

The Pennsylvania State University

The Graduate School

College of Education

**FAMILY BACKGROUND, PARENTAL EXPECTATION, AND ACADEMIC ACHIEVEMENT
OF EIGHTH-GRADE STUDENTS UNDER MAINLAND CHINA'S RURAL-URBAN DIVIDE**

A Thesis in

Educational Theory and Policy

by

Jiehui Zhao

© 2019 Jiehui Zhao

Submitted in Partial Fulfillment

of the Requirements

for the Degree of

Master of Arts

August 2019

The thesis of Jiehui Zhao was reviewed and approved* by the following:

Katerina Bodovski
Associate Professor of Education
Thesis Advisor

Mindy L. Kornhaber
Associate Professor of Education

Kevin Kinser
Professor of Education
Head of the Department of Education Policy Studies

*Signatures are on file in the Graduate School.

ABSTRACT

Extensive research has suggested that there is a large achievement gap between Chinese rural and urban students caused by educational inequality. However, less is known about the effects of family background and parental expectation on student achievement. This study examines the relationship between family background, parental expectation, and academic achievement under the rural-urban divide of Chinese society. Family background includes the sibling size, family structure, family socioeconomic status (SES), and home educational resources. Family SES is measured by parental education, parental occupation, and family income. Using a large representative sample of Chinese middle school students, this study finds that: 1). Rather than a rural-urban Hukou type, it is the social stratification of family background, especially family SES, that plays a significant role in the academic achievement of students. 2). Although the measures of family background show different patterns of influence on Chinese, mathematics, and English achievement, maternal education and home educational resources are significant and positive predictors, consistently across three subjects. 3). Parental expectation is significantly and positively associated with Chinese, mathematics, and English achievement.

TABLE OF CONTENTS

List of Tables.....	v
Acknowledgments	vi
Chapter I. INTRODUCTION	1
Chapter II. LITERATURE REVIEW	4
Family Background and Academic Achievement	4
Parental Expectation and Academic Achievement	9
Hypotheses	9
Chapter III. DATA AND METHODS	11
Dataset and Sample.....	11
Measures	11
Data Analysis	14
Chapter IV. RESULTS	16
Descriptive Results	16
Regression Results	19
Chapter V. DISCUSSION AND LIMITATION	23
Discussion of Main Findings	23
Limitations	26
Appendix A: Items Used to Measure Dependent and Independent Variables.....	29
Appendix B: Sample Characteristics by Hukou Type (Percentages)	31
Appendix C: Sample Characteristics by Hukou Type (Means and Medians)	33
References	34

LIST OF TABLES

Table 1: Descriptive Statistics of Variables	17
Table 2: Pearson Correlations Among Variables.....	18
Table 3: Unstandardized Coefficients from OLS Regression Models of Academic Achievement on Family Background and Parental Expectation.....	20

ACKNOWLEDGMENTS

I would like to thank Dr. Katerina Bodovski for the understanding, patience, and guidance I receive in the process of writing this thesis. I am also thankful for her encouragement, which allowed me to fulfill my potential and complete this study as best as possible. Special thanks go to Dr. Mindy Kornhaber for her helpful and inspiring comments on my thesis. Through his willingness to help when needed, Dr. David Post deserves my gratitude.

In addition, I would like to thank my family for their love and support. Without their help, it is impossible for me to start and finish my study here. Last, but not least, I am grateful to my husband, for encouraging and accompanying me on the journey of pursuing dream.

Chapter I

Introduction

When discussing education of Chinese children, one of the most influential background factors is the division of population embedded in the household registration system (Hukou). Hukou system categorizes the individuals into “agricultural” residents in rural areas and “non-agricultural” residents in urban areas. However, Hukou status doesn’t only refer to different locations of birth or registration, but importantly, determines people’s access to public services and welfare including education, employment, health care, pensions, and so forth. Scholars believe that Hukou status has a great impact on individuals’ educational attainment, social mobility, and employment opportunities (Fu & Ren, 2010). According to the *Report on the State of Children in China* (Chen, Yang, & Ren, 2015), there were significant disparities between rural and urban children aged 0-15 in many aspects such as academic achievement, socio-emotional development, and cognitive development. Compared to urban children, rural children had a lower level of outcomes in all these dimensions.

