

# Moving on up?

## A look into Intergenerational Educational Mobility in India since Independence

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### Abstract

Are the economic fortunes of children tied to that of their parents or is there a fair chance of movement up and down the economic ladder from one generation to the next? The extent to which parental factors (specifically, parent's educational attainment) relate to the (education) outcomes of their children is the primary question this paper seeks to answer.

Using data from the India Human Development Survey (IHDS) 2012, I examine intergenerational educational mobility in India since 1947, an issue on which very few systematic and rigorous studies exist. The individuals are grouped into classes and patterns of mobility are documented at the all-India level. I found that despite substantial intergenerational persistence, parent's education has an increasingly weaker impact on the child's educational outcome today than in the past. Overall, the results suggest a gradual upward mobility in education in India.

### Introduction

All of us admire stories of the son or daughter of an uneducated daily wage labourer or farmer cracking the Union Public Service Commission or

Indian Institute of Technology's entrance exams. The question, however, is whether such success stories, constituting intergenerational upward mobility in education, are becoming more common or do they constitute mere aberrations?

*Intergenerational mobility* refers to any change in the socio-economic position of members of the same family that takes place from one generation to the next. It is the extent to which some key characteristics and outcomes of individuals differ from those of their parents. Intergenerational mobility has been a pressing issue in India and thus, has wide policy implications. It is an important goal in both developed and developing countries as it indicates the opportunity for children to move beyond their social origins and obtain a status not dictated by that of their parents.

India's rapid economic growth since the 1980s has been accompanied by increasing inequality in *outcomes*, raising widespread concern that it may be a reflection of growing inequality in *opportunities*. Inequality in opportunities across people is of concern for intrinsic reasons and also because it may have an instrumental impact on the development process (World Bank, 2005). It is particularly important for India which stands out as a deeply

stratified society.

However, limited empirical work has been done on this area in India. This paper hopes to make a minuscule contribution to this dearth of literature. I begin by setting the context of education in India, and briefly reviewing selected existing literature on the topic. I then move on to describe the dataset and methodology used, along with the results obtained. Finally, I lay down the implications it has for policy and conclude.

## **Intergenerational Transmission of Education – A Background**

Over the last few years, educational outcomes – as measured by the time a person spends in school<sup>1</sup> – have improved considerably in India. The mean years of schooling have grown across successive generations, for both men and women, in both rural and urban areas.

During this period, the reach of the schooling system has vastly expanded. Universalisation of education, at least at the primary level, has been a political agenda for successive governments that have introduced a series of educational intervention focused on getting

children into school (midday meals, free textbooks, free uniforms, etc). At the same time, the private sector has expanded, especially in urban areas.

As a result, the Gross Enrolment Ratio (GER) for all persons in elementary education increased from 81.6% in 2000-01 to 96.9% (provisional figure) in 2014-15. At this level, the GER for boys and girls increased by 4.5 (from 90.3% to 94.8%) and 26.4 (from 72.4% to 99.2%) percentage points respectively during the period. (Ministry of Human Resource Development, 2016)

The adult literacy rate too has shown an upward trend for females as well as males. It has increased from 61% to 69.3% during the period 2001-2011. This is an indicator of the stock of our human capital. As per NSS 71<sup>st</sup> round findings, the adult literacy rate stands at 70.5% for the year 2014. (Ministry of Human Resource Development, 2016)

With improvement in the number of schools, facilities in schools and enrolment, the annual dropout rate at the primary level has come down by 1.28 percentage points (from 5.62% in 2011-12 to 4.34% in 2013-14) for all categories of students.

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<sup>1</sup> A valid concern, documented in the Annual Status of Education Reports, is that years of schooling is an imprecise measure of cognitive skill formation. Learning outcomes remain much too low and vary across states.

At this level, the dropout rate for boys and girls decreased by 1.36 (from 5.89% to 4.53%) and 1.2 (from 5.34% to 4.14%) percentage points respectively during this period. (Ministry of Human Resource Development, 2016)

However, even as we contemplate with satisfaction the above remarkable achievements, we must focus our attention on improving the quality of education. Number of years a child spends in school is only one measure of educational outcomes. A full understanding of the inequality in educational opportunities would require focusing on educational quality and learning

## Review of Literature

The issue of intergenerational mobility in income, education, and occupation has been extensively explored in the literature. While a wealth of literature has accumulated in Western contexts where these aspects have been studied for a longer period, the study of social and education mobility is still in its infancy in India. However, one advantage that India has is the existence of representative, large-scale data-sets such as IHDS I and II, National Family Health Survey (NFHS) I-IV and the thick National Sample Survey (NSS) rounds. The prospects for analysis on the various forms of social mobility therefore look promising.

