for the change in correspondence between FSM proportions and IDACI levels).

**Figure 12: Pearson correlation coefficient for national correspondence between mean IDACI of areas of residence of Reception children in Local Authority and percent Reception children attributed FSM in Local Authority each year**



Source: Authors' analysis of NPD Spring Schools Census data 2010-2018. N in Reception 2010= 576770; 2011=589532; 2012=611191; 2013=635135; 2014=632870; 2015=646933; 2016=661282; 2017=662882; 2018=644671

<sup>5</sup> Mean IDACI score within LA is calculated for all Reception children with a score within their record. Proportion children within LA who are denoted FSM is as it sounds. The national correlation is calculated using child-level data, thus weighting for LA size. City of London and the Isles of Scilly are excluded.

Figure 13, below, maps the extent to which IDACI corresponds to FSM within each distinct LA, from 2011 to 2018. For every LA, the percentage difference between FSM rate and IDACI rate is calculated,<sup>6</sup> thus indicating the magnitude of convergence. The darker the shading, the proportionally lower the FSM rate is than the IDACI rate. Across areas and years, in most areas, the FSM rate is lower than the IDACI rate: and this disconnect increases in magnitude at 2015. Nationally, the overall magnitude and direction of disparity varies by year: from 2011 to 2014, and again in 2018, there are some areas in which the FSM rate is higher than the IDACI rate; while between 2015 and 2017, all areas have an IDACI rate higher than FSM rate. Locally, many LAs vary year on year in the magnitude of the IDACI-FSM rate gap.

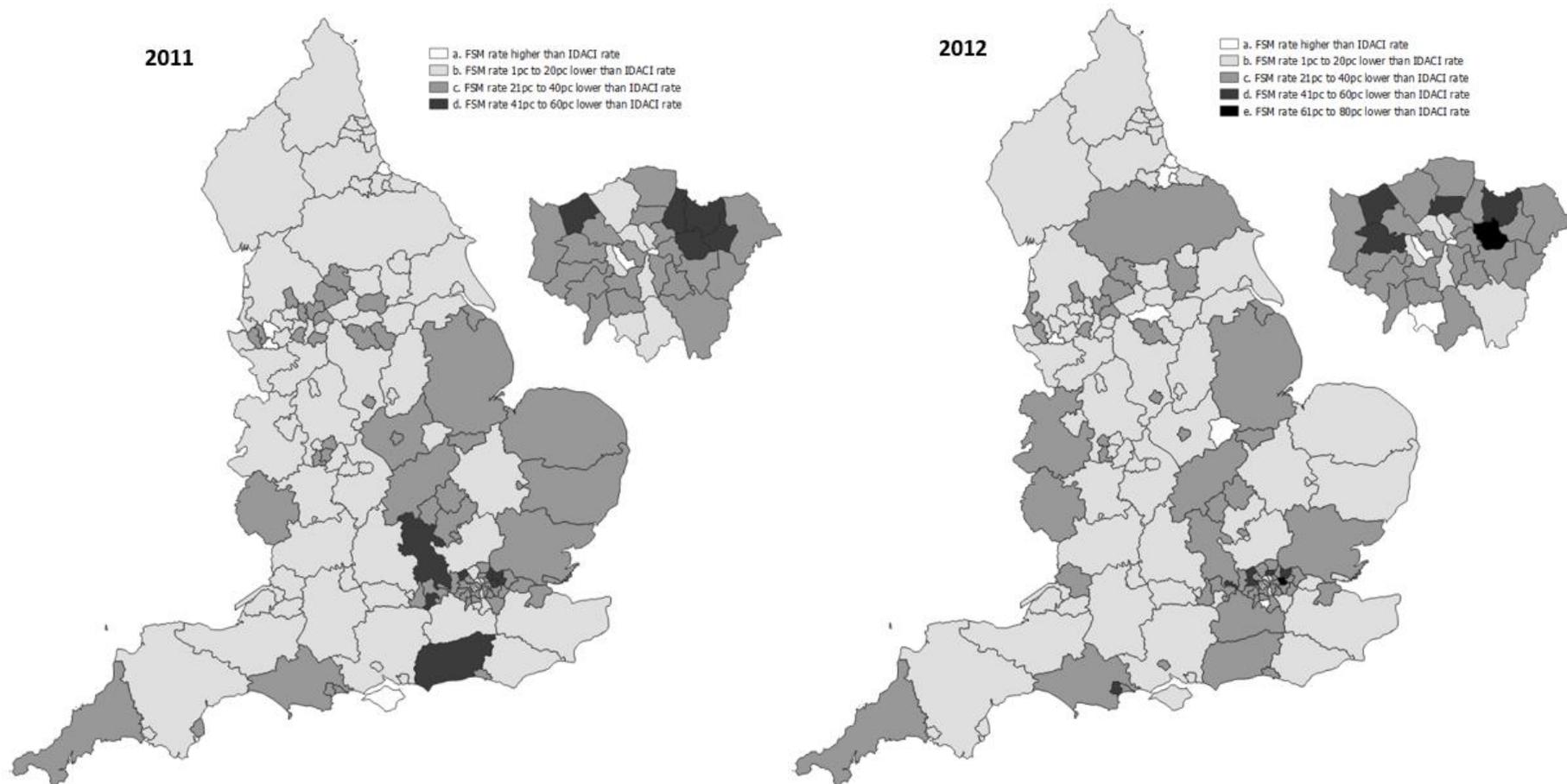
Overall, notwithstanding the complexities of the influence of demographic shifts (including in the ages of children in families living in different areas), and in line with other evidence, Figure 13 once more suggests an under-recording of Reception children in poverty by the FSM measure, that varies by LA, and becomes more pronounced on the introduction of UIFSM.

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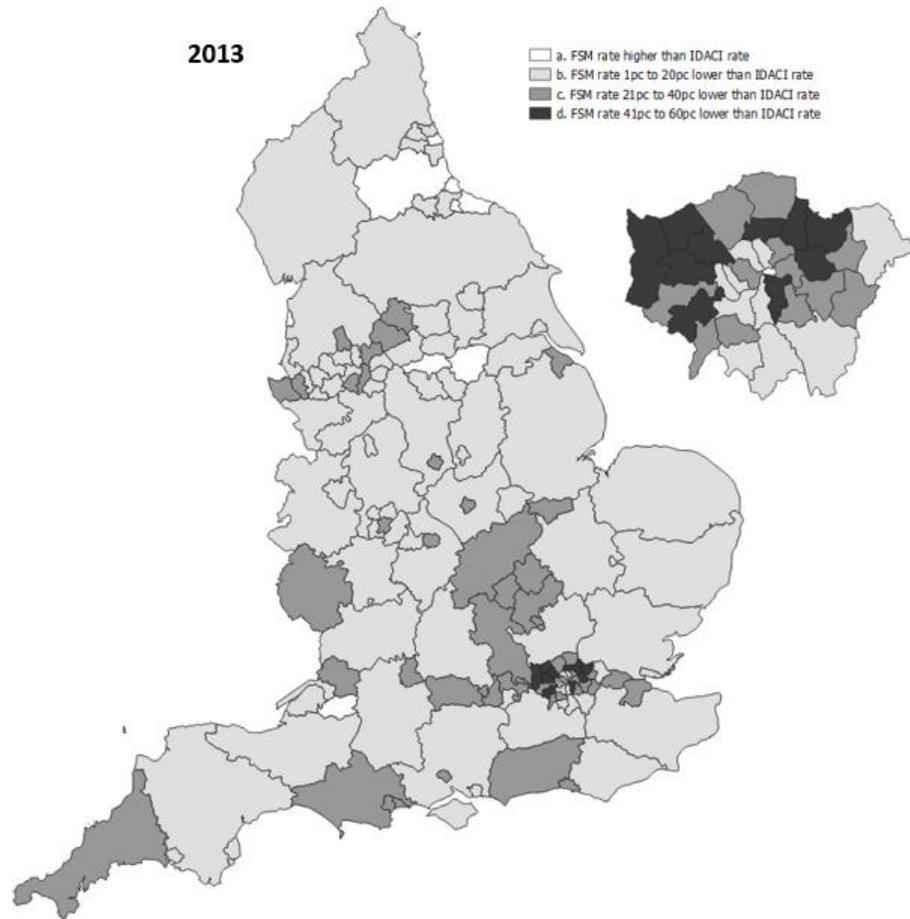
<sup>6</sup> For example, in a Local Authority with an FSM rate of 10% and an IDACI rate of 20%, the percentage difference would be 50%.

