‘Childhood Disadvantage and Intergenerational Transmissions of Economic Status’

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Introduction

Many people are interested in the extent to which inequalities persist across generations. It is straightforward to establish why one should care about the extent of intergenerational transmission. For an offspring to be in an advantageous or disadvantageous position simply because of their parents’ achievement has a distinct feel of unfairness to it, particularly from an equality of opportunity perspective. Many individuals across the political spectrum would champion the cause of equality of opportunity and this is why accurately measuring the extent of intergenerational transmission is important. In the same way, pinning down the transmission mechanisms that underlie intergenerational transmissions is important, especially those associated with childhood disadvantage.

Recent estimates of the extent of intergenerational transmission of economic status

Economists have typically considered intergenerational mobility in terms of earnings, income or education in two, rather simple, ways. The first uses a tool commonly utilised in economics, regression analysis, whilst the second considers movements up or down a distribution of interest. I therefore begin by summarising work on intergenerational earnings mobility that uses these approaches before turning to consider intergenerational transmissions of other measures of economic status.

The Regression Based Approach

The regression based approach typically specifies an earnings equation for members of family i of the form

$$(1) \qquad y_i^{child} = \alpha + ß\, y_i^{parent} + u_i$$

where y is earnings and u an error term.

In terms of equation (1) one can assess the extent of intergenerational mobility (or immobility) from estimates of ß: ß = 0 implies complete mobility as child earnings are independent of those of their parents; ß = 1 implies complete immobility as child earnings are fully determined by the parental earnings.

Most early studies in economics adopted this approach. The survey of this early work by Becker and Tomes (1986) states that ß was generally estimated at around 0.2, leading them to conclude that “aside from families victimized by discrimination, regression to the mean in earnings in the United States and other rich countries appears to be rapid” [Becker and Tomes, 1986, p. S32]. However, more recent estimates have strongly challenged this view and pointed out serious methodological problems with the early work (see Solon, 1992, Zimmerman, 1992, and Dearden, Machin and Reed, 1997, for more details on these problems). The following table summarises some of the more recent estimates, all of which show estimates of ß that tend to lie some way above the 0.2 “consensus” estimates described by Becker and Tomes. They all seem to imply a significant degree of immobility that violates the equality of opportunity characteristic of complete intergenerational mobility. For example, the ‘typical’ father-son ß estimate in the Dearden, Machin and Reed (1997) study suggests that a son from a family (say family 1) with father’s earnings twice that of a father in another family (say family 2) earns 40-60% more than the son from family 2.

The Transition Matrix Approach

Author	Data	Estimate of ß
Becker and Tomes (1986)	“Consensus” estimates from early (mainly US) studies	About .200
Atkinson (1981) and Atkinson et al. (1983)	UK data on 307 father-son pairs with sons subsequently traced (in the late 1970s) from 1950 Rowntree survey in York	0.36 – 0.43
Solon (1992)	US panel data from the Panel Survey of Income Dynamics on about 300 father-son pairs	0.39 – 0.53
Zimmerman (1992)	US panel data from the National Longitudinal Survey of Youth on 876 father-son pairs (but most estimates based on less than 300)	0.25 – 0.54
Dearden, Machin and Reed (1997)	UK panel data from the National Child Development Study (a cohort of all children born in a week of March 1958) using earnings data for cohort members in 1991 and parents in 1974 – 1565 father-son pairs, 747 father-daughter pairs	Sons: 0.4 – 0.6 Daughters: 0.5 – 0.7

[1] This article is an updated version of my paper that appeared in CASEpaper 4: A B Atkinson and John Hills (editors) “Exclusion, Employment and Opportunity’, January 1998.

Of course the single number ß estimates given above are simply average estimates of the degree of intergenerational mobility. There may be important variations around this average. So the second commonly used approach for ascertaining the extent of intergenerational mobility uses transition matrices which split the parental distribution of economic status into a certain number of equal sized intervals (maybe quartiles, quintiles, or deciles) and then examines how many of their offspring remain in the same interval or move elsewhere. An example, in terms of quartile transmissions (where one splits the parental earnings distribution into four equal parts) based on data taken from the Dearden, Machin and Reed (1997) study is given below:

1565 Father-Son Pairs	Son's Quartile			
Father's Quartile	Bottom	2nd	3rd	Top
Bottom	.338 (.024)	.297 (.023)	.238 (.022)	.128 (.017)
2nd	.294 (.023)	.312 (.023)	.253 (.022)	.140 (.018)
3rd	.304 (.023)	.243 (.022)	.243 (.022)	.209 (.021)
Top	.064 (.012)	.148 (.018)	.266 (.022)	.522 (.025)
747 Father-Daughter Pairs	Daughter's Quartile			
Father's Quartile	Bottom	2nd	3rd	Top
Bottom	.366 (.035)	.321 (.034)	.193 (.029)	.118 (.024)
2nd	.274 (.033)	.305 (.034)	.262 (.032)	.160 (.027)
3rd	.231 (.031)	.219 (.030)	.305 (.034)	.246 (.032)
Top	.129 (.025)	.155 (.027)	.241 (.031)	.476 (.037)

The table shows, from looking at the leading diagonal, that the biggest proportion of sons who remain in the same quartile as their fathers is in the top (i.e. highest earning) quartile. This is very marked with 52 percent of sons remaining in the top earnings quartile if their fathers were in that top quartile (for daughters the analogous percentage is 48 percent). The table demonstrates an important asymmetry in mobility with upward mobility from the bottom of the distribution being more likely than downward mobility from the top.

Intergenerational Transmissions of Unemployment

Whilst most work on intergenerational mobility has looked at transmission in terms of earnings, income or educational attainment, some work has looked at the unemployment status of sons and how it relates to unemployment experiences of their fathers. In their analysis of National Child Development Study (NCDS) data Johnson and Reed (1996) report that 9.9 percent of sons had been unemployed for a year or more in the decade preceding 1991 (when they were aged 33). However, 19.1 percent of sons whose fathers were unemployed at (child) age 16 experienced at least a year of unemployment between 1981 and 1991.

Intergenerational Transmissions of Early Parenthood

Again using NCDS data Kiernan (1995) considers intergenerational transmission of teenage motherhood by looking at the extent to which young parents also had young parents themselves. A strong pattern is found with 26 percent of the cohort's teenage mothers also having a teenage mother, as compared to 10 percent of the cohort's mothers who gave birth at the age of 20 or after.

Summary

The research discussed in this section shows that an important part of an individual's economic and social status is shaped by the economic and social status of their parents. In the next section I go on to discuss work that tries to get into the 'black box' of transmission to see what factors may underpin the strong intergenerational correlations depicted in the studies discussed above.

Childhood disadvantage as a transmission mechanism

The principal impact of parents on their children is shaped in the childhood years of growing up. The most natural question to ask is then: how important is childhood advantage or disadvantage as a transmission mechanism underpinning intergenerational mobility and how do they impinge on success or failure in economic and social terms in adulthood?

Ability in the Early Childhood Years and Parental Economic Status

In its strongest form (abstracting away from debates about genetic transmission) perfect mobility ought to suggest little relation between child ability and economic status. If a relation is uncovered one could think of this as being part of the transmission mechanism underpinning transmissions of economic status across generations. The following regression (taken from Machin, 1997) considers this question by relating the test scores of NCDS cohort members' sons and daughters (aged 6-8) to parental earnings (in 1991)[2]:

619 (Maths) / 617 (Reading) Child and Cohort Member Pairs (standard errors in brackets)

Child's Maths Test Score Percentile	=	6.932 ln(Parent's Earnings) (1.939)
Child's Reading Test Score Percentile	=	4.720 ln(Parent's Earnings) (1.903)

There is a strong relationship. A 50 percent higher level of log(parental earnings) suggests that a child would be around 3.5 percentile points higher in the age 6-8 maths test score distribution and 2.5 percentile points higher in the reading score distribution. To the extent that these test scores are positively correlated with subsequent economic success (and quite a lot of evidence says they are), then growing up in a family where father's labour market earnings are high seems to be an important stepping stone to having higher earnings later in life.

Childhood Disadvantage and Success or Failure in the Labour Market

So, how do early life factors like childhood poverty or social disadvantage influence individuals' achievements in adulthood? In particular, how does growing up in a disadvantaged environment influence subsequent success or failure in the labour market? Gregg and Machin (1998) have considered this question in some detail by analysing data from the National Child Development Study (NCDS).

