



# Family Capital Structure and Educational Attainment: Evidence from China Family Panel Surveys

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**Abstract.** Educational inequality, as a core issue in social stratification research, profoundly reflects the shaping effect of social structure on individual developmental opportunities. Based on Pierre Bourdieu's capital theory framework, this study deconstructs family capital into three dimensions: economic capital, cultural capital, and social capital. Specifically, economic capital directly enhances children's educational opportunities through the purchase of educational resources; cultural capital shapes children's knowledge acquisition ability and higher education expectations via intergenerational cognitive transmission, while social capital reduces information asymmetry and structural barriers in the process of educational attainment by leveraging the information flow and institutional support within family social networks. Bourdieu emphasizes the Convertibility and "Synergistic Effects of capital-economic capital can be converted into cultural capital, and social capital can optimize the efficiency of capital allocation. Together, these three forms constitute the dynamic system driving intergenerational transmission within families. Utilizing longitudinal data from the China Family Panel Studies (CFPS, 2010-2022), this study aims to verify the direct effects of family capital structure on higher education attainment. It seeks to provide a theoretical basis for dismantling the Matthew Effect in the intergenerational transmission of family capital and for formulating rural education support policies that integrate both resource investment and the cultivation of cultural capabilities.

**Keywords:** Family Capital Structure, Educational Attainment, Intergenerational Transmission of Capital.

## 1 Introduction

Educational inequality in attainment constitutes a core issue in social stratification research. As a key ascribed factor, family capital structure profoundly shapes children's educational trajectories through differential resource allocation and cognitive socialization. These disparities in capital underlie the urban-rural gap in educational opportunities.

Pierre Bourdieu's capital theory provides the foundational framework for understanding this phenomenon, emphasizing the pivotal role of economic capital, cultural

capital, and social capital in intergenerational transmission and social reproduction.[1]. The aggregate volume and configuration of family capital directly determine the types and scale of resources allocable to children's education, thereby mediating their educational access and ultimate attainment.[1,2].However, extant studies predominantly focus on singular dimensions of capital, lacking systematic empirical verification of how economic, cultural, and social capital synergistically constitute family capital structures to exert both collective and differentiated direct effects on children's ultimate educational attainment.

Currently, the gross enrollment ratio in China's higher education sector has increased significantly, signifying an expansion in the overall accessibility of educational opportunities.[3]. However, deep-seated educational inequalities persist, manifested most acutely in the urban-rural disparities in educational quality and outcomes. These phenomena underscore the critical need to interrogate the direct pathways through which family capital structures shape educational attainment [3,4].

Against this backdrop, the present study integrates Bourdieu's capital theory with longitudinal data from the China Family Panel Studies (CFPS 2010–2022) to construct an analytical framework specifically designed to examine the direct effects of family capital structures on children's ultimate educational attainment. The core objective is to systematically verify the differential pathways and effect magnitudes through which distinct dimensions and configurations of family capital exert direct influences on educational outcomes. By revealing the multidimensional and complex mechanisms underpinning how intergenerational transmission of capital shapes educational attainment, this research seeks to deepen understanding of the context-specific dynamics of educational stratification in Chinese society, thereby providing precision-targeted theoretical and empirical foundations for identifying critical leverage points to promote equity in educational outcomes.

## **2 Literature Review and Research Hypotheses**

### **2.1 Theoretical Framework and Classical Explanations**

Research on inequality in educational attainment centers on the intergenerational transmission of family capital. Pierre Bourdieu's capital theory classifies family capital into three distinct forms, including economic, cultural, and social capital.[1]. Economic capital directly enhances educational opportunities through resource investments like tutoring and school choice; cultural capital shapes academic inclinations via intergenerational transmission of linguistic patterns and educational values; social capital leverages interpersonal networks to provide educational information and institutional support.[4]. The theory emphasizes synergistic effects across capital types. For example, high-economic-capital families reinforce cultural advantages by purchasing private schooling ("capital complementarity"). Social capital also optimizes economic capital allocation via workplace networks' educational information. Scholars find Chinese familial cultural transmission evolves dynamically through three phases: transmission, active reproduction, and institutional conversion. Paternal involvement affects children's social capital acquisition, yet quantitative verification remains scarce.[5]. Scholars note that

Czech familial cultural preferences are driven by intergenerational transmission and individual agency, while cultural participation correlates with educational attainment and spousal selection. This contrasts cross-culturally with China's "mother-dominated education" model [3,6].