In addition to the unbalanced governmental investment in education between rural and urban areas, the other influential disadvantage rural children must face is lower family socioeconomic status (SES) (Chen, Yang, & Ren, 2015). For example, compared to their urban counterparts, rural parents are more likely to have a low level of education and earn less, limiting their capacity of providing academic support and enriched home environments for their children. Further, a considerable number of rural children live in nonintact families because of their parents’ migration to the cities for work. Since rural Hukou constrains children from enrolling in urban public schools, the migrant parents have to leave their children at home. These children who are left in their rural homes when one or both of their parents migrate to work in the urban

areas are called *left-behind children*, a more vulnerable group compared with other rural children. In 2010, over 61 million children lived without both parents or just with one parent in mainland China, which accounted for 38 percent of rural children and 22 percent of all children of the whole nation (All-China Women's Federation Research Group, 2013).

Numerous studies have proved that family background is a major determinant of children's academic achievement in international as well as Chinese contexts (Li & Qiu, 2018; Luo & Zhang, 2017; Long & Pang, 2016; Bradley & Corwyn, 2002; Davis-Kean, 2005). Many aspects of family have an effect on children's academic performance, for instance, family SES, sibling size, family structure, and educational resources at home. Among these factors, the researchers have mostly focused on the role of family SES in student achievement showing that high SES is associated with high academic achievement (Sirin, 2005; Bodovski & Farkas, 2008; Duffett-Leger et al., 2011). As discussed above, there are enormous differences in family characteristics between urban and rural areas in China. Meanwhile, in Chinese social context, academic achievement is crucial for students to obtain educational opportunities for next stage of education. The National Higher Education Entrance Examination system (known as the gaokao) can serve as the most typical example, the score of which is the sole determinant of college admissions for the vast majority of students. Hence understanding the relationship between family background and students' academic achievement is fundamental to decrease the structural inequality of educational opportunities existing in contemporary China.

Parental expectation can be defined as the beliefs or attitudes that parents hold about their children's future achievement which is mainly reflected in course grades, the highest educational level the child can achieve, or college attendance (Yamamoto & Holloway, 2010). Children with higher parental expectation tend to have better academic performance, greater likelihood to

attend college, and higher rate of college completion (Davis-Kean, 2005; Yamamoto & Holloway, 2010; Bodovski & Farkas, 2008; Ma, Siu, & Tse, 2018). Froiland and Davison (2014) even claimed that parental expectation had a stronger effect on positive school outcomes than family SES among U.S. middle and high school students. A few studies conducted in Chinese settings (Long & Pang, 2016; Fang et al., 2018) have also shown that parental expectation is significantly and positively associated with academic achievement of students. Drawing a nationally representative sample of Chinese elementary and middle school students, Fang and colleagues (2018) found that among the demographic and socioeconomic variables parental expectation had the strongest association with students' academic achievement. These findings provide the rationale for further studies on the role of parental expectation in student achievement within Chinese context. In comparison with the socioeconomic status, parental educational expectation seems a factor more likely to be intervened (Mao & Wang, 2017). This fact can be leveraged to impact the academic achievement of children from disadvantaged families, especially the ones living in rural areas.

Chapter II

Literature Review

This study builds upon a broad literature addressing the relationship between family background, parental expectation, and academic achievement.