**Figure 13: Proportional difference between FSM rate in Local Authority and IDACI rate in the same Local Authority: The darker the shade, the proportionally lower the FSM rate than the IDACI rate.**

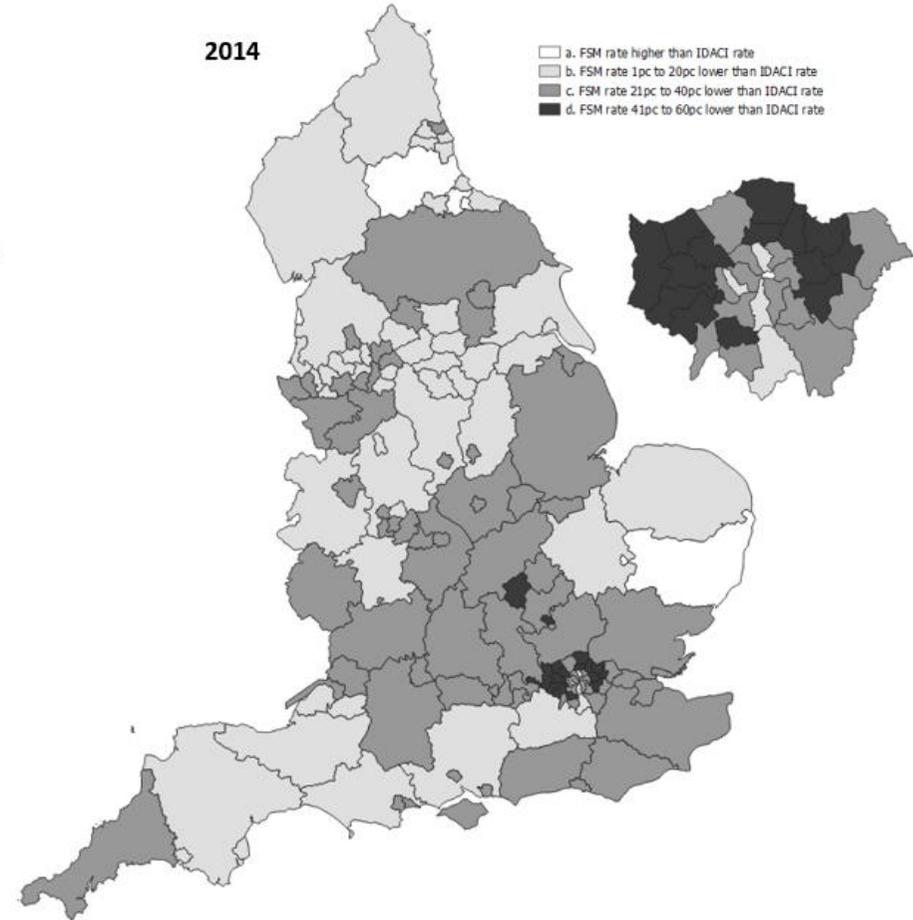
**2011 – 2018**



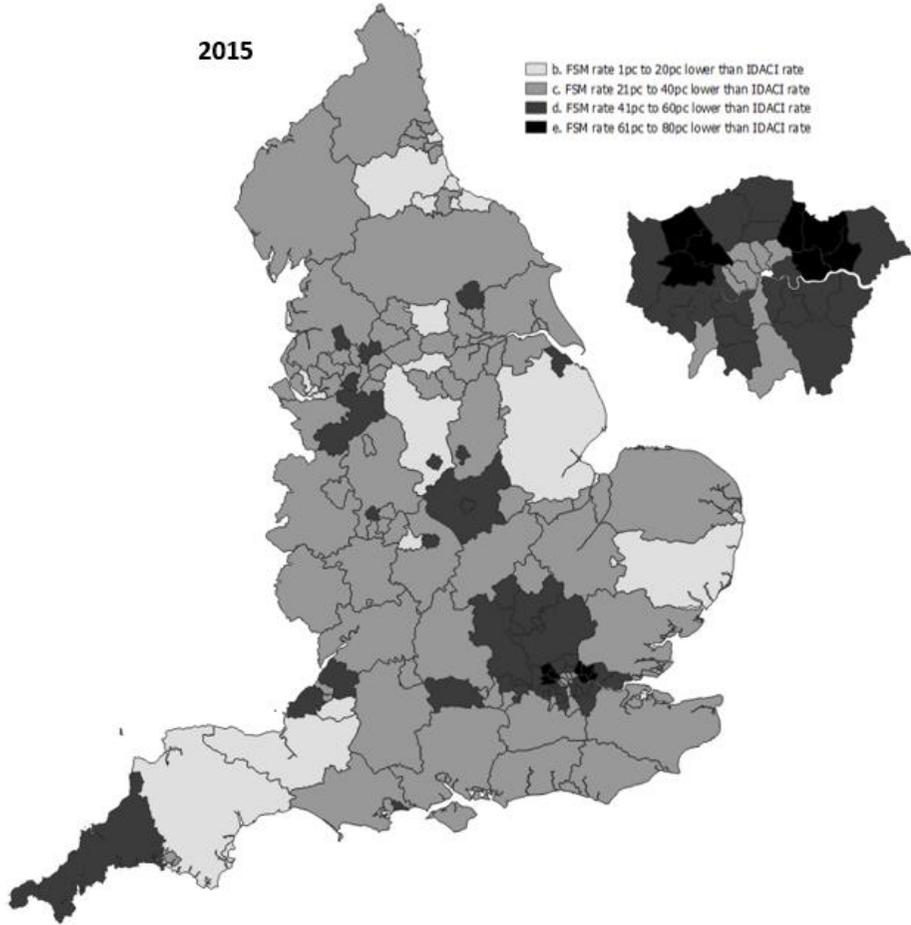
2013



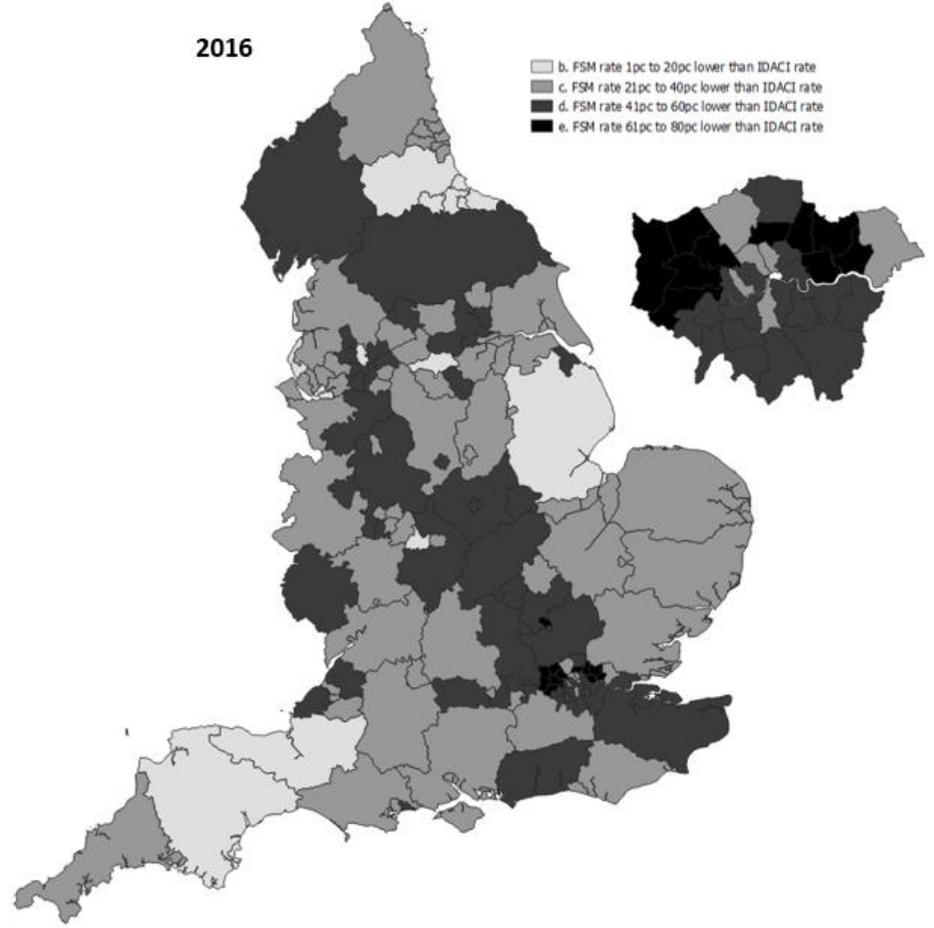
2014

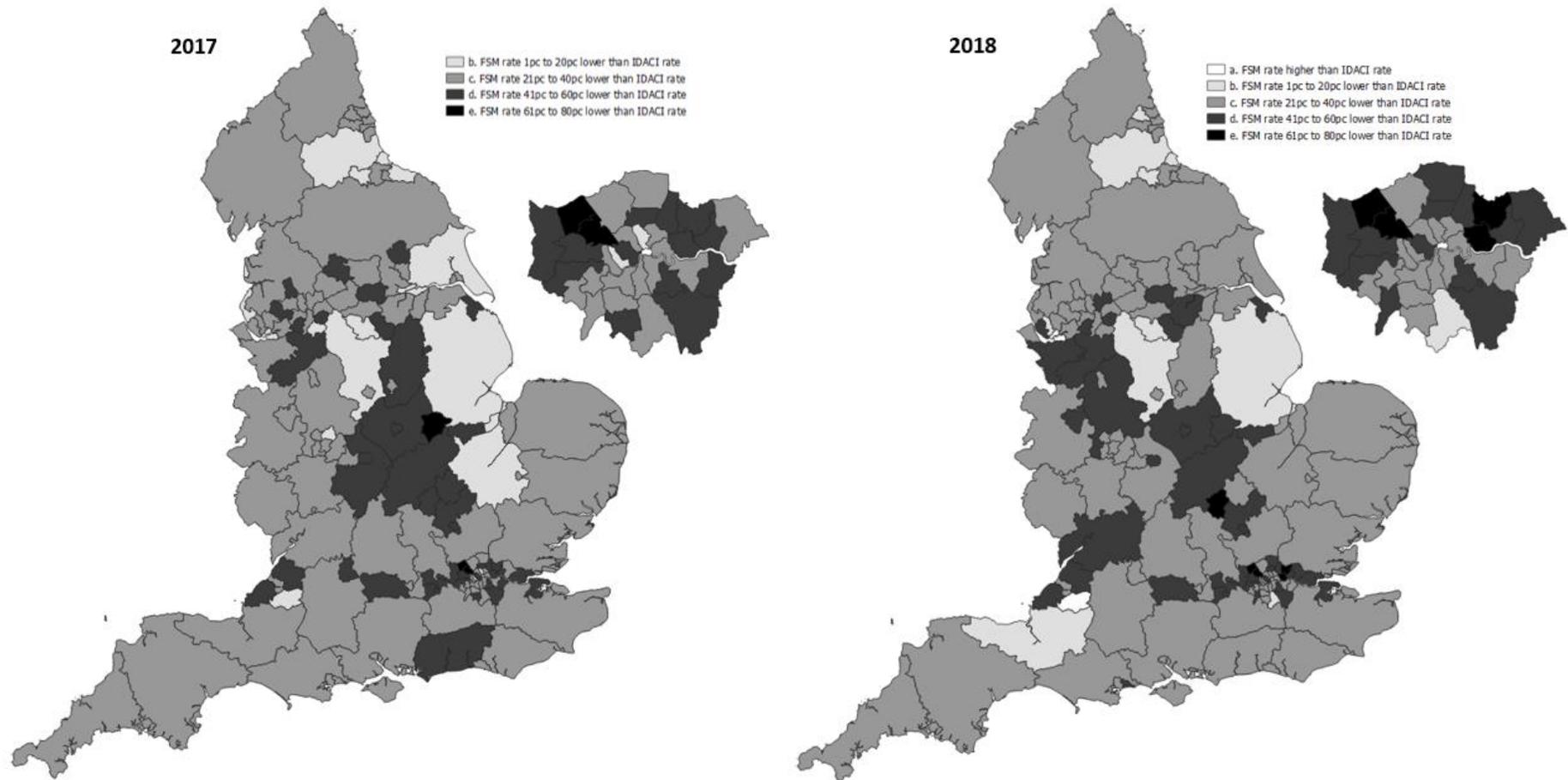


2015



2016



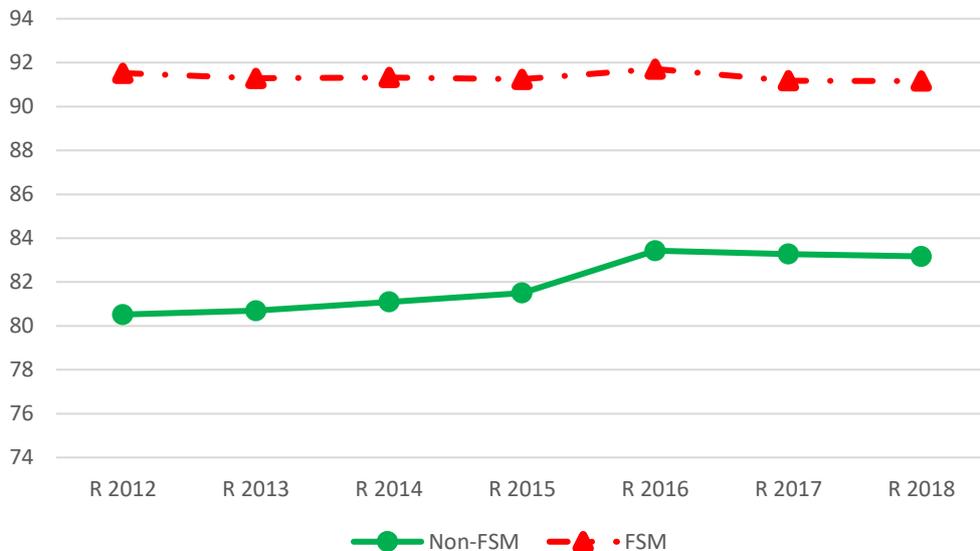


Notes: Percentage difference between FSM rate and IDACI rate. The darker the shading, the proportionally lower the FSM rate is than the IDACI rate. There are no data for the City of London. See Annex A for Local Authority names. Shapefiles source: Office for National Statistics, licensed under the Open Government Licence v.3.0. Contains OS data © Crown copyright and database right [2011-2018]. Local Authority data source: Authors' analysis of NPD Spring Schools Census data 2011-2018. Maps produced using QGIS.

