Intergenerational Transmission of Advantage in a Caste Society. Sibling Similarity in Education in India*

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Abstract

India has experienced massive economic growth and educational expansion, but has its social mobility increased in the last decades? To address this question, we examine the sibling similarity in educational attainment in the Longitudinal Aging Study in India (LASI, 2017–19) for the birth cohorts from the 1960's to the 1990's. Sibling correlations are a broad measure of social mobility that captures both observed as well as unobserved aspects of the family background and are thus better suited than parent–offspring correlations, which can only draw on observed information. The sibling correlation in education in India is around .7, considerably higher than in most other countries. We find no discernable trend towards lower sibling correlations in education across birth cohorts. The highest sibling correlation is found among Muslims in India, the lowest among those from highly-educated families. We discuss implications and explain future plans for out study.

Introduction

How open is Indian society? Indian social structure with its caste system was long thought of as being rigid and unchanging (e.g. Dumont, 1980), yet such

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views are nowadays dismissed as being 'orientalist' (Mosse, 2020). And indeed, in the last decades India has experienced rapid economic liberalization and economic growth. While this economic growth has been characterized as 'jobless growth,' the new jobs that were created are unconnected with the caste system. Further, education in India has expanded throughout the twentieth century and literacy rates are still increasing (Vaid, 2018).

An established approach to analyzing societal openness is to examine parent–offspring associations in education over time. The stronger the association between parents' and children's education, the lower is the societal openness inferred to be (e.g. Blau and Duncan, 1967; Ferry, 2022). Sibling correlations have long been argued to be superior to parent–child correlations as measures of societal openness (e.g. Grätz *et al.*, 2021), as they capture both observed as well as unobserved aspects of the family background. This family effect comprises genetic effects, observed and unobserved parental influences, resources such as income, parenting, or cultural capital, parental cognitive and non-cognitive skills, school and neighborhood influences that siblings share, as well as inter-sibling influences. Using newly available data from the Longitudinal Aging Study in India (LASI, 2017–19), our study will investigate sibling resemblance in education from various perspectives.

Our analysis contributes to the literature in two ways. First, we report the first Indian sibling correlations in education that are free from co-residency bias. Previous reports of sibling similarities in education in India (Ahsan *et al.*, 2022; Emran and Shilpi, 2015) which only rely on household data and are subject to the well-known co-residency bias (Emran *et al.*, 2018), as they only draw on the select sample of siblings who are still living in the parents' home. Second, we are the first to test the hypothesis that ascribed characteristics such as caste, religion, parental education, and parental occupation are of declining importance for life chances in India using a sibling correlation framework.

Data and methods

The Longitudinal Aging Study in India (LASI, Perianayagam *et al.*, 2022) is a nationally representative sample of the population aged 45 years and older, living in private households in India. The sample is also representative of India's 29 states and six union territories and four selected metropolitan cities (Delhi, Kolkata, Mumbai, and Chennai). The initial sample was recruited in 2017–9 using a stratified, multistage cluster sampling of all households in India.

Participants in LASI are interviewed about the age and education of all their children, explicitly including deceased, adopted, and step-children. For the time being, we restrict our analyses on parents of whom all children have left the parental home, yet we are hopeful that we are able to use the informa-

tion on children who have finished education yet still live with their parents. For the moment, we have a sample of approx. 24,000 children within approx. 8,000 families.

We measure educational attainment as children's years of schooling, and stratify our analyses by decade of birth (based on the average birth year of the children), by whether they are all-male or all female sibships (i.e. brothers or sisters only), by the caste of the parents, and by parental education. We control for age and sex of the children and whether they are only-children.

In order to calculate sibling correlations, we rely on the intraclass correlation coefficient (ICC), which is based on a simple model of years of education y_{ij}, where i indexes families and j indexes siblings:

$$y_{ij} = \mathbf{x}_{ij}\beta + \epsilon_{ij}, \text{ with } \epsilon_{ij} = a_i + b_{ij}.$$

$\mathbf{x}_{ij}$ is a vector of control variables (sex, age, and whether the child is an only-child), and the residual ϵ_{ij} can be decomposed into a_i, a component common to all siblings in a family and b_{ij}, a sibling-specific component. Given that a_i and b_{ij} are uncorrelated, their variances are:

$$\sigma^2_\epsilon = \sigma^2_a + \sigma^2_b.$$

These variances can then be used to calculate the ICC, the correlation in educational attainment between siblings:

$$ICC = \frac{\sigma^2_a}{\sigma^2_a + \sigma^2_b}.$$

First findings

Panel A of Figure 1 shows the trend in the sibling correlation across birth cohorts. Siblings born in the 1960's show a sibling correlation of .72 (95 % confidence interval: .69–.75), for those born four decades later, the sibling correlation is still .68 (.66–.70). While the figure suggests a downward slope over time, confidence intervals still overlap, suggesting no trend toward greater societal openness over time that is discernable at conventional levels of statistical precision.

Panel B of Figure 1 shows brother and sister correlations in educational attainment are generally higher than those from mixed-sex sibships, but do not differ significantly from one another.

Panel C of Figure 1 breaks siblings correlations down by the caste and religion of the family. We can see that Muslim siblings have the highest similarity (.73), those in the similarly disadvantaged group of the Scheduled Tribes and Castes have a lower similarity of only .60, which is lower than the Other Backwards Classes (.68), but cannot be statistically distinguished from the more privileged other castes (.65).