Family background and academic achievement

Family SES and academic achievement

There have been numerous studies examining the relationship between family SES and students' academic achievement. These studies have generally found that children from high-SES families tend to demonstrate higher academic achievement than children from families of low-SES status (Sirin, 2005; Bodovski & Farkas, 2008; Duffett-Leger et al., 2011; Long & Pang, 2016). For example, reviewing 58 journal articles on SES and academic achievement published in the 1990s, Sirin (2005) concluded that students' academic performance was strongly and positively impacted by family SES in the U.S. Further, substantial differences in academic achievement are found between high-SES and low-SES children across many societies. For instance, according to the meta-analysis conducted by Duffett-Leger and colleagues (2011), among 3-12 years old children from diverse cultural backgrounds, the ones from higher SES families showed better language and literacy outcomes. Also, in terms of science achievement, Mere, Reiska, and Smith's (2006) study of Estonian eighth-grade students found a strong positive association between student-level SES and science achievement measured by three cognitive domains of factual knowledge, conceptual understanding, and reasoning and analysis skills. Similarly, with a nationwide sample of 10-15 years old children in mainland China, Li & Qiu (2018) found an unbalanced academic achievement in language and mathematics between

children living in rural and urban areas. Lower family SES was one of the major reasons why rural students were at a disadvantage in academic outcomes.

There is also volume of research examining the mechanisms of how different socioeconomic dimensions exert influence on children's academic achievement. Parental education, parents' occupational prestige, and family income are three most commonly used measures of family SES by researchers (Bodovski, 2010; Han, 2014; Schulz et al., 2017). Firstly, with respect to parental education, it has been proved that children's academic achievement is associated strongly with parents' level of educational attainment. Children of highly educated parents show higher academic achievement than those with less educated parents (Bradley & Corwyn, 2002; Erikson, 2016; Long & Pang, 2016). Parents with higher educational level are inclined to adopt "concerted cultivation" (Lareau, 2011) approach by organizing children's daily life in structured activities to foster their abilities. Also, children from highly educated families are more likely to be engaged in cognitively stimulating activities, receive higher educational expectation of parents, get help with homework, and know how to interact with the teacher (Lareau, 2011; Pensiero, 2011). All these factors have positive impact on children's educational success, as a result, children from highly educated families generally outperform their counterparts with less educated parents. Secondly, the literature on the relationship between family income and children's academic achievement is enormous, but there are mixing results reported. On the one hand, many studies show that children from low-income families suffer from poor academic achievement and fewer years of schooling (Duncan, Magnuson, & Votruba-Drzal, 2014; Duncan & Magnuson, 2005; Sherman, DeBot, & Huang, 2016). One of the main reasons is that compared to children with high-income parents, the poor ones are more likely to lack cognitively enriching environments, educational resources, and learning materials. On the

other hand, other studies have presented findings implying that the effects of family income are overstated. For example, Mayer (1997) argued that additional family income was not so consequential once the basic needs of children were met (as cited in Campbell & Parcel, 2010). With a sample of over 5,000 ninth-grade students from five cities in different geographical districts of China, Long and Pang (2016) found that family wealth was a significant positive predictor of mathematics achievement but had no statistically significant association with problem-solving achievement. This suggests a complex relationship between family economic status and student achievement. Regarding which dimension of family SES plays a more important role in students' academic achievement, several previous studies (Zhang & Lee, 2011; Luo & Zhang, 2017; Rindermann & Ceci, 2018; Davis-Kean, 2005) have indicated that parental educational attainment has a stronger impact on children's educational success than family income. The explanation is that parental education is more influential in the quality of children's environments across development, for instance, parent-child interactions, parental beliefs about education, the number of books at home, engagement of cognitively stimulating activities, and parental involvement in homework, etc. Thirdly, parental occupational status is often discussed together with the other two components of family SES referring to the relationship with academic achievement of students. It has been shown that parental occupation has a positive impact on children's academic performance across diverse countries (Marks, 2008; Zhang & Lee, 2011). Parents with higher-status occupation are more motivated to keep the social status of families and invest in children's education. At the same time, higher parental occupational status provides the children with more sociocultural resources. Consequentially, compared to the children with lower parental occupational status, the higher ones are more familiar with the

language used and cultural practices happening in the education system so that it is easier for them to succeed in school (Schulz et al., 2017).