Current literature exhibits limitations in unidimensional approaches. Early studies predominantly concentrated on the isolated effects of either economic or cultural capital, consequently neglecting the interplay between distinct capital types.[7]. Bourdieu stressed capital's "convertibility"-e.g., economic capital purchasing cultural assets like textbooks, while social capital accesses free resources via networks to offset economic constraints. Yet empirical research lacks exploration of how economic, cultural, and social capital synergistically shape educational attainment. Critical questions remain unanswered: whether "low-economic-high-cultural" families compensate for deficits through educational ethos, or whether "high-economic-low-cultural" households exhibit outcome mismatches due to inadequate value guidance.[8].

## 2.2 Research Hypotheses

Family economic, cultural, and social capital all demonstrate statistically significant positive effects on tertiary educational attainment (associate degree and above) yet operate through distinct pathways. Higher economic capital corresponds to greater probabilities of accessing higher education, primarily by alleviating financial constraints and providing quality educational resources that directly enhance enrollment opportunities.[4]. Higher cultural capital corresponds to an increased likelihood of accessing a bachelor's degree or higher education, primarily through cultivating family academic environments that directly foster academic capability development.[9]. Higher social capital corresponds to greater probabilities of accessing elite universities, primarily by leveraging informational advantages to mitigate structural barriers.

Addressing this research gap, the study integrates Bourdieu's capital theory to construct an analytical framework examining how family capital structures influence educational attainment, proposing the core hypothesis. Family capital structure exerts multidimensional positive effects on educational attainment.

## 3 Research Design

### 3.1 Data Source and Sample Construction

This study utilizes multi-wave panel data (2010–2022) from the China Family Panel Studies (CFPS) as its foundational data source. Through precise ID linkage between senior high school students and their corresponding households, we constructed a longitudinal dataset capturing individual educational trajectories and family capital structures. The sample encompasses eastern, central, and western mainland China (excluding Northeast regions). After implementing data cleaning procedures-addressing missing values, outliers, and logical inconsistencies-1,554 valid observations were retained. This nationally representative sample design robustly supports dynamic longitudinal analysis of educational attainment.

3.2 Definition and Measurement of Key Variables

Guided by Bourdieu’s capital theory framework, this study operationalizes core variables as follows (Table.1).

Higher educational attainment is measured by respondents’ highest completed education level, coded as a binary dummy variable: 1= associate degree or higher, 0 = no tertiary education. This metric captures structural impacts of family capital on higher education access.

The core independent variables comprise household economic capital, social capital, and cultural capital. Household economic capital is operationalized as per capita net income adjusted to 2010 constant prices. Computed by dividing total annual household net income by the number of co-residing members, this metric robustly captures direct economic resources and discretionary capacity available for educational investment.

Household social capital is operationalized as a binary dummy variable, coded 1 if core family members (typically parents) belong to "institutional elites", otherwise 0.[10]. This study defines "institutional elites" as individuals holding mid-level or higher managerial positions in party-state agencies, public institutions, or state-owned enterprises, or possessing intermediate-level or higher professional certifications. This variable captures institutional social network resources and support capacities accessible to families.

Household cultural capital is quantified using the highest educational attainment of either parent as a proxy variable, with the following ordinal encoding:

0 = Illiterate/Semi-literate; 6 = Primary School; 9 = Junior High School; 12 = High School/Vocational Secondary; 16 = College Degree or Higher [11]. This variable gauges the household's comprehensive capacity for intergenerational transmission of cultural cognition, cultivation of scholarly climates, and guidance of educational aspirations.