***Changes in the proportion of FSM children in areas classified as urban vs rural***

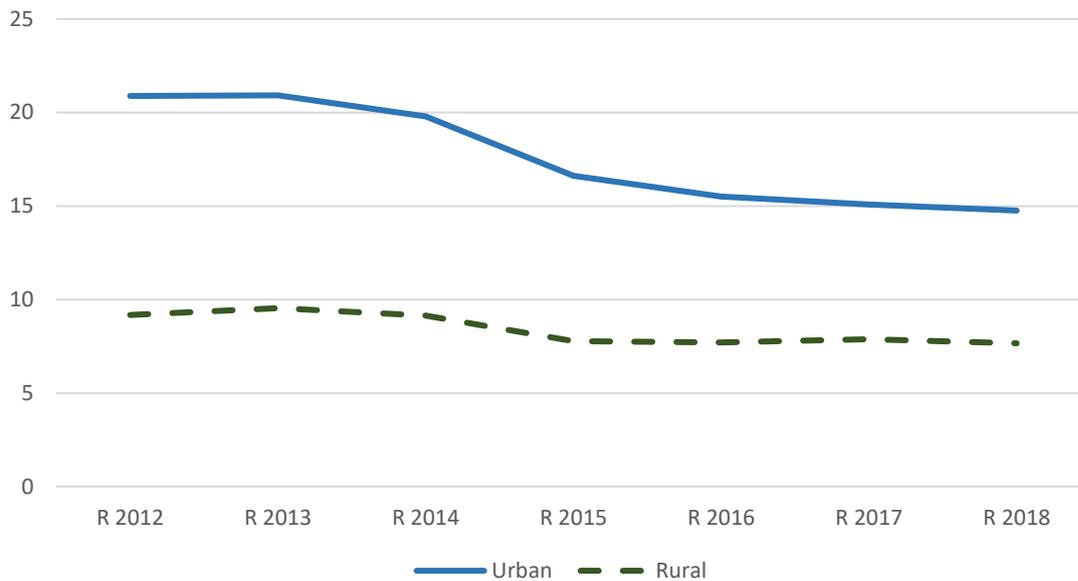
Figure 14 shows that the proportion of children classified as FSM at Reception living in urban areas has remained generally stable over the years, while the proportion of non-FSM-classified children living in urban areas has increased somewhat. Figure 15 shows this tabulation reversed – the proportion of children in urban / rural areas, respectively, who are classed as FSM at reception – and indicates a steeper decline in urban compared to rural areas in the proportion of children recorded with FSM. This is interesting because the nature of the area in which a child lives is associated with their progress through education: so like earlier analyses, which suggested a change in composition according to child-level characteristics, this change in the characteristics of area of residence experienced by some children denoted FSM may play a part in explaining variation in outcomes and experiences delineated according to FSM status.