Internationally, in economics, there is considerable literature on the transference of economic success

outcomes. But while many household surveys reveal how many children are in school and how many years they spend there, information on the basic competencies they acquire in school is hard to acquire. Years of schooling remains an important indicator to monitor and understand in the Indian context where a large number of children still do not complete the requisite years of school. But, it is to be cautioned that my focus on the changes in mobility captured by the total years of schooling measure represents a partial picture of educational outcomes.

from one generation to the next. That the family plays a crucial role in perpetuating or eliminating inequality has long been recognized by economists. Black and Devereux (Black & Devereaux, 2010) presented a recent survey of the evidence and methodological problems of the research available for the developed economies. Hertz et al. (Hertz, et al., 2007) studied the trends in intergenerational transmission of educational attainment for a sample of 42 nations over fifty years. They documented large regional differences in educational persistence, with Latin America displaying the highest intergenerational correlations, and Nordic countries the lowest. They estimated the global average correlation between parent and

child's schooling to be around 0.42 over the fifty year period.

In India, Jalan and Murgai (Jalan & Murgai, 2007) looked at inequalities in educational outcomes across groups of individuals and the perpetuation of these inequalities across generations using the 1992-93 and 1998-99 NFHS data. They found that intergenerational mobility in education has improved significantly and consistently across generations. Mobility has improved, on average, for all major social groups and wealth classes. The differences in mobility are more along the rich-poor line rather than along caste lines. An important limitation of their analysis is, however, that in the NFHS data, respondents are not directly asked about the education of their parents. Hence, parental outcomes are only known for child-parent pairs that are still living in the same household. As a result, they only focus on children aged 15 to 19 years who are more likely to be living with their parents.

In another paper, Rajarshi Majumder (Majumder, 2010) sought to determine levels of Educational Attainment and Occupational Structure separately for the *Excluded Castes* (SCs, STs and OBCs) and the *Advanced Castes* (Upper Castes) in India; determine mobility across generations in terms of Educational Attainments and Occupational Structure separately for these two classes; and explore whether the mobilities are different for the different groups, separately for two gender groups. He observed that a substantial upward mobility is

present in terms of educational attainment levels. About 48 per cent of children in 1993 and about 56 per cent of children in 2004 have higher educational levels compared to their parents. Mobility is higher for the younger age group compared to the older, and for boys compared to girls. However, social disparity in mobility levels is quite evident. Upward mobility was lower for the excluded castes compared to the advanced castes in 1993. The gap has decreased in 2004, especially for the boys, but is still significant.

Similarly, using a unique father-son matched data set relying on the India Human Development Survey (IHDS)-I, Azam and Bhatt (Azam & Bhatt, 2012) studied the extent of intergenerational mobility in educational attainment in India during 1940-85 and provided an estimate of how India ranks among other nations. They also documented this mobility across social groups and states in India. Further, they investigated the evolution of mobility in educational attainment across the two generations and whether this trend differed across social groups and state boundaries. They found that there have been significant improvements in educational mobility across generations in India, at the aggregate level, across social groups, and across states. Interestingly, they also found that at the lower end of the education distribution, sons of less educated fathers are more likely to achieve greater education than their fathers, implying improved mobility. However, at the top end of the distribution there is evidence for

regression of sons' educational attainment. There has also been a decrease in the inertia of the prevalent discrimination based on caste. Although most of the Indian states have made significant progress over time in terms of improved mobility, there remain significant variations across states, with some states faring worse than others. My paper is largely inspired by their work.

## Data

For this paper, I have used the data from the second round of India Human Development Survey (IHDS) conducted in 2011-12. The IHDS<sup>2</sup> is a nationally representative, multi-topic survey of 41,554 households (2005) in 1503 villages and 971 urban neighbourhoods across India. The first round of interviews was completed in 2004-5. A second round of IHDS re-interviewed most of these households in 2011-12 (N=42,152 households) and data for the same is available online. IHDS has been jointly organized by researchers from the University of Maryland and the National Council of Applied Economic Research (NCAER), New Delhi. (IHDS, 2018) The survey has collected a wealth of information on education, caste membership, health, employment, marriage, fertility, and geographical location of the household. One of the

major hindrances in carrying out any intergenerational study in developing countries is lack of long panel data. In India, this problem is exacerbated as none of the large cross sections (such as NSS or NFHS) collect information about the father for all surveyed persons. In contrast to the NSS and the NFHS, the IHDS has asked specific questions regarding the education of household head's father/husband (irrespective of the father/husband living in the household or not).<sup>3</sup>

These questions allow the identification of father's education for almost the entire adult male population (in the age group 20-65). I have used the strategy followed by Mehtabul Azam and Vipul Bhatt (Azam & Bhatt, Like Father, Like Son? Intergenerational Education Mobility in India, 2012) to create a matched father-son data using the IHDS.<sup>4</sup> The first additional variable I use is the "ID of father" in the household roster which helps linking individuals to their fathers directly if the father is living in the household.<sup>5</sup> Utilizing this information by default imposes the co-residence condition which drastically reduces the sample size and may cause severe sample-selection problems.