The control variables incorporated encompass individual and household characteristics. Individual attributes including Gender (coded 1=Male, 0=Female) and Standardized academic performance rank; Household characteristics comprise: Household size and Geographic region (1=Eastern, 2=Central, 3=Western China) These controls account for educational resource disparities stemming from regional development imbalances and potential resource dilution effects of household size on educational attainment outcomes.

Table 1. Descriptive statistics of variables.

| Variable Type         | Variable Name              | Definition and Assignment                                                                                                                            |
|-----------------------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Dependent Variable    | Educational Attainment     | 0 = No college education, 1 = College education or above                                                                                             |
| Independent Variables | Household Cultural Capital | 0 = Illiterate/Semi-illiterate, 6 = Primary school, 9 = Junior high school,12 = Senior high school/technical secondary school, 16 = College or above |
|                       | Household Social Capital   | Parental Occupation, 0 = Non-elite class, 1 = Elite class                                                                                            |

| Variable Type     | Variable Name              | Definition and Assignment                                  |
|-------------------|----------------------------|------------------------------------------------------------|
| Control Variables | Household Economic Capital | 1% Winsorization of household per capita net income        |
|                   | Gender                     | 0 = Female, 1 = Male                                       |
|                   | Academic Score             | Scored from 1 to 5                                         |
|                   | Household Size             | Number of family members                                   |
|                   | Region                     | 1 = Western region, 2 = Central region, 3 = Eastern region |

4 Research Design

4.1 Descriptive Statistics and Correlation Analysis

Table 2. Descriptive statistical results of core variables (sample size N=1554).

|                            | Mean  | Standard Deviation | Mini-mum | Maxi-mum | Median |
|----------------------------|-------|--------------------|----------|----------|--------|
| Educational Attainment     | 0.255 | 0.436              | 0        | 1        | 0      |
| Household Cultural Capital | 8.925 | 3.675              | 0        | 19       | 9      |
| Household Social Capital   | 0.152 | 0.359              | 0        | 1        | 0      |
| Household Economic Capital | 0.013 | 0.016              | 0        | 0.103    | 0.008  |
| Gender                     | 0.512 | 0.500              | 0        | 1        | 1      |
| Academic Score             | 3.294 | 0.797              | 1        | 5        | 3      |
| Household Size             | 3.56  | 1.233              | 1        | 10       | 3      |
| Region                     | 2.008 | 0.825              | 1        | 3        | 2      |

As shown in the descriptive statistics (Table 2), the mean value of higher education attainment is 0.255, indicating that only 25.5% of individuals obtained an associate degree or higher. This reflects the scarcity of higher education opportunities. Significant disparities exist across family capital dimensions: Cultural capital, measured by parents' highest years of schooling, shows a mean of 8.925 years (SD = 3.675 years), approximating junior high school graduation level. Its significant dispersion reveals heterogeneity in intergenerational educational backgrounds. Social capital and economic capital exhibit mean values of 0.152 and ¥0.013 million (adjusted to 2010 constant prices), respectively, with the latter demonstrating a substantial range of ¥0.103 million. These patterns collectively underscore structural inequalities in capital distribution. Control variables are reasonably distributed: Gender ratio is balanced (sex =

0.512), academic performance follows a normal distribution (mean = 3.294 out of 5), and average family size is 3.56 members.

Correlation analysis results (Table 3) indicate that all three types of family capital show significant positive correlations with higher education attainment, preliminarily confirming the facilitative role of family capital in educational attainment. Notably, cultural capital and social capital demonstrate the strongest correlation ( $r = 0.399$ ), reflecting a high degree of interconnection between educational backgrounds and social network resources. This pattern corroborates Bourdieu's theory regarding the synergistic effects of capital.