**Figure 14: Proportion children attributed FSM status in Reception and children not attributed FSM in Reception who are recorded as living in urban areas in the NPD each year**



Source: Authors' analysis of NPD Spring Schools Census data 2012-2018. N in Reception 2012=611191; 2013=635135; 2014=632870; 2015=646933; 2016=661282; 2017=662882; 2018=644671

**Figure 15: Percentage reception children living in urban / rural settings who are attributed FSM status in Reception each year**



Source: Authors' analysis of NPD Spring Schools Census data 2012-2018. N in Reception 2012=611191; 2013=635135; 2014=632870; 2015=646933; 2016=661282; 2017=662882; 2018=644671

***Changes in the proportion of FSM-classified children living in each government office region and Local Authority***

Figure 16, below, goes on to show the proportion of Reception FSM-denoted children living in each Government Office Region. The proportion living in Inner and Outer London has fallen over the past 10 years – at a rate not mirrored by an overall fall in the population of Reception children living in these regions (Figure 17). Thomson (2016) suggests that this relative fall in London may be attributable to schools in the area being less likely to identify and record eligible Reception children as FSM: but that it might also result from a shift upwards in the proportions of more affluent families remaining in the London area. Both possibilities may contribute to this pattern. The interactions between area, (under-) attribution of FSM, and national changes over time for FSM and non-FSM attributed children are complex.

Figure 18 emphasises this complexity by showing the percentage change in proportion Reception children within each LA attributed FSM between the years 2011 and 2018.<sup>7</sup> For example, Yorkshire and the Humber as a region overall has seen an overall fall in the proportion of children recorded as FSM (Figure 19), but this does not apply to all LAs in the region (Figure 18), with some recording rising proportions. (See Annex A for regions and LA names.)

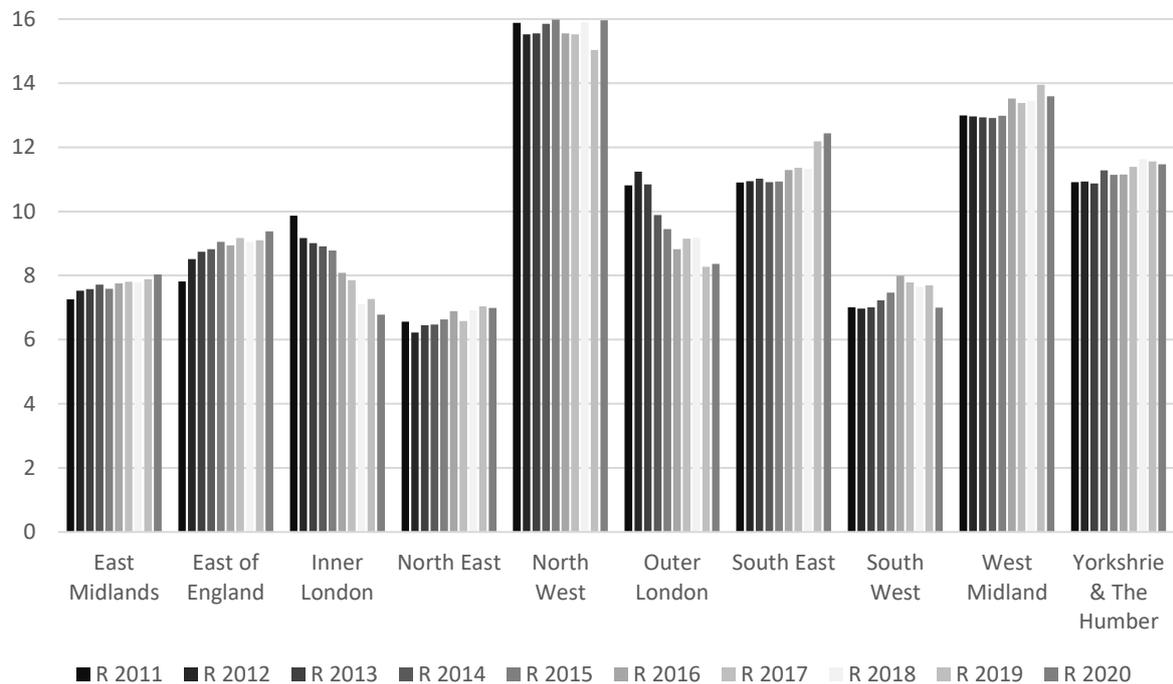
Figure 19 shows the proportion of Reception children in each region attributed FSM over the years (rather than the proportion of all FSM children residing in each region, as in Figure 16), and emphasises that the highest percentage point drop within region (from 32.4% of Reception children attributed FSM in 2011 to 19.2% in 2020) has been in Inner London.

Lastly, Figure 20 compares, within each region, the proportion of Reception children denoted as FSM in the NPD and the proportion of Reception-aged children estimated as living in relative poverty, before housing costs, in the HBAI survey data. Three-year averages are used once more because of small sample sizes in HBAI survey.

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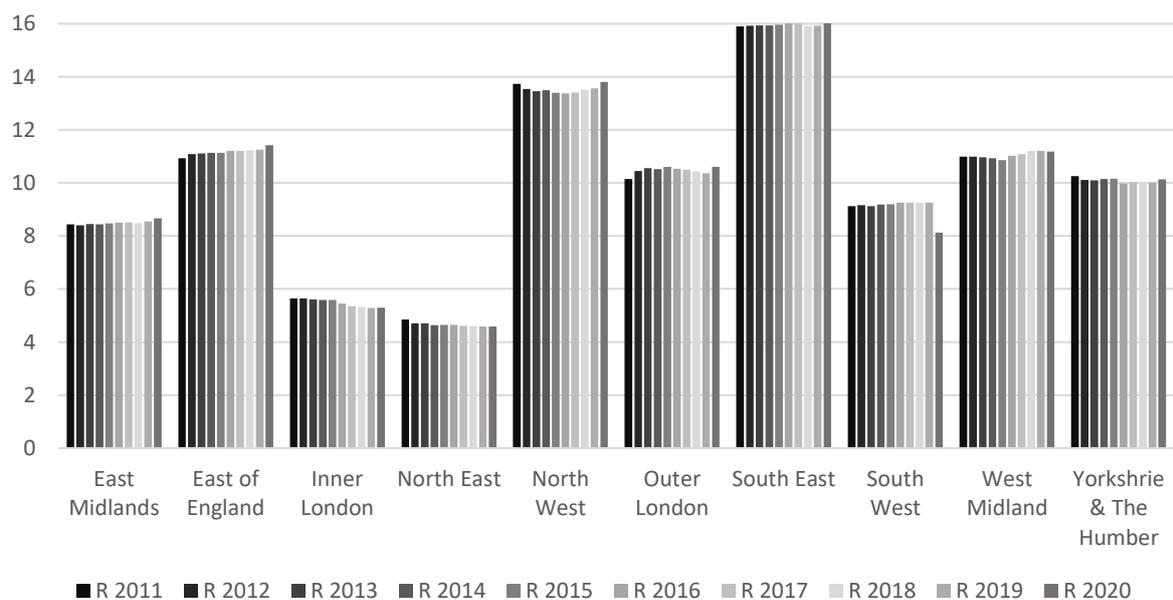
<sup>7</sup> Percentage change is calculated as follows:  $(2011 \text{ rate} - 2018 \text{ rate}) / 2011 \text{ rate}$ . A positive percentage change means that rates have fallen – this applies to most Local Authorities – red in Figure 18; a negative percentage change means rates have risen in this Local Authority – blue in Figure 18.

**Figure 16: Proportion of all Reception children who are attributed FSM status who are living in each region each year**



