

Family Structure and Human Capital Outcomes: Comparing Joint and Nuclear Families in Ulhasnagar, Maharashtra

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Abstract

This study investigates whether family structure specifically, whether an individual grew up in a joint or nuclear family is associated with differences in human capital outcomes among adults in Ulhasnagar, Maharashtra. Using primary survey data from 100 respondents aged 40 to 60 years, and a composite Human Capital Index (HCI) constructed from standardised measures of educational attainment, years of schooling, skill certification, and income, an independent samples t-test was conducted to compare mean HCI scores across the two-family types. The results reveal a statistically significant difference: individuals raised in joint families exhibit meaningfully higher HCI scores than those raised in nuclear families ($t(98) = 2.601$, $p = .011$). The Mann-Whitney U test corroborates this finding ($U = 1631.00$, $p = .008$). These findings challenge the conventional assumption that nuclear families by concentrating resources on fewer children, necessarily produce superior human capital outcomes, and instead point to the social capital, collective investment, and intergenerational learning advantages embedded in joint family structures. The study contributes original micro-level evidence from urban India to the growing literature on family structure and human development.

Keywords: family structure, joint family, nuclear family, human capital, Human Capital Index, social capital, Ulhasnagar, India

1. Introduction

The family is the primary social institution through which human capital is formed. The structure of the family, in particular, whether a child is raised within a joint household comprising multiple generations and collateral kin, or within a nuclear household comprising only parents and their children has long been regarded as a potential determinant of educational attainment, skill development, and economic outcomes. Yet the direction of this relationship remains theoretically contested and empirically underexplored, particularly in the context of urban India.

On one hand, Becker's (1960) quantity–quality trade-off framework implies that nuclear families, by having fewer children, can invest more resources per child, thereby producing better human capital outcomes. On the other hand, joint families offer a range of non-monetary advantages shared childcare,

intergenerational knowledge transfer, mentorship from older relatives, collective financial pooling, and stronger educational norms that may more than compensate for the higher number of dependants.

This study addresses this question directly using primary survey data from Ulhasnagar, Maharashtra, a densely populated urban locality with a historically diverse population comprising both joint and nuclear family households. A composite Human Capital Index (HCI) constructed from educational attainment, years of schooling, skill certification, and income serves as the outcome variable. An independent samples t-test is used to test whether individuals raised in joint families differ significantly in their HCI scores from those raised in nuclear families.

The study makes two principal contributions. First, it provides original primary-data evidence on the family structure–human capital nexus from an urban Indian setting that is largely absent from the existing literature. Second, the finding that joint family membership is associated with higher, not lower, human capital challenges prevailing assumptions and raises important questions about the channels through which family structure shapes human development. The paper is organised as follows: Chapter 2 presents the theoretical framework; Chapter 3 reviews the relevant literature; Chapter 4 describes the research methodology; Chapter 5 reports the empirical findings; and Chapter 6 concludes with policy implications.

2. Theoretical Framework

2.1 The Quantity–Quality Trade-off and Nuclear Family Advantage

The dominant theoretical prediction regarding family structure and human capital derives from Becker's (1960) quantity–quality trade-off model. The model argues that parental investment per child is inversely related to the number of children, because a fixed budget of time and money must be divided among more dependants in larger households. Nuclear families, which are typically smaller in size, should therefore channel greater per-child resources into education and skill development, producing superior human capital outcomes relative to larger joint families.

This logic is reinforced by resource dilution theory (Blake, 1981), which holds that in families with more children, a characteristic more common in joint households, parental attention, educational materials, and financial support are diluted across more recipients, disadvantaging each individual child. Under this framework, the expected hypothesis would be that nuclear family members achieve higher HCI scores.

2.2 Social Capital Theory and Joint Family Advantage

Coleman's (1988) social capital theory provides a compelling counter-argument. Social capital defined as the norms, trust, and networks embedded in social relationships is argued to be a productive resource for human capital formation. Joint families, by their very structure, embody dense networks of intergenerational and lateral relationships that generate social capital in several ways: older family members serve as educational role models and informal tutors; collective household income smooths consumption and educational expenditure in the face of individual income shocks; shared norms regarding the value of education reinforce children's academic motivation; and extended kin networks expand access to employment information and occupational opportunities.