Only-child status, family structure, and academic achievement

According to the resource dilution model (Blake, 1981; Downey, 2001), if parental finite resources such as time, energy, and money must be shared with more children, each child's development would be hurt. Therefore, the academic achievement of children who have fewer siblings is supposed to be better than the ones who come from larger families. Many studies across different societies have confirmed this theory and found a negative association between the number of siblings and children's educational outcomes (Ponczek & Souza, 2015; Knodel & Wongsith, 1991). With the initiation of Chinese one-child policy at the end of the 1970s, the development of one-child has attracted many researchers' attention (Cameron et al., 2013; Liu et al., 2017; Falbo & Poston, 1993). Liu et al.'s (2017) study, with a large sample of seventh- and eighth-grade students from the middle part of China, suggested that compared to non-only children, on average only children had better academic performance in Chinese and mathematics. Shen (2017) also argued that an additional sibling would lead to approximate seventeen percent decline in the likelihood of finishing middle school in China.

The fact that family structure influences children's well-being has been proved by many studies (Thompson, Alexander, & Entwisle, 1988; Downey, 1994; Radl, Salazar, & Cebolla-Boado, 2017). With a sample of third- and fourth-graders in 11 countries, researchers found that compared to children who lived with two parents, those who lived with a single parent suffered a lower achievement in math and science (Pong, Dronkers, & Hampden-Thompson, 2003). Both the absence of father and mother have a significant impact on children's academic performance. But more studies focus on fathers' absence because the father is usually the missing parent

(Shinn, 1978). After reviewing the literature on the relationship between father absence and adolescent development, East, Jackson, and O'Brien (2006) drew a conclusion that growing up in father-absent families was often linked to poorer academic achievement. In terms of parental absence in mainland China, much attention has been paid to rural areas because the large-scale migration of rural parents to urban workplaces results in a huge mass of left-behind children. In both Zhang et al.'s (2014) and Wu and Zhang's (2017) studies, the findings were consistent that parental absence had significantly negative effects on the rural primary school students' academic achievement in Chinese and mathematics. However, Zhang et al. (2014) contended that only when both parents were absent, children's academic outcomes would be negatively influenced while the absence of a single parent didn't have a significant impact.

Home educational resources and academic achievement

The material resources available at home such as a specific desk to study at, books, computer, and access to the Internet can influence students' academic achievement (OECD, 2017). Previous studies found that disparities in family SES were accountable for variations in home educational resources (Roscigno & Ainsworth-Darnell, 1999; Chiu & Chow, 2015). In comparison with the low-status students, their counterparts with high-status background have more educational resources at home and thus are more likely to perform well academically (Long & Pang, 2016; Chiu & Chow, 2015). However, home educational resources can mediate the effects of family background on academic achievement (Mayo & Siraj, 2015; Roscigno & Ainsworth-Darnell, 1999). On the one hand, this is because access to more books and a computer for school work directly and positively influence academic outcomes. On the other hand, parents who are willing to provide more educational resources at home tend to adopt "active" (Mayo &

Siraj, 2015) parenting practices to help their children gain academic success and thus the unfavorable family SES is less powerful (Kiernan & Mensah, 2011).

Parental expectation and academic achievement

Extensive research across various cultures has demonstrated that parental expectation has a positive impact on their children's educational achievement (Bodovski & Farkas, 2008; Yamamoto & Holloway, 2010; Ma, Siu, & Tse, 2018; Long & Pang, 2016). Nevertheless, parental expectation has little effect on academic performance unless it is communicated to children (Chen & Lan, 2006). Integrating numerous research results, Seginer (1983) depicted the mechanisms between parental expectation and children's academic achievement. She concluded that high parental expectation was related to more achievement supporting behaviors, differential reinforcement adopted by parents, and a higher level of children's aspirations so that the children achieved better educational outcomes. Similarly, Yamamoto and Holloway (2010) described the process through which parental expectation exerts influence on students' academic attainment. According to their study, the high value parents placed on academic achievement was strongly associated with higher students' expectation of their own education, more resilient sense of academic self-efficacy, more intensive and effective parental involvement in schooling, and more optimistic teacher perceptions of child's capabilities. The supportive strength from all these four aspects increased the chance of students' academic success.