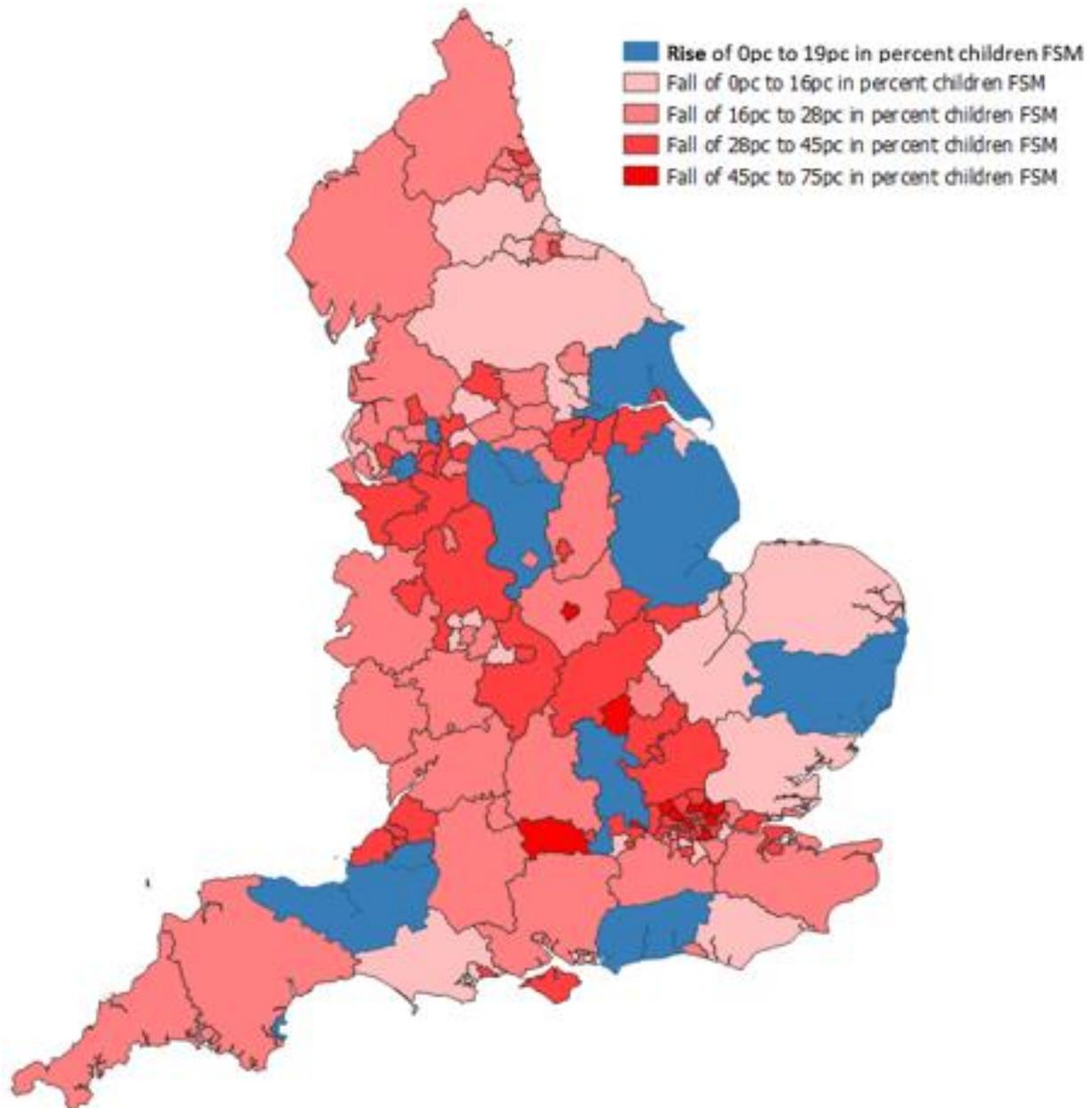
Source: Authors' analysis of NPD Spring School Census data, 2011-2020. N in Reception 2011=589532; 2012=611191; 2013=635135; 2014=632870; 2015=646933; 2016=661282; 2017=662882; 2018=644671; 2019=631990; 2020=623,836. Note that Ns and proportions differ minimally from earlier figures due to missing data for region.

**Figure 17: Proportion of all reception children living in each region each year**



Source: Authors' analysis of NPD Spring School Census data, 2011-2020. N in Reception 2011=589532; 2012=611191; 2013=635135; 2014=632870; 2015=646933; 2016=661282; 2017=662882; 2018=644671; 2019=631990; 2020=623,836. Note that Ns and proportions differ minimally from earlier figures due to missing data for region.

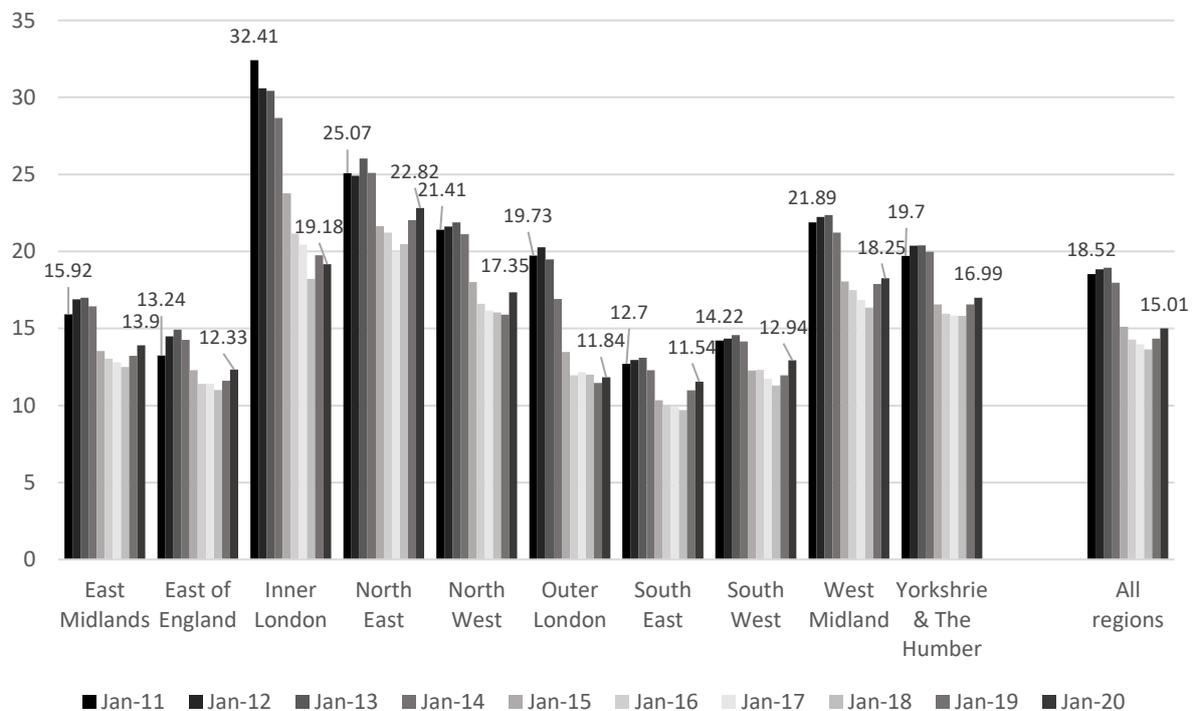
**Figure 18: Percentage change in the proportion of Reception children attributed FSM status living in each LA between 2011 and 2018: The darker the red, the greater the fall in proportion children attributed FSM within LA; blue indicates a rise within LA**



Notes: There are no data for the City of London. See Annex A for Local Authority names Shapefile source: Office for National Statistics, licensed under the Open Government Licence v.3.0. Contains OS data © Crown copyright and database

right [2018]. Local Authority data source: Authors' analysis of NPD Spring Schools Census data 2011-2018. Map produced using QGIS.

**Figure 19: Proportion of Reception children living in each region who are attributed FSM status each year**



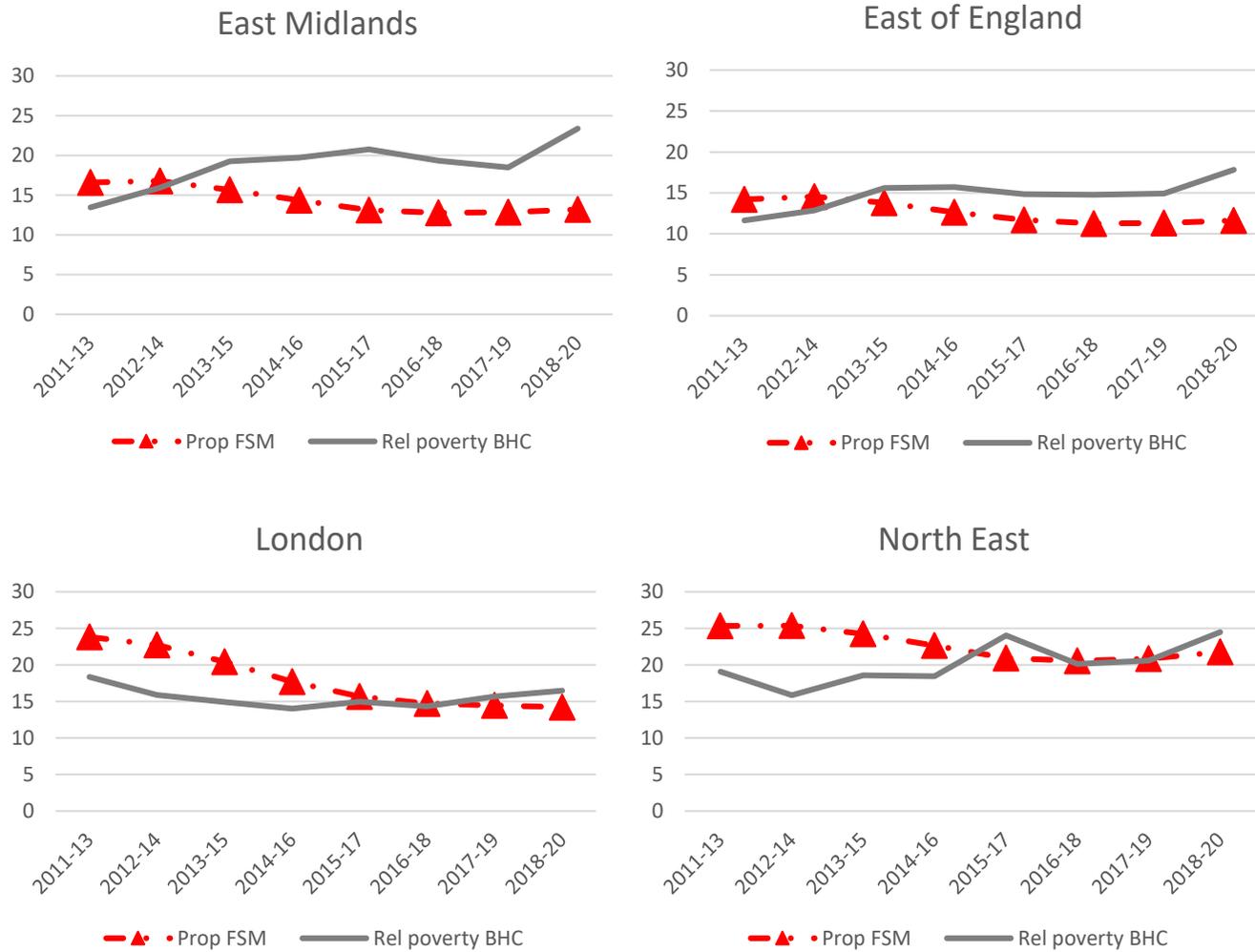
Source: Authors' analysis of NPD Spring School Census data, 2011-2020. N in Reception 2011=589532; 2012=611191; 2013=635135; 2014=632870; 2015=646933; 2016=661282; 2017=662882; 2018=644671; 2019=631990; 2020=623,836 Note that Ns and proportions differ minimally from earlier figures due to missing data for region.

