Social Mobility Index – Methodology

Objectives

Our main aim in developing the Social Mobility Index was to look at the impact that geography has on social mobility.

It is – essentially – an attempt to answer the question:

> *"What are the differences between different local areas in the chances that a child from a disadvantaged socio-economic background has of doing well as an adult?"*

Issues faced in measuring local differences in social mobility

One way of looking at differences in social mobility would be to look at **actual social mobility outcomes** by comparing the incomes achieved in adult life by people who grew up in disadvantaged circumstances across different local areas.

This is the approach taken by Chetty et al in creating local social mobility measures for the United States of America using administrative data from tax returns, taking advantage of the fact that every US citizen has to fill out a tax return and the ability to link parental and child tax returns to look at differences in social mobility between very small local areas.[1]

However, **the necessary data to carry out such analysis does not exist in the United Kingdom**. Birth Cohort studies – used by academics to develop measures of social mobility for the UK as a whole – are too small to allow them to be reliably broken down at a local level. The recent inclusion of a question on social background in the Labour Force Survey should shed more light on local differences in social mobility, though it is based on where people *currently live* rather than *where they grew up* so necessarily has limitations in looking at the social mobility prospects of young people growing up in a particular area.

A further issue is that **data on actual social mobility outcomes would only be available with long time lags**. The latest available data on UK social mobility from Birth Cohort studies in the UK refers to those born in 1970 – attending primary school in the late 1970s, secondary school in the 1980s and entering the labour market in the late 1980s and early 1990s. A measure of local social mobility based on actual outcomes would therefore not be up-to-date: for example, it would not take into account changes in educational outcomes or the impact of the expansion of higher education seen since the 1980s or the potential impact of the greater focus on social mobility seen since the early 2000s.

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[1] http://www.equality-of-opportunity.org/index.php/component/content/article?id=82

Developing a Social Mobility Index

To deal with the two issues highlighted above, we combined a suite of indicators that will be associated with the chances of someone from a disadvantaged background having good prospects for experiencing upward social mobility to create a single Social Mobility Index. We focus on two types of outcome:

- First, we look at the **educational outcomes achieved by those from poorer backgrounds in each local area**. Academic research demonstrates that the key determinant of how successful someone is in terms of securing a good job with a decent salary is the level of educational qualifications they achieve. We have looked at a range of outcomes achieved by children and young people from disadvantaged backgrounds from the early years, through primary and secondary school, to post-16 outcomes and higher education participation.
- Second, we look at **outcomes achieved by adults who live in the area**. This allows the index to take into account the prospects that people have of converting good educational attainment into good outcomes during adult life. We have looked both at labour market outcomes – average incomes, the prevalence of low-paid work and the availability of managerial and professional jobs – and at housing market outcomes – the affordability of housing in the local area and the extent to which people are able to enter home ownership when they decide to settle down and start a family.

Such an approach does, of course, have a number of limitations and it cannot provide a definitive assessment of differences in social mobility by geography. However, it should be a good guide to which areas provide young people from disadvantaged backgrounds the most opportunity to do well as adults and identify interesting differences between local areas in the extent to which disadvantaged young people are able to fulfil their potential.

Indicators used in the Social Mobility Index

As described above, we identified four different life stages in which we would look at indicators of social mobility: **early years, school, youth and adulthood**. A summary of the indicators we used is provided in Table 1.

Early years – two indicators

We looked both at the quality of nursery education that children from low income families attend and the early development outcomes that they achieve.

Data constraints meant that it was only possible to look at the overall quality of nurseries within each local area rather than look specifically on the quality of nursery education accessed by poorer children living in each local area.

The Department for Education provided us with unpublished data on the early years outcomes achieved by children eligible for FSM by the local authority district where they live.

School – four indicators

We looked at the quality of primary and secondary schools accessed by children from poorer backgrounds and the outcomes they achieved at age 11 and at GCSE.

We constructed our own dataset looking at the quality of primary and secondary school accessed by children eligible for FSM in each local authority district by matching Ofsted data to data from the school census. However, it was only possible to get data on the basis of schools located in each local area rather than on the basis of the schools young people living in each area actually attended.

The Department for Education provided us with data on the primary and secondary school outcomes achieved by children eligible for FSM by the local authority district where they live.

Youth – five indicators

We looked at five different indicators of post-16 destinations, including the proportion of poorer young people who dropped out of education and work after GCSEs, attained A-level or equivalent qualifications, progressed to higher education and progressed to the most selective universities.

Data was available for the proportion of poorer young people who dropped out of education or progressed to higher education on the basis of where they attended school for GCSEs as part of Department for Education Key Stage 4 destinations data and BIS Widening Participation Statistics.