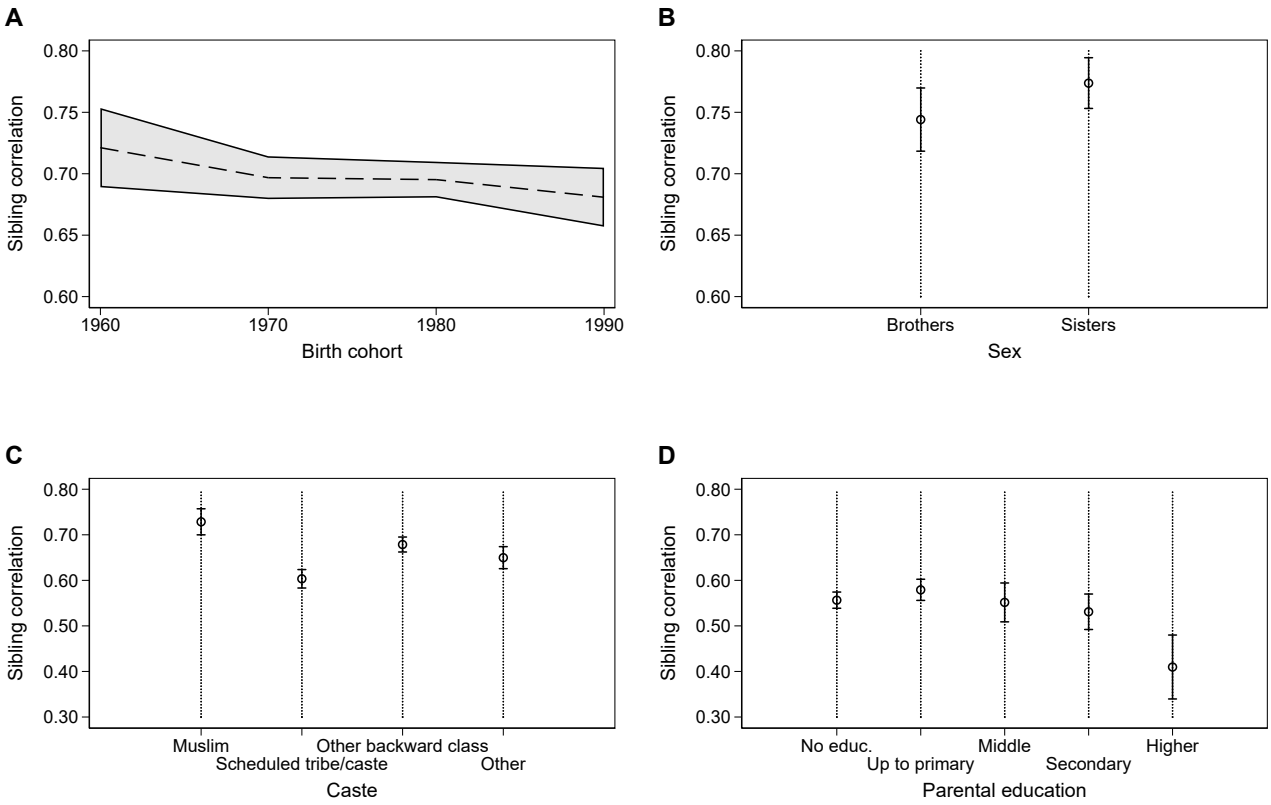

Figure 1: Sibling correlations in educational attainment over time (*Panel A*), for brothers and sisters separately (*Panel B*), by caste (*Panel C*), and by parental education (*Panel D*). *Note:* Error bands and error bars denote 95 % confidence intervals.

Panel D of Figure 1 stratifies the sample by parental education. What stands out here is the low sibling correlation of .41 for children of higher-educated parents.

Preliminary conclusions and future plans

We examine the sibling correlation in education, a measure of societal openness, for an Indian sample of 24,000 siblings. We find a sibling correlation of approx. .7, considerably larger than the average sibling correlation of .46 that Präg *et al.* (2022) found in a meta-analysis of 63 studies reporting sibling correlations from 23, mostly Western, countries.

We find considerable persistence in this sibling correlation across birth cohorts, which is in line with previous studies such as Emran and Shilpi (2015) and Azam and Bhatt (2015), that draw on more limited data or research designs.

Across social groups, we find differences between castes and educational groups, which support previous findings (Azam and Bhatt, 2015; Vaid, 2018) and give us confidence in our approach and the data set.

We have ambitious plans to develop this study further:

1. We plan on including families where all or some children are living in the parental home, more than doubling our sample size.

2. This would allow to us to present meaningful comparisons of sibling correlations for subgroups of the population over time, e.g. to revisit Azam and Bhatt's (2015) finding that educational mobility has increased at the top of the educational distribution.

3. We plan to investigate the development of the within- and between-family variation over time (Sieben and de Graaf, 2001). The within-family variation refers to any individual differences in education, the between-family variation can be attributed to family resources, genetic endowments, sibling interactions, and any other shared environments.

4. Further, we plan to decompose the between-family variation into a part that is explained by caste, parental education, occupation, and income or consumption, and a residual part that is unexplained. Comparing the size of the explained part over time will allow us to test the hypothesis that ascribed characteristics lose importance for life chances over the course of modernization (Treiman, 1970).

5. Finally, we would like to stratify the sibling correlations across the different states of India to examine heterogeneity in social mobility across the subcontinent.

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