

# Family Time and Money Inputs in Education and Teenager Development: Interpretation of Social Capital, Cultural Capital, and Shadow Education

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*This paper utilizes data from the China Education Panel Survey 2013-2015 to examine the effects of family time and money inputs in education on adolescent academic performance from the perspectives of home social capital, cultural capital, and shadow education. Home time input in education is more vital to teenager academic progress than money input. Domestic social capital and cultural capital as well as weekend shadow education positively impact child academic results. Home-based parental participation as a key component of domestic social capital has the most significant influence on teenager academic improvement, while weekend supplementary tutoring generates the weakest effect; workday extracurricular tutoring even negatively affects student academic achievement. School-based parental involvement differs among families of different classes, with a significant negative effect on academic results of teenagers from disadvantaged backgrounds. Due to the absence of heterogeneity effects of home time input in education on academic progress of students from various social backgrounds, parental time investment should be taken as the most effective means to improve academic performance of adolescents from underprivileged classes.*

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Previous studies on family educational investment mostly focus on one single dimension such as parental participation, cultural capital, or shadow education. Few of them integrate home time and money inputs in education in one discussion, despite that the two are generally concurrent. The differences in home time and money investment in child education among families of different classes as well as the impact of the inputs on teenagers and its power are worth exploration. Based on data from the China Education Panel Survey 2013-2015, we discuss the social stratification of home educational investment and the effects of differential family inputs on adolescent development. To be specific, this paper addresses the following topics: 1) the current state of time and money inputs in education by families of different social status and disparities in social capital, cultural capital, and access to shadow education among differentiated family backgrounds (such as the family economic status, parental education level, parents' professional status); 2) the impact of social capital, cultural capital, and shadow education on teenager academic performance and its power; 3) the impact of time and money investment in education by families of different social strata on child academic achievement and heterogeneity effects of social capital, cultural capital and extracurricular tutoring on the development of students with different family backgrounds.

## **Research Data and Variables**

This study uses data from CEPS 2013-2014 and 2014-2015 to investigate the impact of home time and money inputs in education on teenager academic achievement. CEPS 2013-2014 randomly selected 438 classes (roughly 20,000 students) from 112 schools in 28 county-level administrative regions in China. In the academic year of 2014-2015, it succeeded in following up 9449 students who were the 7th graders in 2013-2014. Their average score of Mathematics, Chinese, and English is treated as the dependent variable. Core explanatory variables include social capital, cultural capital, and shadow education. Social capital consists of domestic activities such as parental company, parent-child communication, parental supervision and external events like school-parent communication, parents' meetings, inter-parent interactions. Cultural capital includes parents' time input in reading (reading habit) and money input (book collection). Shadow education refers to both Monday-Friday and weekend extracurricular tutoring. Individual attributes, family backgrounds, and school features are used as control variables. Individual attributes include gender, hukou, the only child of the family or not, early ability, parental and self-education expectations, and parents' expectations of child academic performance; Family backgrounds refer to home economic status, parents' highest education level and occupational position; School features cover the regional level of the school location, school type, and school ranking.

## **Methodology**

This study adopts descriptive statistical methods such as chi-square test and F test to analyze the status quo of and differences in social capital, cultural capital, and shadow education among families with different backgrounds. Moreover, ordinary OLS regression is used to investigate the effect of different family educational inputs such as parental participation, cultural capital and shadow education on adolescent academic performance, and Shapley decomposition is used to analyze the influence of family money

and time investment in education on the gap in adolescent academic performance. Furthermore, the interaction terms of parameters such as family backgrounds (family economic status, parents' occupational position and education level), social capital, cultural capital and shadow education are incorporated into the analysis to ascertain the heterogeneity of impact of home time and money investment in education on the academic achievement of adolescents from different social classes.

## **Research Results**

### ***Descriptive Statistics***

The average academic results of children from socioeconomically advantaged families (with high economic status and high parental education level and occupational position) are significantly superior to those of children from disadvantaged families (with impoverished or manual-worker parents of education background below senior secondary level); the former score 10 points higher than the latter in Mathematics, Chinese, and English tests on average. There are substantial differences in time and money inputs in education among families of different backgrounds. Socioeconomically advantaged Families from the middle and above classes have significantly higher economic and time investment in education than their disadvantaged counterparts. Nonetheless, there is no remarkable difference in parental company between them.