Hypotheses

Considering the above discussion, this current study proposes and evaluates four research hypotheses.

Hypothesis 1—Compared to urban students, the rural ones have lower academic

achievement.

Hypothesis 2—Only-child status, family structure, and family SES are positively associated with students' academic achievement.

Hypothesis 3—Students with more educational resources at home have higher academic achievement.

Hypothesis 4—Controlling for other variables, parental expectation is a significant and positive predictor of students' academic achievement.

Chapter III

Data and Methods

Dataset and sample

Data for the current study is retrieved from the Chinese National Survey Data Archive (CNSDA), which is also the supporter of China Education Panel Survey (CEPS). CEPS is a large-scale, nationwide, and longitudinal social survey of junior high students in China. This study is based on the data collected by CEPS for the academic year 2014-2015 through questionnaires. Participants were eighth-grade students sampled from the whole nation. In terms of sampling methods, the Chinese county-level (3rd) administrative division (counties, districts, and cities) were first stratified based on the average educational level of the population and the proportion of migration population and then 28 county-level units were selected randomly. Next, 112 schools and 438 classes were randomly selected from the sampled county-level units. All the students in the selected classes were sampled, 10,750 students in total were included in the sample. Two separate questionnaires were designed for the sampled students and their parents. With the unique identification number for every individual student, the match and merging of these two data sets are possible. Excluding the cases with missing values, the final sample includes 7,386 eighth-grade students with approximately half being rural (3,939) and half being urban (3,447).

Measures

Academic Achievement. The CEPS program collected the Fall 2014 midterm exam scores of sampled eighth-grade students in three core subjects: Chinese, mathematics, and English. The grades were provided by the sampled schools directly but not self-reported by students (CEPS, 2017). The schools adopted three different grading systems, for instance, the hundred mark system, 0-120 mark system, and 0-150 mark system. For the purposes of

comparison, all the original grades with a scale of 0-120 or 0-150 are converted to the 100-point grading system. With respect to the validity of using the results of non-standardized tests to compare, since China has mandatory national curriculum standards which control over the teaching targets and specific content to be taught at various grade levels, these tests could be very similar. This suggests that the midterm exam scores can be considered valid for comparative purposes.

Parental expectation. The parents who participated in this survey were asked: “What is the highest level of education do you expect this child to receive?” A 9-point scale is used for the options from low to high educational level (1 = drop out now, 2 = junior high school, 3 = technical secondary school or technical school, 4 = vocational high school, 5 = senior high school, 6 = junior college, 7 = bachelor’s degree, 8 = master’s degree, 9 = Ph.D. degree).

Rural-urban divide. Based on their Hukou type, the students are divided into rural-urban groups. In the parent questionnaire, the related item question is “What is the type of his/her Hukou at present?” There are three answer options listed as “Agricultural Hukou”, “Non-agricultural Hukou”, and “Residential Hukou”. Agricultural Hukou is equal to rural Hukou identifying the holder as a rural resident. Non-agricultural Hukou is registered for the urban population. The residential Hukou is a new type which is initiated in 2014 according to the recent household registration system policy (State Council of the P.R.C., 2014). It is a general record of residence without a differential of rural and urban background assigned to all residents in certain regions. However, the descriptive statistics (see Appendix C) shows that for the residential Hukou holders, the means and medians of only-child status, parental education, parental occupation, type of housing, desk, book, computer, and Internet are very close to those of non-agricultural Hukou holders. Therefore, in the present study, both residential and non-

agricultural Hukou holders are classified into an urban group. In sum, the Hukou type is recoded into dummy variables with rural = 1 and urban = 0.