<sup>2</sup> The survey covered all the states and union territories of India except Andaman and Nicobar, and Lakshadweep islands. The data is publicly available from the Data Sharing for Demographic Research program of the Inter-university Consortium for Political and Social Research (ICPSR).

<sup>3</sup> Question no. 1.18c on page 3 of the Household Questionnaire

<sup>4</sup> My sincere thanks to Professor Azam for sharing the STATA do-file.

<sup>5</sup> Question no. 2.9 on page 4 of the Household Questionnaire

However, as mentioned, the IHDS asks another question regarding the education of household head's father (irrespective of the father living in the household or not). This helps identify fathers' education for household heads that constitute more than 60 percent of the male respondents in the 20-65 age groups. Combining this variable with the "ID of father" variable, I was able to identify fathers' schooling for about 96 percent of the male respondents in the age group 20-65. I also identify fathers' years

of education for some of the remaining adult males (who are not the household heads and whose fathers are not identified through co-residence) by exploiting "relation to head."

A sample of father-son pairs achieved through co-residence may be misleading as it may not be a representative sample of the adult population of interest. Co-residence effectively over-represents younger adults in a sample, which is expected as these individuals are more likely to be living with their parents.

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I then estimate the following regression model:

$$Y_{c,1} = B_0 + B_1 Y_{c,0} + e_{c,1}$$

where Y = years of schooling

c = birth cohort

i = {0,1} = generation i

## Methodology

Given the objective of the study, the focus is on the adult population which is defined to be within the age group of 20-65.<sup>6</sup> Since the survey is from 2012, there is data on individuals born between 1947 and 1992. Hence, the mobility in educational attainment across birth cohorts going as far back as our independence can be studied. The analysis is conducted at the all-India level. Accordingly, I have divided the sample into nine five-year birth cohorts starting from 1947-52 till 1987-1992.

The main variable of interest is the son's educational attainment which is measured by years of schooling. In the literature, parents' education is proxy by either father's education, maximum of parents' education, or average of both parents education. In the IHDS, since there is not enough information on mother's education for the whole sample, I have used father's years of schooling as a proxy of parents' educational attainment.

The estimated coefficient of  $Y_{c,0}$ , i.e.  $b_1$ , measures persistence in educational attainment for cohort  $c$ , where higher values imply greater persistence. A higher value for the coefficient implies that parental education has stronger effects on the schooling of their children, and therefore implies less mobility. Since education of both father and child is measured in number of years of schooling, the extent to which these coefficients are less than unity describe how fast differences in education tend to systematically lessen across generations. Alternatively,  $1 - b_1$  is a measure of intergenerational mobility. Thus,  $b_1=1$  corresponds with complete immobility and  $b_1=0$  corresponds with perfect mobility. Comparing  $b_1$  across birth cohorts in the sample gives a measure of how

intergenerational persistence in education has changed over time.<sup>7</sup>

## Results

Table 1 presents the results at the all India level across the nine birth cohorts. There are a few key findings. First, father's' education has an economically and statistically significant effect on the child's education for each birth cohort. Second, the measure of intergenerational persistence ( $b_1$ ) displays a pronounced decline across cohorts, with the estimated coefficient falling from 0.634 for the 1947-52 cohort to 0.405 for the most recent cohort, 1987-92. This establishes the evidence of *increased mobility in educational attainment over time in India*.

Table 1 Intergenerational Education Mobility in India

Dependent variable: Son's Years of Schooling

|                                                        | Son's Birth Cohort |                  |                  |                  |                  |                  |                  |                  |                  |
|--------------------------------------------------------|--------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
|                                                        | 1947-52            | 1952-57          | 1957-62          | 1962-67          | 1967-72          | 1972-77          | 1977-82          | 1982-87          | 1987-92          |
| <b>Father's years of schooling (<math>b_1</math>)*</b> | 0.634<br>(0.013)   | 0.605<br>(0.011) | 0.627<br>(0.011) | 0.623<br>(0.009) | 0.697<br>(0.008) | 0.674<br>(0.008) | 0.592<br>(0.009) | 0.486<br>(0.008) | 0.405<br>(0.008) |
| <b>R-squared</b>                                       | 0.421              | 0.397            | 0.409            | 0.421            | 0.515            | 0.486            | 0.383            | 0.277            | 0.218            |
| <b>Observations</b>                                    | 3087               | 3875             | 4459             | 5346             | 5951             | 6526             | 6739             | 7982             | 8996             |