From this theoretical perspective, the social capital embedded in joint family structures may outweigh the per-child resource dilution effect, particularly in lower-middle-income urban contexts where formal institutions (schools, credit markets, employment agencies) are imperfect and family networks serve as partial substitutes.

2.3 Intergenerational Learning and Cultural Capital

Bourdieu's (1986) concept of cultural capital further supports the potential advantage of joint families.

Cultural capital encompassing knowledge, skills, habits, and values transmitted across generations is more readily accumulated in joint households where multiple generations co-reside. Grandparents and older relatives transmit occupational knowledge, educational aspirations, and cultural norms that complement formal schooling. This intergenerational transmission of human and cultural capital may produce measurable advantages in educational attainment, skill acquisition, and income over the life course.

2.4 Conceptual Framework

The conceptual model tested in this study is straightforward: family structure (joint vs. nuclear) is treated as the independent variable, and the Human Capital Index is the dependent variable. The theoretical ambiguity, with resource dilution predicting nuclear family advantage and social capital theory predicting joint family advantage makes this an empirical question, the answer to which is determined by the data.

Family Structure (Joint / Nuclear) → Human Capital Outcomes (HCI)

3. Review of Literature

The relationship between family structure and human capital outcomes has been explored from multiple disciplinary perspectives, though the evidence base remains mixed and context-dependent. Blake (1981) was among the first to systematically document the negative association between sibship size and educational attainment in the United States, arguing that resource dilution in larger families reduced parental investment per child. Her work provided the empirical cornerstone for the nuclear family advantage thesis. Subsequent studies by Downey (1995) elaborated this argument, showing that economic, cultural, and interpersonal resources per child declined with family size, with consequences for academic achievement.

However, evidence from non-Western contexts has consistently challenged the universality of these findings. Desai (1992), in an influential cross-national study, found that joint family systems in South Asia could buffer children against poverty-induced educational disadvantage by pooling household resources across earners and generations. Caldwell et al. (1988) similarly documented in their study of South India that joint household arrangements facilitated higher school enrolment and longer years of schooling, particularly for girls, by enabling mothers to work while grandmothers provided childcare. These findings align with Coleman's (1988) social capital framework, which holds that dense family networks generate norms, trust, and information that positively augment educational outcomes.

In the Indian context specifically, research has explored the educational implications of joint versus nuclear family living with increasing rigour. Borooah and Iyer (2005) found, using National Family Health Survey data, that household structure interacted significantly with caste and income in determining children's school attendance, with joint families in some contexts providing protective effects. Kijima (2006) demonstrated using Indian household panel data that joint families were better able to finance children's secondary and higher education due to income pooling across multiple adult earners. More recently, Azam and Bhatt (2015) analysed inter-generational occupational mobility in India and found that extended family networks played a significant role in transmitting both educational aspirations and occupational connections, supporting the cultural and social capital arguments.

At the same time, several studies caution against overgeneralising the joint family advantage. Ram and Wong (1994) found in Canadian immigrant communities that nuclear family households, freed from obligations to extended kin, could concentrate investment more intensively on children's education. Mancini and Orthner (1988) noted that joint households may generate conflict over resource allocation and authority that can undermine children's educational environments. In urban Indian settings, Datta

(2003) found that joint family arrangements in congested urban localities could create overcrowding, noise, and reduced study space that negatively affected children's academic performance, suggesting that the net effect of family structure is highly context-specific.

The present study contributes to this body of evidence by examining the family structure–human capital relationship in Ulhasnagar - a dense urban locality in Maharashtra, using a composite Human Capital Index as the outcome measure. By employing an independent samples t-test on primary survey data, the study provides direct micro-level evidence on whether adults who grew up in joint families differ significantly in human capital from those raised in nuclear families, contributing to the empirical debate from a setting that has not previously been studied in this regard.

4. Research Methodology

4.1 Data Source and Sample

The data used in this study were drawn from the same primary survey described in the companion paper on parental education, family size, and human capital outcomes. Structured questionnaires were administered to 100 adults aged 40 to 60 years residing in Ulhasnagar, Maharashtra. This age cohort was selected to ensure that respondents had completed their human capital formation and could retrospectively report their family type during childhood with reasonable accuracy. The sample comprises 48 respondents who reported growing up in joint families and 52 who reported growing up in nuclear families.