The Department for Education provided us with data on the proportion of young people eligible for FSM living in each local authority district who achieve 2 or more A-

levels or equivalent qualifications by the age of 19 and the average A-level points scores that they achieved. The Department for Business, Innovation and Skills kindly provided us with data on the proportion of young people eligible for FSM progressing to one of the most selective third of universities by the age of 19, though this was only available on the basis of where they attended school for GCSEs.

Adulthood – five indicators

We looked at three different indicators looking at labour market outcomes – average income, prevalence of low pay and proportion of jobs in managerial and professional occupations – achieved by those in the local area to get a sense of chances of getting a good job after completing education. We looked at two different indicators of housing market outcomes – housing affordability and the proportion of families with children who owned their own home – to get a sense of living standards and opportunities for people to achieve their aspirations of home ownership and a stable home.

All of the data we required were already published either as part of ONS local labour market statistics or ONS ad hoc releases. We constructed the housing affordability measure ourselves using ONS data on average income and average house prices. We constructed the home ownership measure using data from Census 2011.

Table 1 – Indicators used in the Social Mobility Index

Life Stage	Indicator	Who does the data refer to?	Residence or service location?	Geographical area
Early Years	% of nursery providers rated 'outstanding' or 'good' by Ofsted	Childcare providers	Nursery location	Top tier (150 LAs)
	% of disadvantaged children achieving a 'good level of development' at the end of the Early Years Foundation Stage	Children eligible for FSM	Residence	Bottom tier (324 LADs)
School	% of disadvantaged children attending a primary school rated 'outstanding' or 'good' by Ofsted	Children eligible for FSM	School location	Bottom tier (324 LADs)
	% of disadvantaged children attending a secondary school rates 'outstanding' or 'good' by Ofsted	Children eligible for FSM	School location	Bottom tier (324 LADs)
	% of disadvantaged children achieving at least a level 4 in reading, writing at maths at the end of Key Stage 2	Children eligible for FSM	Residence	Bottom tier (324 LADs)
	% of disadvantaged children achieving 5 good GCSEs including English and maths	Children eligible for FSM	Residence	Bottom tier (324 LADs)
Youth	% of disadvantaged young people not in education, employment or training one year after completing Key Stage 4	Children eligible for FSM	School location	Top tier (150 LAs)
	Average points score per entry for disadvantaged young people taking A-level or equivalent qualifications	Children eligible for FSM	Residence	Bottom tier (324 LADs)
	% of disadvantaged young people achieving 2 or more A-levels or equivalent qualifications by the age of 19	Children eligible for FSM	Residence	Bottom tier (324 LADs)
	% of disadvantaged young people entering higher education by the age of 19	Children eligible for FSM	School location (at age 15)	Top tier (150 LADs)
	% of disadvantaged young people entering higher education at a selective university (most selective third by UCAS tariff scores) by age 19	Children eligible for FSM	School location (at age 15)	Top tier (150 LADs)
Adulthood	Median weekly salary of people who live in the local area	All employees	Residence	Bottom tier (324 LADs)
	Average house prices compared to median annual salary of people who live in the local area	All employees	Residence	Bottom tier (324 LADs)
	% of people who live in the area who work in managerial and professional occupations (SOC 1 and 2)	All in employment	Residence	Bottom tier (324 LADs)
	% of jobs in the local area who are paid less than the applicable Living Wage Foundation living wage	All employees	Job location	Bottom tier (324 LADs)
	% of families with children who own their own home	All families with children	Residence	Bottom tier (324 LADs)

Key methodological decisions

There are a number of possible ways in which a social mobility index could be constructed. This section details the key methodological choices we made and explains why we made the decisions we did.

What do we mean by social mobility?

Our methodological approach means we are focusing entirely on upward social mobility of disadvantaged young people.

We also look at social mobility broadly, looking at things associated with short-range mobility (e.g. 5 good GCSEs including English and maths and few low paying jobs), mid-range mobility (e.g. obtaining a degree, entering a managerial or professional occupation and becoming a home owner) and long-range mobility (e.g. obtaining a degree from one of the most selective universities in the country).

Definition of disadvantage

There are two potential choices: either looking at those from low income backgrounds or looking more broadly at those from working class backgrounds. Given data constraints, we have decided to focus on those eligible for free school meals – the most disadvantaged 15-20 per cent of children.

Level of geography

There are two potential choices: either the 150 top tier local authorities or the 324 bottom tier local authorities (excluding the City of London and the Isles of Scilly due to data constraints given by the size of these authorities). The difference between these is whether to include data for the 27 top-tier shire counties or the 201 bottom-tier non-metropolitan districts covering the same areas (the remaining 123 areas are single tier authorities).