Only-child Status. With the context of the national one-child policy, the only-child status should be counted as one necessary aspect of Chinese family background. In the surveys for the students, they were asked whether they were the only child of their parents or not. In this study, their responses were dummy coded as 0 = no, 1 = yes.

Family structure. The item question related to the family structure is “Which of the following people live in the same household with you at present?” Students marked all the answers applied to their own situations. Based on the responses, students are dummy recoded into the following categories: (1) living with no parent, (2) living with just one parent, and (3) live with two married parents.

Family SES. The current study uses the common indicators of family SES such as parental education, parental occupation, and family income as variables. Educational qualification is used as the index of parental education. In the parent questionnaire, data on both parents’ educational levels were collected by asking “What is the highest education level of this child’s father (mother)?” The answers are based on a 9-point scale ranging from 1 (none) to 9 (master’s degree or higher). Data on parental occupation status were collected by asking parents “What is the current occupation of this child’s father (mother)?” For the research purpose, based on Li’s (2005) study on the occupational socio-economic index in contemporary China, the responses of parental occupation status are recoded into a range from 1 to 5 with an ordinal scale. With the limitation of available data, in this study, the variable family income just can be measured by the type of housing the participants are living in. The item question for this is “Regardless of buying or renting a house, what type of house/apartment do you live in at

present?” The responses to the question use a 5-point scale from low to high.

Home educational resources. The educational resources at home were reported by students. They are measured by three questions: “Do you have a writing desk of your own at home?”, “How many books do your family own (not including textbooks or magazines)?” and “Do your family own a computer and have access to the Internet?” A “yes” or “no” option was answered for the first question, and the second was answered by evaluating the number of books at home ranging from 1 (very few) to 5 (a great number). With the responses to the third question, two items: the ownership of a computer and the availability of the Internet at home, are recoded respectively as binary variables (0 = no, 1 = yes). The Cronbach’s alpha for the home educational resources is .66. This reliability coefficient doesn’t seem very high, but with the PISA 2009 data, home educational resources scale had average reliability no more than .58 (Rutkowski & Rutkowski, 2013). In addition, a Confirmatory Factor Analysis (CFA) was conducted using IBM SPSS Amos 25.0 software to assess the validity of currently adopted scales of home educational resources. The results show that all the factor loadings are statistically significant at $p < .001$ and they are .45, .44, .92, and .90 respectively for the desk, book, computer, and access to the Internet. Some scales’ factor loadings don’t appear high, however, Garson (2010) thought that factor loadings $> .40$ were medium and acceptable (as cited in Cabrera-Nguyen, 2010).

Data analysis

The analysis of the present study is done in two steps. Firstly, the rural-urban differences in family background, parental expectation, and academic achievement are examined using descriptive statistics. For the second part of data analysis, multiple linear regression is employed using IBM SPSS 24.0 software to test the hypotheses and determine what factors are significant

predictors of Chinese eighth-grade students' academic achievement. Four models are used for the regression analysis. In model 1, the rural hukou alone is included to identify the unadjusted rural-urban gap in academic achievement. In model 2, the measures of only-child status, family structure, and family SES are added. Then the model is extended through introducing the measures of home educational resources. And the last step incorporates parental expectation to complete the full model.

Chapter IV

Results

Descriptive results

Table 1 presents the means and standard deviations of all the above-mentioned variables for total, and separately for rural and urban sample. Fifty-three percent of the sample is rural, and 45 percent of the sample is the only child in the family. On average, parents' expectation for their children's educational attainment is getting a college degree. Among the sample students, 17% of them live in nonintact families: 8% of children live with none of the parents and 9% of children live in a one-parent family. The average educational level of both sample fathers and mothers is secondary vocational-technical education. In terms of home educational resources, for the student respondents, 79% have their own desk at home; 74% have a home computer, and 66% can get access to the Internet at home. On average, excluding textbooks and magazines, there are some but not many books in sample students' home.