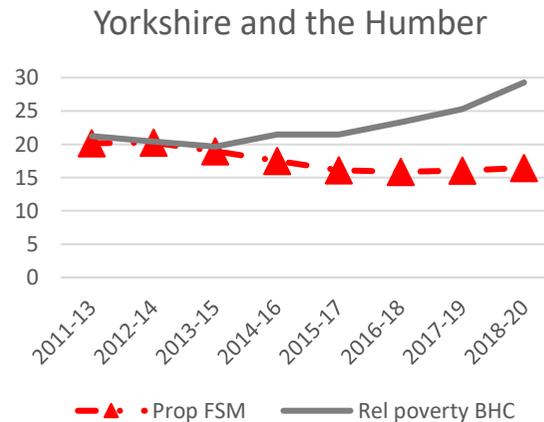
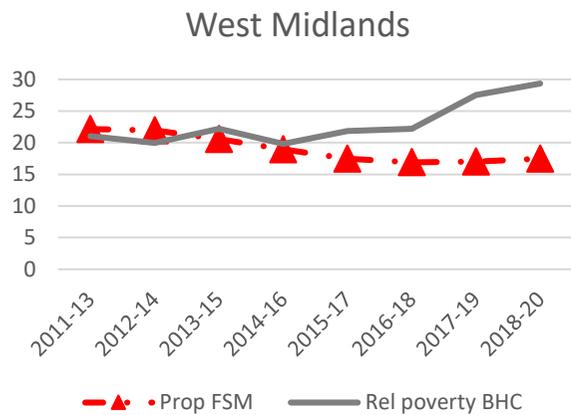
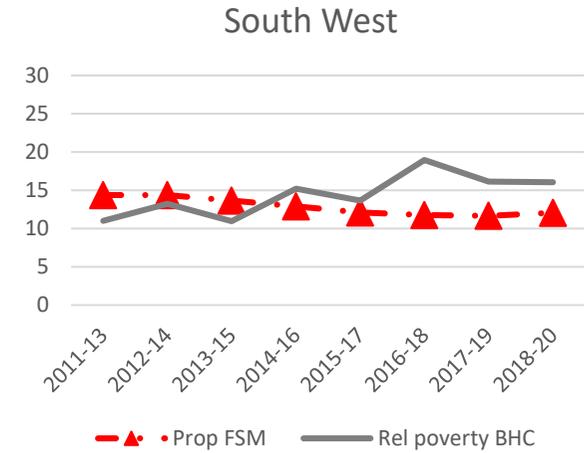
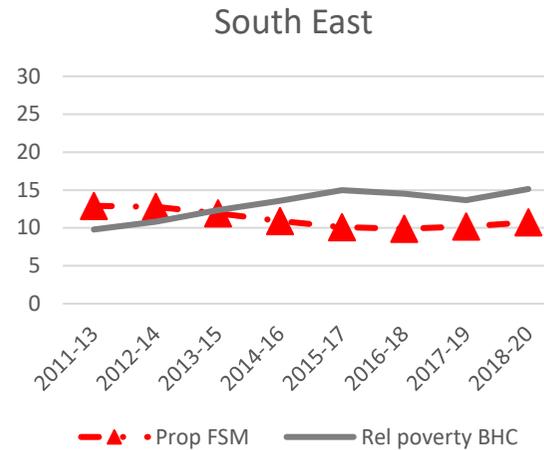
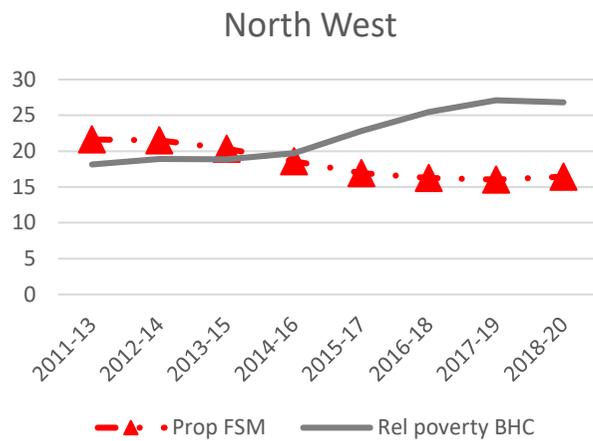
There are some differences across regions in the relationships over time between rates of FSM attribution to Reception children and survey estimated poverty rates for children of the same age. In the East Midlands, the North West, the West Midlands, the South West, and Yorkshire and the Humber (and to a less pronounced extent, the East of England and the South East), the trend appear to be a pulling down of FSM rates away from rising poverty estimates, which is congruent with the overall national patterns in this paper and indications of increased under-attribution of FSM to eligible children over time.

However, in London and the North East, a pattern is suggested of increased alignment between FSM rates and poverty estimates, driven in London predominantly by a fall in the proportion of children recorded as FSM.

Note that comparisons in Figure 20 are preliminary, as they average over years of data, and use only one estimate of child poverty: relative poverty before housing costs. Note also that differences may to an extent currently unknown be an artefact of HBAI measurement and instruments, as well as patterns of FSM-attribution.

**Figure 20: Comparing the average percentage of Reception children within each region who are attributed FSM status within each three-year period, to the percentage estimated through HBAI survey data as living in relative poverty (BHC) in the same period**





Source: FSM proportions are authors' analysis of NPD Spring Schools Census data 2010-2018. Ns: 2011-13=1,835,711, 2012-14=1,879,019, 2013-15=1,914,801, 2014-16=1,940,955, 2015-17=1,970,965, 2016-18=1,968,711, 2017/19=1,939,457, 2018/20=1,900,464. Child poverty rates are authors' analysis of HBAI data (DWP, 2021a). Ns: 2010/11-2012/13=1,004, 2011/12-2013/14=917, 2012/13-2014/15=926, 2013/14-2015/16=908, 2014/15-2016/17=909, 2015/16-2017/18=868, 2016/17-2018/19=837, 2017/18-2019/20=820.

## 4. Discussion

The main focus of this early paper has been to explore whether FSM in the Reception year, as recorded in the NPD, can reasonably be used as a consistent proxy for an equivalent group of children over time: either of children with similar (low) family income / family circumstances, or, at least, of an apparently commensurate group of children – even if what defines this group and distinguishes it from the non-FSM group is not entirely observable, and exists in practice within something of a black box.

Previous research, discussed in the introduction, has shown that even within a single cohort of children, FSM status does not provide a clean, binary threshold divide between low-income and higher-income children; nor does it separate at a clear, conceptually logical point children who can be conceived of as falling along a continuum of 'disadvantage.' Reporting analyses for the (then) Department of Children, Schools, and Families in 2007, Halse & Ledger concluded that use of the FSM measure could demonstrate at a high level a: 'financial hardship gap in attainment and progression,' but that: 'It does not adequately demonstrate the magnitude of that gap. The success or failure of policy interventions to reduce the socio-economic status attainment gap needs to be evaluated on more than just FSM status' (p6).