**Table 3. Descriptive statistics of variables.**

|                            | Educational Attainment | Household Cultural Capital | Household Social Capital | Household Economic Capital |
|----------------------------|------------------------|----------------------------|--------------------------|----------------------------|
| Educational Attainment     | 1                      |                            |                          |                            |
| Household Cultural Capital | 0.166***               | 1                          |                          |                            |
| Household Social Capital   | 0.115***               | 0.399***                   | 1                        |                            |
| Household Economic Capital | 0.068***               | 0.254***                   | 0.229***                 | 1                          |

**4.2 Baseline Regression: Differential Effects of Capital Dimensions**

**Table 4. Baseline regression.**

|                            | (1)                        | (2)                      | (3)                        |
|----------------------------|----------------------------|--------------------------|----------------------------|
|                            | Household Cultural Capital | Household Social Capital | Household Economic Capital |
| Household Cultural Capital | 0.102***<br>(5.674)        |                          |                            |
| Household Social Capital   |                            | 0.596***<br>(3.919)      |                            |
| Household Economic Capital |                            |                          | 6.717*<br>(1.826)          |
| Gender                     | -0.217*<br>(-1.822)        | -0.188<br>(-1.588)       | -0.195*<br>(-1.655)        |
| Academic Index             | 0.144*<br>(1.901)          | 0.161**<br>(2.146)       | 0.157**<br>(2.099)         |
| Household Size             | -0.013<br>(-0.259)         | -0.030<br>(-0.607)       | -0.022<br>(-0.440)         |

|                         | (1)                             | (2)                           | (3)                             |
|-------------------------|---------------------------------|-------------------------------|---------------------------------|
|                         | Household Cul-<br>tural Capital | Household So-<br>cial Capital | Household Eco-<br>nomic Capital |
| Region 2 (Cen-<br>tral) | 0.508***<br>(3.311)             | 0.587***<br>(3.867)           | 0.623***<br>(4.124)             |
| Region 3 (East-<br>ern) | 0.443***<br>(2.899)             | 0.533***<br>(3.531)           | 0.528***<br>(3.453)             |
| Constant                | -2.676***<br>(-7.150)           | -1.899***<br>(-5.717)         | -1.909***<br>(-5.648)           |
| r <sup>2</sup> p        | 0.037                           | 0.026                         | 0.019                           |

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

Table 4 demonstrates that all three forms of capital exert positive effects on higher education attainment, though with varying magnitudes and statistical significance.

First, cultural capital exhibits a coefficient of 0.102 ( $z = 5.674$ ), indicating that each additional year of parental schooling significantly increases offspring's probability of obtaining higher education by 10.2% ( $p < 0.01$ ). This suggests cultural capital directly fosters academic development through shaping scholarly environments, particularly influencing bachelor's degree attainment. Social capital shows a coefficient of 0.596 ( $z = 3.919$ ), reflecting how social network resources embedded in parental educational backgrounds significantly reduce institutional barriers ( $p < 0.01$ ). Economic capital registers a coefficient of 6.717 ( $z = 1.826$ ), implying that each ¥10,000 increase in per capita household income multiplies enrollment probability by 6.7 times ( $p < 0.1$ ). However, it demonstrates the lowest explanatory power ( $R^2_p = 0.019$ ), indicating diminishing marginal effects of purely financial investment. Crucially, economic capital requires conversion into educational resources to become effective, exhibiting weaker independent influence than cultural and social capital—a pattern aligning with Bourdieu's theory of "capital complementarity".

Among the control variables, the coefficient for academic performance (study) ranges from 0.144 to 0.161, confirming individual ability as a foundational determinant of educational attainment. However, the gender coefficient ( $\text{sex} = -0.217$ ) indicates a persistent disadvantage for females in accessing higher education. This necessitates a critical examination of gendered patterns in cultural capital transmission—particularly the impact of maternal cultural mediation on females (Bourdieu, 1986). Separately, significantly positive coefficients for regional dummy variables (2. region, 3. region) validate the educational resource advantage in eastern regions, warranting targeted policy interventions to mitigate geographical disparities.

### 4.3 Robustness Test

To ensure the robustness of findings, this study employs two verification approaches. The first method involves covariate adjustment.

Robustness checks employing an alternative economic capital measure (reco\_pa) demonstrate consistent results (Table 5), with core variables maintaining stable coefficient signs and significance levels. The cultural capital coefficient increased to 0.153 ( $z = 6.342$ ), social capital to 0.651 ( $z = 3.584$ ), while economic capital registered 2.036 ( $z = 2.135$ ). Crucially, covariates retained identical directional effects as in the baseline model, confirming the robustness of findings.