4.2 Variables

The study employs two variables:

- Independent Variable: Family type during childhood, a binary categorical variable coded as Joint (1) or Nuclear (2), based on respondents' self-report of the type of household in which they were raised.
- Dependent Variable: Human Capital Index (HCI), a composite index constructed by standardising four sub-components - educational attainment, years of schooling, skill certification, and income bracket, using z-score transformation and aggregating them into an unweighted additive index. Higher HCI values indicate superior human capital outcomes.

4.3 Statistical Method

An independent samples t-test was conducted to test whether the mean HCI scores of individuals from joint and nuclear families differ significantly. The independent samples t-test is appropriate when comparing the means of a continuous dependent variable across two independent groups. Given that the Shapiro-Wilk test indicated a statistically significant deviation from normality in the HCI residuals ($W = 0.950$, $p < .001$), the non-parametric Mann-Whitney U test was also conducted as a robustness check. Consistency between the parametric and non-parametric results strengthens the validity of the findings. All analyses were conducted in JASP (Version 0.19).

4.4 Research Hypothesis

The study tests the following hypothesis:

- H1: There is a statistically significant difference in Human Capital Index (HCI) scores between individuals raised in joint families and those raised in nuclear families.

5. Data Analysis and Findings

5.1 Descriptive Statistics

Table 1 presents the descriptive statistics for HCI by family type. The joint family group ($n = 48$) has a higher mean HCI score than the nuclear family group ($n = 52$), as is visually evident in the descriptives

plot produced by JASP, where the confidence interval for the joint family group is centred above zero while the nuclear family group mean lies below zero. This preliminary observation suggests that individuals raised in joint families in Ulhasnagar tend to achieve higher levels of human capital than those raised in nuclear families.

Table 1: Descriptive Statistics - HCI by Family Type

Family Type	n	Mean HCI	Direction
Joint	48	Higher (above 0)	↑
Nuclear	52	Lower (below 0)	↓

Note. Exact means are read from the JASP descriptives plot. HCI is a z-score-based composite index; mean = 0 represents the sample average.

5.2 Assumption Check: Normality

Prior to interpreting the t-test results, the normality of the HCI residuals was assessed using the Shapiro-Wilk test. The result ($W = 0.950$, $p < .001$) indicates a statistically significant departure from normality. This finding necessitates caution in relying solely on the parametric t-test and motivates the use of the Mann-Whitney U test as a non-parametric alternative. Table 2 summarises the normality test results.

Table 2: Shapiro-Wilk Test of Normality

Variable	W Statistic	p-value	Interpretation
HCI Residuals	0.950	< .001	Significant deviation from normality

Note. Significant result indicates non-normality; Mann-Whitney U test used as robustness check.

5.3 Independent Samples T-Test Results

Table 3 presents the results of the independent samples t-test and the Mann-Whitney U test. The Student's t-test yields a test statistic of $t(98) = 2.601$ with a p-value of .011, indicating that the difference in mean HCI between joint and nuclear family respondents is statistically significant at the 5% level. The Mann-Whitney U test corroborates this finding ($U = 1631.00$, $p = .008$), and given the normality violation, this non-parametric result provides the stronger basis for inference. Both tests converge on the same conclusion: individuals raised in joint families have significantly higher human capital outcomes than those raised in nuclear families.

Table 3: Independent Samples T-Test - HCI by Family Type

Test	Statistic	df	p-value	Conclusion
Student's t-test	2.601	98	.011	Significant ($p < .05$)
Mann-Whitney U	1631.000	—	.008	Significant ($p < .05$)

Note. Dependent variable: Human Capital Index (HCI). Grouping variable: Family type (Joint = 48; Nuclear = 52).

5.4 Interpretation of Findings

The statistically significant result supports H1: there is a meaningful difference in human capital outcomes between individuals raised in joint and nuclear families in Ulhasnagar. The direction of the finding, with

joint family members scoring higher on HCI, is contrary to the prediction of resource dilution theory but is consistent with social capital theory (Coleman, 1988) and the intergenerational learning hypothesis (Bourdieu, 1986).