### ***The Differentiated Effects of Home Educational Inputs on Adolescent Academic Performance***

Extracurricular tutoring on workdays (from Monday to Friday) imposes a significant negative effect on adolescent academic results, while that on weekends has significant positive impact. Cultural capital such as the family book collection and parental reading habit affects adolescent academic achievement positively. Domestic social capital such as parental company and parent-child communication has a significant positive impact on adolescent academic performance; the higher the frequency of parental participation, the better the child academic performance; parental supervision has a significant negative influence on adolescent academic results. External social capital such as parents' meeting and inter-parent communication is not correlated with adolescent academic performance; the higher the frequency of home-school communication, the lower the student academic performance. Differentiation of effects of social capital, cultural capital, and extracurricular tutoring on adolescent academic achievement by the Shapley decomposition method shows that social capital and cultural capital account for average score gaps among students (6.94% and 6.10%, respectively) more than extracurricular tutoring (2.58%). To be more specific, domestic social capital has a significantly higher accountability rate (5.82%) than the external social capital (1.43%); parent-child communication has the greatest impact, with an accountability rate of 3.82%. In terms of cultural capital, weekend extracurricular tutoring accounts for average score disparities among students (1.86%) more than weekday tutoring (0.38%), but significantly less than parent-child communication, book collection size and parental reading habits.

## ***Heterogeneity Effects of Family Educational Investment on Academic Performance of Teenagers with Different Family Backgrounds***

Parental supervision and home-school communication have significant heterogeneity effects on academic performance of adolescents from families with different economic status; the interaction term between parental supervision and home economic status is significantly negative, indicating that the negative impact of parental supervision on adolescent academic achievement decreases with lowered family economic status; the interaction term between home-school communication and family economic status is significantly positive, indicating that the positive effect of home-school communication on adolescent academic performance decreases with lowered family economic status. Home book collection sizes and parents' meetings have significant heterogeneity effects on academic results of adolescents with parents of different occupational positions, and the positive effects of these two variables on adolescent academic results increase with lowered parents' occupational positions. Weekend extracurricular tutoring, book collection sizes, parents' meetings, inter-parent communication have significant heterogeneity effects on academic performance of adolescents with parents of different education levels; the interaction terms between parents' education level and weekend extracurricular tutoring, the home book collection size, and the parents' meeting are significantly negative, while the interaction term between parents' education level and inter-parent communication is significantly positive, indicating that weekend extracurricular tutoring, book collection sizes, parents' meetings have a greater positive effect on academic achievement of teenagers having parents with education background of senior secondary level or below, and that inter-parent communication had a greater positive effect on academic performance of adolescents with highly educated parents.

### **Conclusions and Discussion**

- There exist class differences in home time and money inputs in education. Parents of middle-class or above not only spend more money in acquiring off-campus educational service and resources for their children, but also spare more time to accompany their children than those in manual labor force with education backgrounds of senior secondary level or below and poor incomes. Therefore, home time and money inputs in education by the advantaged classes are significantly higher than those by the disadvantaged classes.
- Family time input in education is the primary factor affecting child academic performance. Relatively direct time input on children by parents in the form of home social capital such as parent-child communication exerts the greatest effect on adolescent academic achievement. There is timing difference in the impact of shadow education on student progress. Extracurricular tutoring between Monday and Friday fails to improve or even impairs teenager academic performance, while attending extracurricular tutoring on weekends can significantly improve adolescent academic results.

- Heterogeneity effects of home time investment in education in some specific forms are most pronounced on adolescent academic performance. The negative impact of parents' meetings on student academic results lessens with lowered parental education levels and occupational positions; there is the possibility that academic results of teenager students from working class with education background of senior secondary level or below are positively correlated with parental attendance of parents' meeting. The positive effect of parent-teacher and inter-parent communication on student academic progress increases with the elevation of family economic status and parents' education level. Economic inputs in weekend extracurricular tutoring and home book collection have a negative impact on the academic performance of adolescents from advantaged families, but a positive impact on the academic achievement of those from disadvantaged families.

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