To understand how disadvantage transmits itself into adult life it is necessary to separate out the effects of childhood poverty from parental factors or innate child ability. Gregg and Machin do this by using the extremely rich NCDS data source[3] to model economic and social outcomes in the earlier years of adulthood as a function of childrens' development through environmental, parental and individual specific factors. By following people through childhood and into the adult labour market this enables one to focus on the effects of factors like financial distress in the childhood years[4] or measures of social dislocation (e.g. contact with the police or truancy) after controlling for the early age ability of children (via test scores at age 7) and other factors like parental education. The Gregg and Machin analysis of NCDS has uncovered important patterns that demonstrate a strong effect of childhood disadvantage on adult economic and social outcomes even once one nets out these factors.

At age 16 the main results are as follows:

- staying on at school, better school attendance and reduced contact with the police are more likely for children with higher age 7 maths and reading ability, for children with more educated parents and for children who grew up in families that did not face financial difficulties in the years in which children grew up;

- the impact of family financial difficulties is more important than family structure (whether the father was ever unemployed, or living in a lone mother family);

- if children were ever placed in care during their childhood this massively increased their chances of contact with the police.

In terms of acting as a transmission mechanism underpinning intergenerational mobility, probably the key question concerns the extent to which these factors impact on later economic and social success or failure. To investigate this, Gregg and Machin considered the relationship between economic and social outcomes at ages 23 and 33 and an array of measures of disadvantage in the childhood years.

Not unsurprisingly the educational attainment of the disadvantaged is considerably lower: for example, only 1 percent of boys who had school attendance less than 75% or who had been in contact with the police went on to get a degree (or higher) by age 23; this compares to 13 percent of the other NCDS boys. Figures for girls are 1 percent and 11 percent respectively. In terms of family disadvantage only 4 percent of boys (3 percent of girls) who were ever placed in care or lived in a family facing financial difficulties went on to degree level as compared to 13 percent of boys (11 percent of girls) who were not in such a situation in their childhood years.

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[2] The regressions are based on children aged 6 years 0 months to 8 years 11 months at the time of the test and include a constant and controls for sex of the child and the cohort member parent.

[3] The NCDS data covers all individuals born in a week of March 1958 and the cohort members (and in some years their parents and schools) have so far been interviewed at ages 7, 16, 23 and 33 in 1965, 1974, 1981 and 1991.

[4] The measure of financial distress used in this work closely corresponds to data on child poverty rates computed from Family Expenditure Survey data (see Gregg, Harkness and Machin, 1998).

At the other end of the education spectrum the disadvantaged are heavily over-represented in the part of the population that have no educational qualifications. For example, 53 percent of boys (62 percent of girls) with school attendance less than 75% or who had been in contact with the police left school with no educational qualifications. This compares to 19 percent of boys and 25 percent of girls with better attendance and no police contact.

Because of these striking differences in educational attainment the research then considers whether the effect of disadvantage works primarily through the fact that disadvantaged children have lower education levels or whether any effect still persists once one nets out the effect of education differences between those who are stylised as the disadvantaged and the other children in the sample.

The age 23 economic and social outcomes looked at were: hourly wages; months spent in unemployment since age 16; whether in a job at age 23; whether boys experienced any spell in prison or borstal since age 16; whether girls became lone parents by 23. The age 33 outcomes looked at are wages and job status at 33.

The results demonstrate a strong link between poor economic and social outcomes at 23 or 33 and childhood disadvantage. Whilst part of the link is explained by the inferior education of the disadvantaged this is clearly not the whole story: even once one nets out the effect of education differences the individuals characterised by disadvantage have significantly worse wages, unemployment time, employment and worse social outcomes (i.e. more likelihood of a prison spell for young men and of lone parenthood for young women). The key factors associated with disadvantage are both family based (growing up in a family facing financial difficulties, ever being placed in care in the childhood years) and child specific (low school attendance, contact with the police).