Several plausible mechanisms may explain this finding in the Ulhasnagar context. First, joint families in this locality may benefit from income pooling across multiple earning adults, enabling greater and more stable investment in children's education even when individual incomes are modest. Second, the presence of grandparents and older relatives in joint households may provide educational mentorship and aspirational role modelling that reinforces children's human capital formation. Third, joint family structures in urban India, particularly among the historically migrant and entrepreneurially oriented communities that characterise Ulhasnagar may embed strong norms of collective advancement and educational investment that translate into measurably superior human capital outcomes.

It is also important to note that the sample is drawn from adults aged 40 to 60, meaning that their childhood family structures predate the major wave of nuclear family formation in Indian cities. The joint families in this cohort may therefore represent households with particularly strong social cohesion and educational commitment, characteristics that may have become less universal in more recently formed joint family arrangements.

5.5 Summary of Hypothesis Testing

Table 4: Summary of Hypothesis Testing Results

Hypothesis	Statement	Test Used	Result	Decision
H1	Joint vs Nuclear family → HCI difference	t-test + Mann-Whitney U	t = 2.601, p = .011	Supported

Note. Joint family group (n = 48) has significantly higher HCI than nuclear family group (n = 52).

6. Conclusion

6.1 Summary of Findings

This study examined whether family structure, joint or nuclear, is associated with differences in human capital outcomes among adults in Ulhasnagar, Maharashtra. Using primary survey data from 100 respondents and a composite Human Capital Index, the independent samples t-test and Mann-Whitney U test both reveal a statistically significant difference: individuals raised in joint families exhibit higher HCI scores than those raised in nuclear families ($t(98) = 2.601, p = .011$; $U = 1631.00, p = .008$). This finding challenges the resource dilution hypothesis, which predicts nuclear family advantage, and instead supports the social capital and intergenerational learning perspectives, which anticipate benefits from extended family structures.

6.2 Theoretical Contributions

The study contributes to theoretical debates by providing micro-level empirical evidence from urban India that social capital embedded in joint family structures may outweigh the per-child resource dilution associated with larger household sizes. This finding aligns with Coleman (1988) and Bourdieu (1986) and challenges the universalisation of findings from Western, nuclear-family-dominant contexts. The result also connects productively with the companion study's finding that parental education reduces family size: even as educated parents move towards nuclear arrangements, the social capital advantages historically associated with joint families remain detectable in the human capital outcomes of the current cohort.

6.3 Policy Recommendations

The findings carry several implications for social and educational policy:

- Preserve and leverage extended family social capital: Policymakers designing educational support programmes should recognise the role of extended family networks as an informal educational resource. Community-based mentorship and tutoring programmes that replicate the intergenerational learning environment of joint families could benefit children in nuclear family households.
- Design context-sensitive family support policies: Blanket assumptions that nuclear families are superior environments for child development should be critically examined. Social policies in urban India should account for the protective and developmental functions that joint family structures continue to serve.
- Targeted interventions for nuclear family children: Given the significantly lower HCI scores observed among nuclear family respondents, educational and skill development programmes in localities like Ulhasnagar should consider prioritising outreach to nuclear family households, particularly those lacking access to extended kin networks.
- Income pooling and financial literacy support: The economic benefits of joint family income pooling — identified as a likely mechanism for their human capital advantage — suggest value in promoting savings groups, cooperative financial schemes, and financial literacy programmes for nuclear family households to replicate some of this pooling benefit.

6.4 Limitations and Future Research

Several limitations of this study should be acknowledged. First, the sample of 100 respondents, while sufficient for a t-test, limits the precision of estimates and the ability to control for confounding variables such as caste, religion, parental education, or income. Future studies should use larger samples and multivariate regression designs to isolate the independent effect of family structure. Second, the binary joint/nuclear classification is a simplification; family arrangements are heterogeneous and dynamic, and finer distinctions, such as the composition of the joint household, the number of earning adults, and the presence of grandparents, may matter considerably for human capital outcomes. Third, the retrospective self-report of family type may introduce recall bias. Fourth, the study is cross-sectional and cannot establish causality; individuals may have selected into family types based on characteristics correlated with human capital. Longitudinal or quasi-experimental designs would strengthen causal inference.

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