We decided to focus on the 324 bottom tier local authorities. The main advantage of the lower level of aggregation is that many shire counties are extremely large – for example, Kent has a population of 1.5 million and there are five other counties with populations in excess of 1 million – meaning that poor performance in some parts of a shire county can be masked by good performance elsewhere. The main disadvantage is data availability – we were unable to get data for some of the indicators at shire district level and in these cases we had to make the assumption that all districts perform at the same level as the county as a whole.

Measuring outcomes at a local level

As we are interested in the life chances of those who grow up in a given local area, we wanted to look at outcomes of all young people who live in a certain area rather than those who attend nurseries, schools and colleges in that area.

While this might seem a subtle difference, there is much "migration" between different local areas, especially within conurbations, in areas where there are

selective schools and in post-16 education. For example, 56 per cent of 15-year-olds who attend schools in Kensington and Chelsea live in other local areas and 40 per cent of 15-year-olds who live in Hammersmith and Fulham attend schools elsewhere.

This can mean that there is a very big difference between outcomes on a residence and on a service location basis if the attainment of those who enter a local area is very different to those who are educated elsewhere. For example, while 67 per cent of young people who live in Sevenoaks get 5 good GCSEs including English and maths, only 40 per cent of those who go to school there do. This effect is even bigger when looking at post-16 outcomes given the geographical patterns and academic selectiveness of further education provision: for example, in 2010-11 the average A-level points scores of young people living in Reading was 20 per cent lower than the average A-level points scores of students attending sixth forms or colleges in Reading.

This creates an issue for the index because most headline statistics around educational outcomes are published on a "service location" basis. For example, headline GCSE data looks at the outcomes achieved by all those attending schools in the local area rather than by those living in the local area. The disadvantage of ranking areas on the same basis as headline statistics is that local areas who perform well on these measures are in many cases not actually doing well for the children who actually live there e.g. if it has selective provision which mean it "imports" lots of highly able children and "exports" lots of less academically able children.

Where data for the indicators we used was not published on a residence basis we requested it from government departments. However, it was not possible to get data on this basis for some indicators. This means we are taking a mixed approach using a combination of the two different types of indicators.

Other data issues

There were a couple of other data issues faced in using some of the indicators:
- Missing data: Some local areas were missing data for some indicators, due to small sample sizes making robust estimates difficult or due to other issues in data collection. Our approach to missing data was to use the authority's nearest statistical neighbour as a proxy in these cases.
- Rounded data: Data for NEET statistics and Higher Education participation was only available rounded to the nearest percentage point. This introduced significant inaccuracies for some of the indicators – for example, on average only 4 per cent of young people eligible for FSM progress to higher education, so an error that is +-0.5 percentage points covers quite substantial variation.

Combining different indicators

There are a number of different ways in which the different indicators can be combined together into a single index, from the complex statistical methods used to

produce indices such as the English Indices of Deprivation[2] to simply summing the ranks of each area against each indicator to get an overall rank.

We decided to use a simple standardisation procedure to generate a comparable score for each indicator based on how different performance in each local authority district was to the typical area. We measured this using the number of standard deviations away from the local authority district median performance each authority was. Areas that did better than the typical authority were assigned a positive score for that indicator. Areas that did worse than the typical authority were assigned a negative score for that indicator. This gave 16 different standardised scores, one for each of the indicators used.

We then determined what weight to give each of the indicators in the ultimate index. Weighting the data allows us to attach a different level of significance to different life stages and/or indicators. Decisions over how different indicators are weighted are – essentially – subjective: there is no obvious technocratic way of determining appropriate weights.

With this in mind, our approach was to consider what a neutral approach might look like. We decided to:
- Weight each of the four different life stages equally: performance against the early years, school, youth and adulthood indicators each accounted for a quarter of the Social Mobility Index.
- Weight each of the indicators within each life stage equally: everything being measured in each life stage was assigned equal importance.

We then calculated an overall standardised Social Mobility Index using the weighted sum of all of the different indicators and life stages that formed the index.

A positive score indicators that an authority performs better than average and a negative score indicates that an authority performs worse than average. This was used to develop rankings of the different local areas and categorise them as "social mobility hotspots" (defined as the highest performing 20 per cent of authorities) and "social mobility coldspots" (defined as the lowest performing 20 per cent of authorities).

Our data and findings

We have published an Excel workbook containing all of the data we used to create the Social Mobility Index – the indicators, the standardised scores for each indicator and the overall weighted Social Mobility Index, as well as the rankings for different authorities overall, for each life stage and for each individual indicator.

We have also included functionality to allow the weights used for the four different life stages and the indicators within them to be altered by readers to allow the impact on our conclusions of choosing alternative weights to be explored.

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[2] https://www.gov.uk/government/publications/english-indices-of-deprivation-2015-technical-report

Finally, the Excel workbook includes new previously unpublished data on educational outcomes achieved by young people eligible for free school meals in 2013-14 based on the local authority district in which they live.