Findings here, more than a decade later, reinforce this message, within a context where FSM continues to be used to evaluate the divergence and convergence of children's fortunes, and to distribute resources and target interventions. They further problematise the FSM measure by suggesting that, according to factors that can easily be tracked within the NPD and in external data, the premise of steady equivalence of the FSM-attributed group in Reception does not seem to hold. The groups of children identified as FSM and non-FSM are not equivalent over the years, for different cohorts. The FSM vs non-FSM delineation is not static, though it is

sometimes treated as a static construct in statistical reporting and research and policy-making.

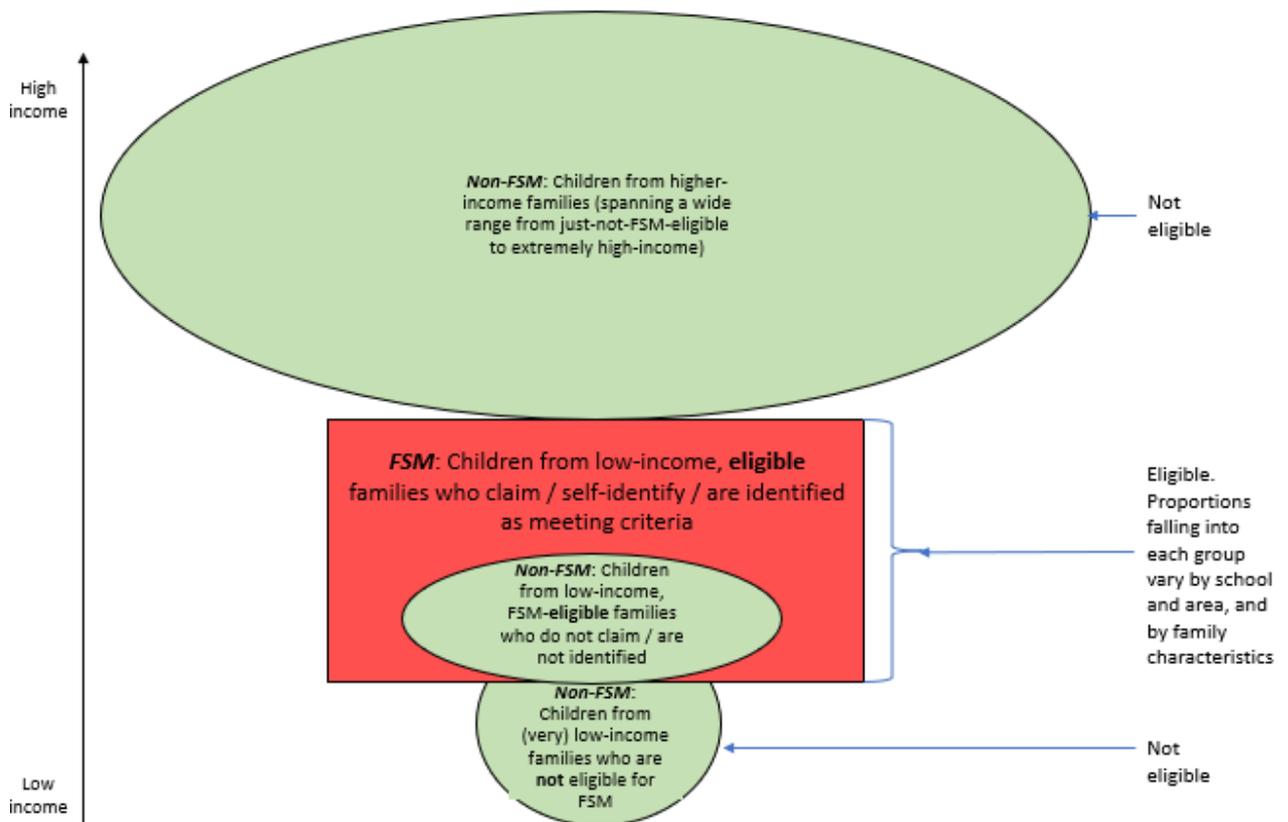
Figure 21, below, updates the evidence on FSM denotation by incorporating results from the current paper on change over time and cohorts. It reiterates that whether a child is recorded as FSM in their Reception year depends on identification practices and patterns of (under-)attribution at the school and local authority level; on their own family's decision / knowledge about self-identifying; on receipt of qualifying welfare assistance denoting eligibility (criteria for which change over time, and which does not cleanly delineate or include those who are in higher or lower-income families, nor more or less 'deprived').

Whether and how these aspects of identification and under-identification vary across years and cohorts, and interact with the observable decrease in proportions of children attributed FSM, is as yet unknown. Whether the observed increase in the proportion of FSM-attributed children recorded as White British, and the decrease in non-FSM children recorded as speaking English as an additional language is due to differences in patterns of (under-)identification in different local areas is also yet fully to be explored, along with more detailed investigation of how changes to the type of areas in which FSM-recorded children are identified and ascribed intersect with these factors.

These multiple uncertainties and complexities have implications for the validity of comparisons over time between the FSM-attributed and non-FSM-attributed groups, and for whether the causes of changes in 'gaps' over time can be situated at the level of policies or interventions within the education system (or elsewhere) targeted at these groups. They suggest that at least some of the variation between FSM/non-FSM-attributed children between cohorts may be due to the composition or situation of the groups ascribed, rather than to policies directly impacting upon particular children.

Crucially, early findings here may also provide some explanation for **lack** of apparent measurable impact of policies attempting to target children according to family circumstance (e.g. Riordan & Joplin, 2021). Genuine change and effect may be obscured within complexity, uncertainty, and fuzziness, and recognising impact may be hampered by difficulties with measurement.

**Figure 21: Updated: What current evidence suggests about children denoted FSM vs non-FSM in the NPD, and changes to this over time (Not to scale)**



Proportionately fewer Reception children recorded as FSM over time (at odds with estimates of child poverty)

Proportionately more Reception FSM children recorded as of White British ethnicity over time

Proportionately more Reception non-FSM children recorded as speaking English as an additional language (EAL)

Proportionately fewer Reception children recorded as FSM living in areas with recorded high child poverty (IDACI)

Proportionately more Reception children recorded as non-FSM living in urban areas

Proportionately fewer Reception children recorded as FSM living in London

Time (spanning 2010-2018/20) →

There is something of a circularity in the use of the FSM measure in policy and research: at the mean average / aggregate level, it strongly predicts other observable / recorded factors, so, pragmatically, and with some justification given the known associations between family circumstances and educational outcomes, it is utilised and treated as a key factor on which to base policies, investigations, and conclusions. But further scrutiny of who exactly is captured at different points in time by the FSM measure is important, particularly because FSM-denotation does not simply describe: it constructs and determines.

FSM attribution determines school funding, policy prioritisation, and interventions at the higher, aggregate level. It is used at the individual-level within a deterministic system, contributing to shaping children's trajectories. Being recorded as FSM reifies and influences pupils' position and treatment within the educational structure (Demie, 2013; FFT, online; FFT Aspire, 2018; 2019; Riordan & Joplin, 2021), and there is a large body of research indicating that teachers judge pupils according to the groups of which they are (perceived as being) members, and according to their individual (ascribed) characteristics, and that this can affect children's pathways (Campbell, 2015; Johnston et al, 2019; Timmermans et al, 2018; Wang et al, 2018).

So patterns of and potential error, bias and inconsistency in FSM ascription are worthy of further investigation, because being identified and recorded as FSM may influence children's school experiences independently of or in interaction with actual FSM eligibility according to family income (and / or other aspects of family circumstance that FSM is used to proxy and represent: 'disadvantage,' 'deprivation,' 'social class'). As described in this paper and demonstrated by previous research, there is no doubt that recorded FSM status does not align perfectly with any of these circumstances (nor do these circumstances align fully with one another [Cooper, 2017]): so how do attribution and tendencies of attribution at the

family, school, and local level intertwine to form the realities of children's educational experiences and outcomes?

The research begun in this working paper will thus be extended to continue to explore who is picked up by the FSM measure at different points in time, and in different places, as well as associations between attribution and children's educational pathways, at the individual and aggregate level. The extent to which FSM-attribution corresponds, and varies in correspondence, to the constructs it is implicitly and explicitly intended or taken to represent in policy and research discourses – 'working class,' 'deprivation,' 'disadvantage,' 'poverty' – will also be investigated, along with whether these correspondences fluctuate according to children's age, stage, area, and cohort. Lastly, research will consider alternatives to FSM, including – given the impossibility of any one 'perfect' measure, multi-dimensional measures – for use in analysis, funding-allocation, and policy-making.