**Table 5. Control variable method.**

|                            | (1)                        | (2)                      | (3)                        |
|----------------------------|----------------------------|--------------------------|----------------------------|
|                            | Household Cultural Capital | Household Social Capital | Household Economic Capital |
| Household Cultural Capital | 0.153***<br>(6.342)        |                          |                            |
| Household Social Capital   |                            | 0.651***<br>(3.584)      |                            |
| Household Economic Capital |                            |                          | 2.036**<br>(2.135)         |

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

**Table 6. Model replacement method.**

|                            | (1)                        | (2)                      | (3)                        |
|----------------------------|----------------------------|--------------------------|----------------------------|
|                            | Household Cultural Capital | Household Social Capital | Household Economic Capital |
| Household Cultural Capital | 0.060***<br>(5.768)        |                          |                            |
| Household Social Capital   |                            | 0.359***<br>(3.869)      |                            |
| Household Economic Capital |                            |                          | 4.065*<br>(1.805)          |

\*  $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$

To mitigate specification bias, the model was re-estimated using a Probit specification (Table 6). Core findings remain unchanged: Cultural capital coefficient stands at 0.060 ( $z = 5.768$ ), social capital at 0.359 ( $z = 3.869$ ), and economic capital at 4.065 ( $z = 1.805$ ). Regional variables demonstrate high coefficient stability (e.g., 2. region  $\approx 0.3$ ), further confirming the robustness of baseline estimates.

## 5 Conclusion

Grounded in Bourdieu's capital theory, this study employs 2010–2022 CFPS panel data ( $N=1,554$ ) to examine differential impacts of family capital on higher education attainment via multivariate logistic regression. Results confirm significant positive yet structurally distinct effects: Cultural capital demonstrates the strongest influence with each additional parental education year increasing attainment probability by 10.2% ( $*p<0.01$ ) through intergenerational knowledge transfer; social capital confers 59.6% higher enrollment odds for elite-class children ( $*p<0.01$ ) by reducing institutional barriers; while economic capital shows limited efficacy—a ¥10,000 income increase multiplies probability by only  $6.7\times$  ( $*p<0.1$ ) with low explanatory power ( $R^2=0.019$ )—requiring conversion into educational resources to gain effectiveness, thereby supporting capital complementarity theory.

These findings offer clear policy implications: Educational investments must integrate capacity-building, particularly in rural areas where support should transcend financial subsidies to simultaneously cultivate cultural capital through parental training and activate social capital via county-level information platforms. Interventions should address specific capital deficiencies—correcting utilitarian educational attitudes in low-cultural/high-economic-capital families through school guidance, while providing targeted financial assistance to low-economic/high-cultural-capital households to leverage their cognitive potential. Finally, reducing regional and gender disparities requires strengthening educational resources in central-western China and examining gendered patterns in cultural capital transmission.

Future research could deepen exploration along three directions. First, adopt mixed research methods to deeply analyze how "low-economic/high-cultural" families compensate for resource disadvantages through educational ethos, as well as the failure pathways of educational investments in "high-economic/low-cultural" households. Second, use dynamic CFPS (China Family Panel Studies) data to model the conversion efficiency of economic capital to cultural capital and social capital to economic capital, along with their long-term educational returns. Third, examine the heterogeneity in social capital mechanisms between urban and rural households—for example, the differential impacts of rural kinship networks versus urban professional networks on access to educational opportunities—to provide fine-grained evidence for localized policymaking.

In summary, to break the intergenerational solidification of educational inequality in the field of educational attainment, it is necessary to construct a three-dimensional collaborative intervention system integrating economic capital, cultural capital, and social capital. While continuously expanding the overall quantity of higher education opportunities, only by accurately identifying the inherent shortcomings in family capital structures and optimizing capital conversion pathways through institutional design can we effectively disrupt the intergenerational reproduction cycle of inequality and promote substantive progress toward fair educational outcomes.

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