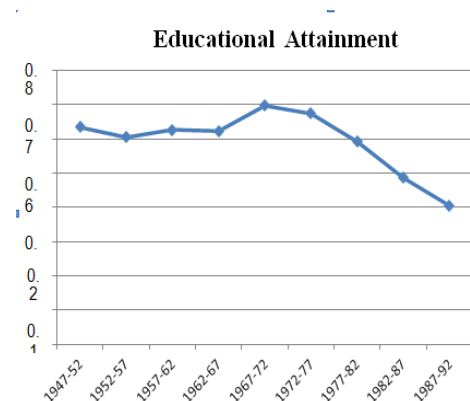
Note: \*p-values significant at 5% level of significance Standard errors in parentheses

<sup>6</sup> Lower limit of 20 years has been chosen as a majority of individuals in India finish their college (about 15 years of education) around this age. Upper limit of 65 years has been arbitrarily chosen.

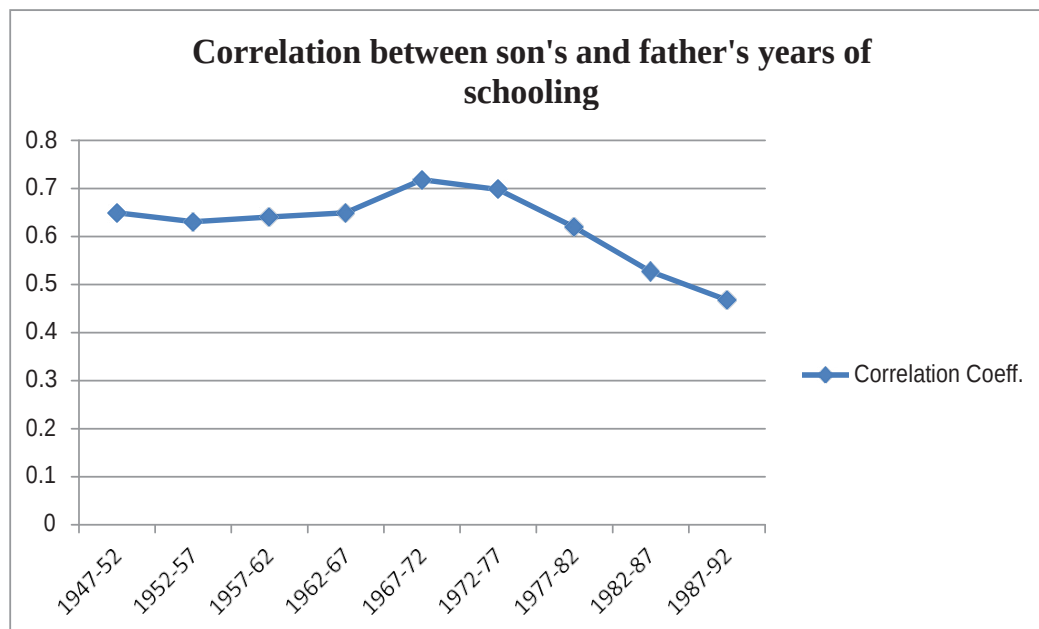
<sup>7</sup> This statistical approach is based on an entirely *relative* conception of mobility

Overall, a declining trend in  $b_1$  is noticed, which implies an increasing trend in  $1-b_1$ . Thus, from the data, it can be concluded that intergenerational education mobility in India has been rising since independence. However, these numbers do not explain the reasons behind the negative trend of  $b_1$ , which could be numerous.

The finding of rising mobility in educational attainment across cohorts could, to some degree, reflect the success of government policies undertaken since the 1950s in equalizing educational opportunities over time and across regional boundaries.



I also calculated the correlation coefficient between the son's years of schooling and father's years of schooling for the different cohorts, using the data. The pattern that emerged, which is not different from that obtained from the regression coefficient, is shown below. As with the educational persistence value  $b_1$ , lower correlation between the two variables indicates that parent's education has a weaker impact on the child's educational outcome.