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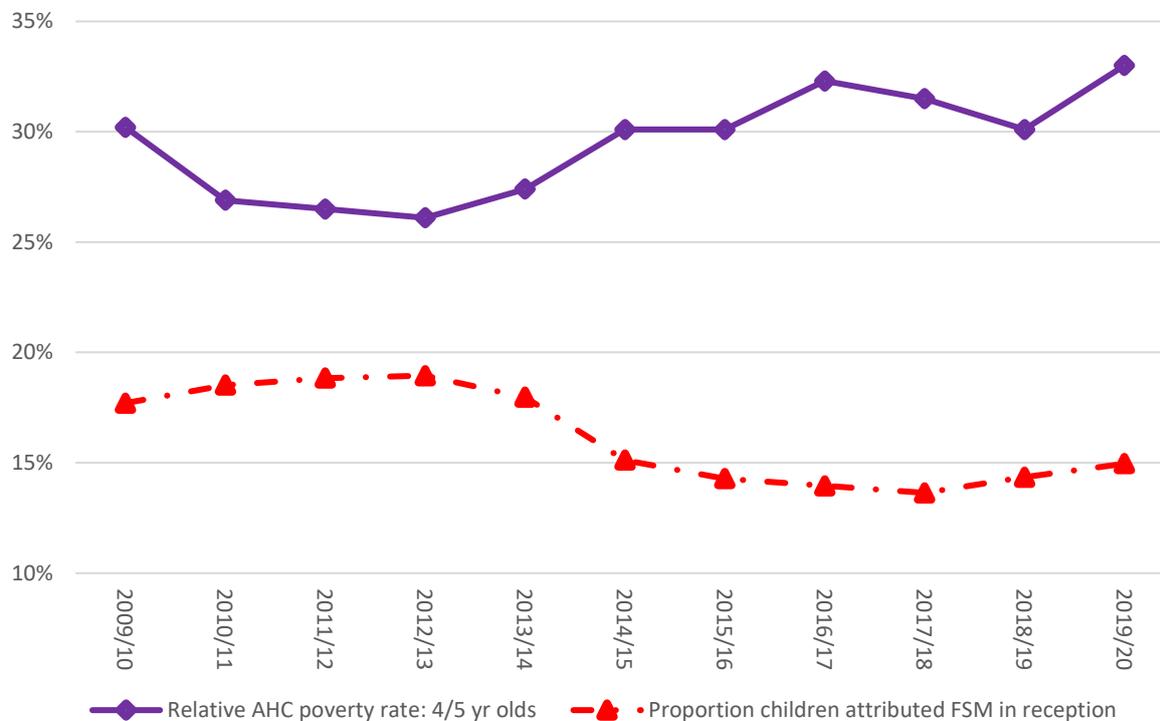
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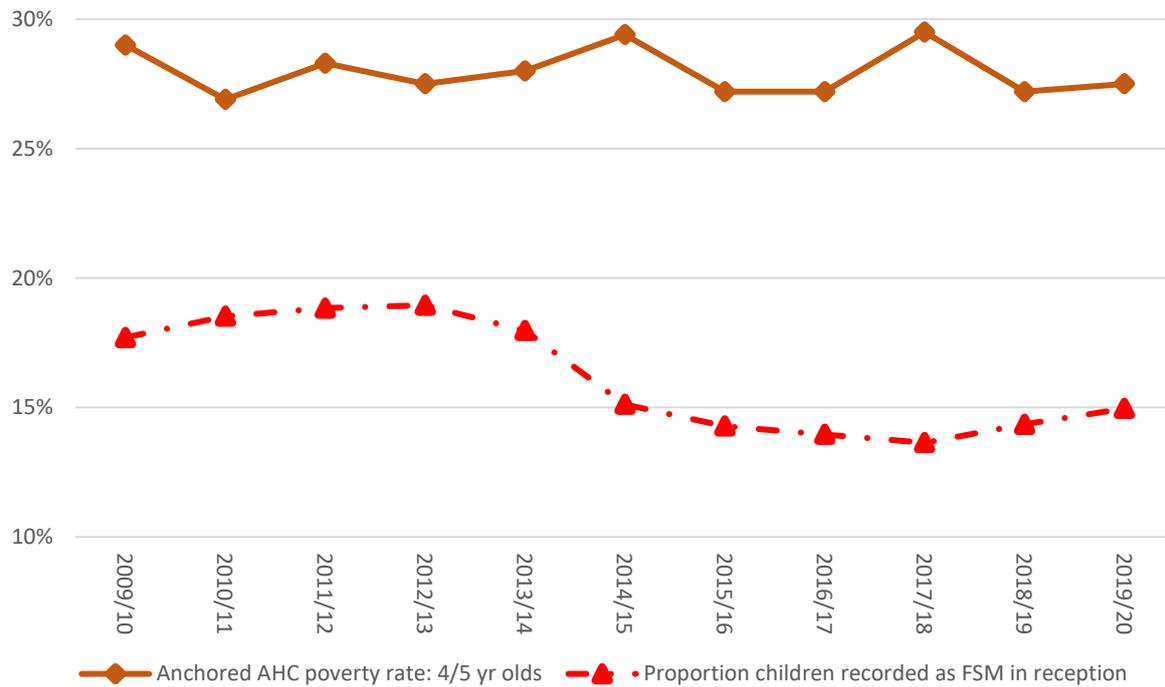
## Annex A

**Figure A1: National proportion of children attributed FSM status in Reception, and estimated child poverty rates (relative poverty rate after housing costs) among 4/5 year-olds, 2010-2020**



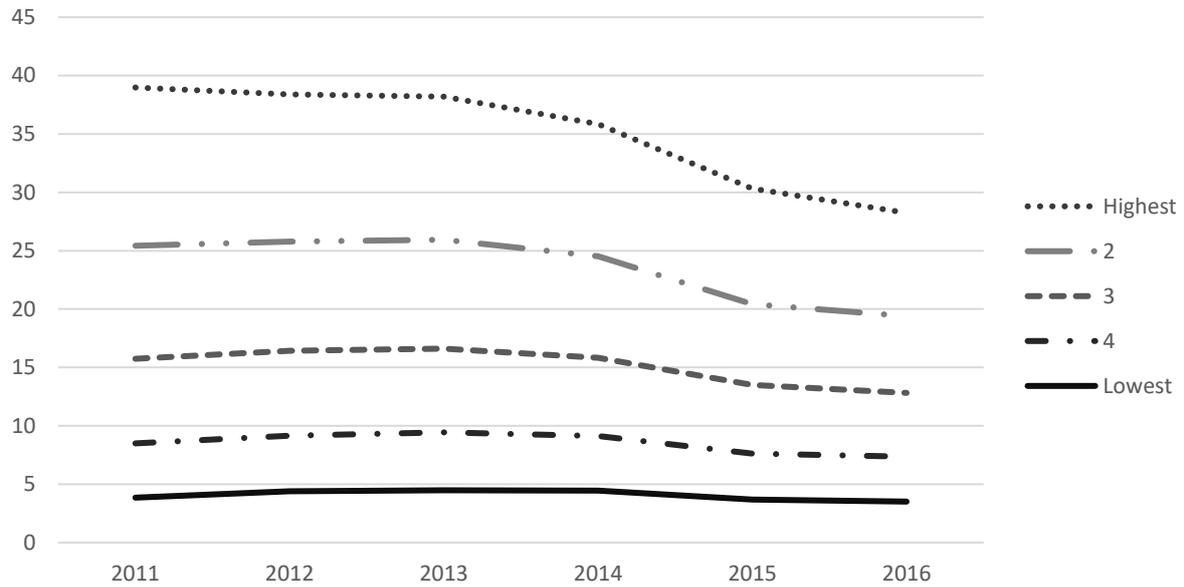
Source: FSM proportions are Authors' analysis of NPD Spring School Census data, 2010-2020. Ns as in Figure 2. Child poverty rates are authors' analysis of HBAI data (DWP, 2021a). Ns: 2009/10= 1130, 2010/11=1143, 2011/12=900, 2012/13=968, 2013/14=883, 2014/15=926, 2015/16=916, 2016/17=885, 2017/18=804, 2018/19=822, 2019/20=833.

**Figure A2: National proportion of children attributed FSM status in Reception, and estimated child poverty rates (absolute poverty rate after housing costs) among 4/5 year-olds, 2010-2020**



Source: FSM proportions are Authors' analysis of NPD Spring School Census data, 2010-2020. Ns as in Figure 2. Child poverty rates are authors' analysis of HBAI data (DWP, 2021a). Ns: 2009/10= 1130, 2010/11=1143, 2011/12=900, 2012/13=968, 2013/14=883, 2014/15=926, 2015/16=916, 2016/17=885, 2017/18=804, 2018/19=822, 2019/20=833.

**Figure A3: Proportion Reception children living in areas with each rank quantile of deprivation affecting children (IDACI) attributed FSM status in Reception each year**



Source: Authors' analysis of NPD Spring Schools Census data 2011-2016. N in Reception 2011= 587,650, 2012=609,406; 2013=633,175; 2014=631,176; 2015=645,207; 2016=659,677





Shapefile source: Office for National Statistics, licensed under the Open Government Licence v.3.0. Contains OS data © Crown copyright and database right [2018]. Maps produced using QGIS.