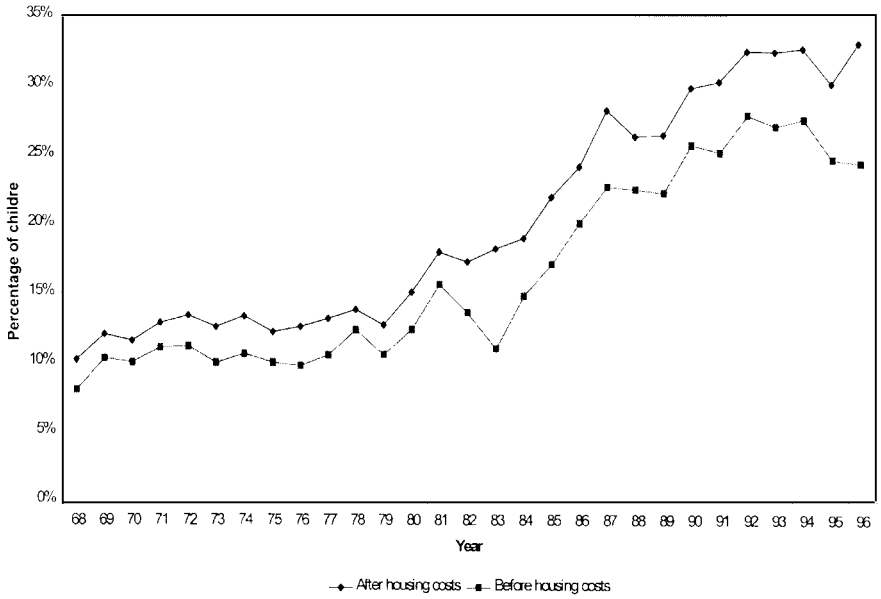
All in all these results are strong evidence that childhood social disadvantage factors have an important impact on age 23 and 33 outcomes. Even after netting out a variety of pre-labour market factors and educational attainment the less advantaged individuals in the NCDS cohort are much less likely to be employed, to have experienced longer unemployment spells and/or detrimental social experiences. Indices of childhood disadvantage like family poverty, family dislocations resulting in children being placed in care, poor school attendance and contact with the police seem to be important factors that underpin the transmission of economic and social status across generations.

Trends in Child Poverty

One of the key findings of the Gregg and Machin work is that family financial distress during the childhood years displays an important association with subsequent economic success or failure, and that this is a key factor underpinning intergenerational transmissions of economic status. This becomes of even more concern when one considers what has happened to child poverty rates in recent years.

Figure 1 based upon Family Expenditure Survey (FES) data and taken from Gregg, Harkness and Machin (1998), shows that child poverty rates have risen very fast in the last thirty years. Between 1968 and 1995/6 the FES data shows that, for income after housing costs, the number of children living in poor households increased from 1.4 to 4.3 million (households are defined as poor if their equivalised income is below half the national average).[5] The proportion of children living in poverty rose from about 1 in 10 in 1968 to just under 1 in 3 by 1995/6. Based on income before housing costs, the number of children in poor households rose from 1.1 million to 3.2 million (or from 8 to 24 percent) between 1968 and 1995/6. Both measures therefore show a striking increase, with child poverty tripling over this time period.

Figure 1. Percentage of children living in poverty



Note: The poverty line is defined as half average equivalised income in each year.

[5] This includes all dependent children of school-age.

To the extent that the NCDS findings discussed above remain valid for more recent cohorts of individuals, these trends in child poverty do not paint a promising picture for the evolution of economic inequalities in future. At the very least the results from this research suggest that child poverty should be on the policy agenda not only because of its increased incidence, but also because of its potentially important impact on the future economic and social fortunes of adults who grow up in poor households.

Conclusions

Accurately measuring the extent of intergenerational mobility and understanding the factors that underpin such mobility or immobility is important, especially when one bears in mind the rapid expansion in inequality that has occurred in Britain in the last couple of decades. The policy implications of this rise become all the more important for future generations if there is not much mobility in economic status across generations. The results reported here suggest that, on the basis of study of quite large samples of parents and children, the extent of mobility is limited in terms of earnings and education. Regression estimates point to an intergenerational mobility parameter (ß) of the order of .40 to .60 for men and .45 to .70 for women. Furthermore, from considering transition matrices, there is strong evidence of an asymmetry such that upward mobility from the bottom of the earnings distribution is more likely than downward mobility from the top. In the same vein, the early age cognitive achievement of children is significantly related to the labour market earnings of their parents and to their parents' maths and reading abilities. All this points to an important degree of persistence in economic success or failure across generations, central to which is the ability of individuals to achieve higher earnings in the labour market.

Furthermore, factors associated with growing up seem to represent an important transmission mechanism that maintains this persistence of economic success or failure across generations. Research based on the unique cohort data bases available in the UK shows that disadvantage in the childhood years has effects long into the adult life and there are often detrimental effects that spillover to the next generation. Having parents with low income or earnings during the years of growing up is a strong disadvantage in terms of labour market success and can contribute importantly to factors like adult joblessness and participation in crime. The fact that these childhood disadvantages underpin the persistence of economic and social stature across generations needs to be borne in mind by policymakers when designing policies that affect labour market outcomes in the longer term.

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