A simple average of the intergenerational correlations is calculated to be 0.62. This is much higher than the world average of 0.42 as reported by Hertz et al. (Hertz, et al., 2007)

The inability of children born in less educated families to study further thus seems to be a vicious circle. Income is an important determinant of access to education. This is bound to influence the ability of parents to provide education to their children, given the high costs of providing good education. It could also work in the opposite direction. Many of those who drop out from educational institutions cite the need to augment family incomes or attending to domestic chores as the reason for dropping out. Such pressure to drop out from school is more intense for first-generation learners, who often hail from economically weaker

sections of the society.

### Implications for Policy

Mobility in education plays an important role in promoting social mobility, i.e. the movement of individuals, families, households, or other categories of people within or between social strata in a society, and economic mobility, measured by changes in income and wealth. The concept of mobility has important consequences and policy implications for a country. If mobility (of any form) is low, people may be unable to participate and contribute as full members of society simply because they were raised in a

household with low access to resources such as income.

In other words, the consequence of the 'birth lottery' is large and determines one's position in life. In such a scenario, the State must interfere and level the playing field. On the other hand, if mobility is high, low availability of resources during childhood need not necessarily leave a scar. In this case, the market should be allowed to determine outcomes, as outcomes are the result of individual ability.

This paper will be incomplete without highlighting the role of public policy to remove obstacles to the intergenerational mobility in education. Policy reform that aims at reducing education inequalities can remove obstacles to intergenerational social and economic mobility as well and thereby promote equality of opportunities across individuals.

The top policy associated with increasing opportunities regardless of background is cost-effective and glaringly obvious: education reform. There must be a very strong education system in place, including much more investment in early childhood education for children from less advantaged families. Progressive education financing at all levels from early care to higher education promotes upward mobility and decreased persistence of family background (Solon, Cross-Country Differences in Intergenerational Earnings Mobility, 2002). Solon (Solon, A Model of Intergenerational Mobility Variation over Time and Place, 2004) highlights the importance of the progressivity of

educational expenditure as a factor leading to greater mobility.

This point is further supported by Jo Blanden (Blanden & Macmillan, 2014). He states that there is a negative relationship between education spending and intergenerational persistence. Those countries which devote more of their income to public spending on human capital investment tend to be more mobile.

Education can boost the mobility of children from poor and low-income families (and from wealthier families as well), because each additional level of attainment - from a high school degree, to a college degree, to a professional or graduate degree - adds substantially to income. The gaps between each level of education are substantial. For instance, the gap between a high school degree and a college degree in the United States of America was over \$29,000 in 2005 (Isaacs, Sawhill, & Haskins, 2008).

It is true that India has made substantial strides in education policy, such as the Mid-day Meal Scheme, Sarva Siksha Abhiyan and the Right to Education Act. Investment in human capital has grown significantly over the last few decades. The country's expenditure on education as percentage of GDP had gone up from 4.10% in 2012-13 to 4.13% (provisional) in 2013-14 (Ministry of Human Resource Development, 2016). But from a policy perspective, it seems necessary to understand how expansions of the education system have ended up disproportionately

benefiting children from richer backgrounds.

In summary, it is undoubtedly the case that school standards and their access have improved; but not for everyone, and perhaps, not as much as they could have. Substantial improvements in mobility require more drastic systemic action. Because education has the potential to boost the mobility of children, it is important to ask whether the country's educational system does enough to promote economic mobility.

#### *Scope for further research*

In a country as diverse as ours, there is a lot of scope to research on several dimensions of this topic, controlling for different variables. For instance, one could draw a comparative study on education mobility across all the states, and its correlation with state expenditures on education. One can also study education mobility across varied castes, religions and between genders. The IHDS-II can be thoroughly exploited for this purpose, as it contains detailed data on caste, religion, and state of residence for each individual.

As more countries of the world gather acceptable-quality data, rigorous international comparative analysis of mobility needs to be facilitated. With a worldwide database on mobility, countries with low mobility can learn from the

factors that are responsible for high mobility in other nations.

## **Conclusion**

The nature of inequality in any period can be better understood if we appreciate the extent to which it is related to family background; the extent to which one's starting point in life, in some sense, preconditions ultimate adult social and labour market outcomes.

The aim of this paper was to assess the change in educational inequalities and mobility across generations since the Indian independence. In this paper, focusing on one measure of human capital – years of schooling – it is seen that intergenerational mobility in education has improved over the years. This is clearly encouraging for the promotion of children's life chances and may lead to further improvements in mobility if returns to education remain stable.

The greater the capacity and ability of families to invest in their children, both in monetary and non-monetary terms, the more likely children will develop the human capital to succeed in the labour market. The more equal the returns to education in the labour market, the more level the incentives to make these investments. Finally, the more progressive the public policy—that is the more relative benefit it is to the relatively disadvantaged—the more level the playing field.