A large gap is found between rural and urban middle schoolers in the academic achievement. The average urban students' score in Chinese, mathematics, and English is 2.50, 5.81, and 10.04 higher than the average score of rural students. Furthermore, there are also striking rural-urban differences in only-child status, family structure, and family SES. In the sample, 26% of rural students don't have any siblings while 67% of the urban ones are the only child. This result is consistent with the finding that China's one-child family policy was implemented more successfully in urban areas than in rural areas (Kane & Choi, 1999). But the rural children are more likely to live in families without none of the parents than the urban ones. Eleven percent of rural students reports living in a no-parent family while only 5 percent of urban students don't live with either parent. With respect to family SES, a great gap between rural and urban students exists in each dimension. The average level of rural fathers' educational

attainment is almost 1.5 standard deviations lower than the average educational level of urban fathers. Similarly, the average rural mothers' educational level is nearly 1.5 standard deviation lower than the mean of their urban counterparts. Also, both the average occupation status of rural fathers and mothers are about one standard deviation below the means of urban fathers and mothers. Besides, the average type of housing rural respondents live in is more than one standard deviation below that of the urban ones, suggesting lower average rural family income. Last, despite the differentials of rural-urban home educational resources are not as salient as the other variables, the rural students are still relatively disadvantaged compared with urban students.

Table 1. Descriptive Statistics of Variables

Variables	Total		Rural		Urban	
	Mean	SD	Mean	SD	Mean	SD
Rural Hukou	.53	.50	—	—	—	—
Parental Expectation	6.98	1.54	6.76	1.63	7.22	1.38
Chinese	69.48	14.16	68.31	15.13	70.81	12.84
Mathematics	65.04	25.40	62.33	26.04	68.14	24.29
English	63.22	23.80	58.54	23.55	68.58	22.94
Only-child Status	.45	.50	.26	.44	.67	.47
No Parents	.08	.27	.11	.31	.05	.21
One Parent	.09	.28	.09	.28	.09	.28
Both Parents	.83	.37	.81	.39	.86	.34
Father Education	4.28	2.00	3.40	1.39	5.29	2.11
Mother Education	4.01	2.00	3.11	1.35	5.04	2.13
Father Occupation	2.99	1.10	2.60	.84	3.43	1.20
Mother Occupation	2.64	1.15	2.29	.87	3.05	1.28
Type of Housing	2.88	1.28	2.27	1.21	3.58	.96
Desk	.79	.41	.69	.46	.90	.29
Book	3.11	1.16	2.75	1.09	3.52	1.10
Computer	.74	.44	.61	.49	.88	.32
Internet	.66	.47	.52	.50	.82	.39

Total N = 7,386 (Rural N= 3,939; Urban N= 3,447).

Table 2. Pearson Correlations Among Variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1.Hukou	—																	
2.Parental Expectation	-.15**	—																
3.Chinese	-.09**	.36**	—															
4.Mathematics	-.11**	.39**	.67**	—														
5.English	-.21**	.42**	.68**	.73**	—													
6.Only-child Status	-.45**	.12**	.11**	.15**	.22**	—												
7.No Parent	.15**	-.05**	-.06**	-.07**	-.09**	-.14**	—											
8.One Parent	-.00	-.05**	-.03*	-.03**	-.05**	.03*	-.09**	—										
9.Both Parents	-.08**	.08**	.06**	.08**	.10**	.08**	-.66**	-.69**	—									
10.Father Education	-.47**	.26**	.20**	.22**	.30**	.38**	-.12**	-.01	.09**	—								
11.Mother Education	-.48**	.24**	.21**	.23**	.30**	.42**	-.12**	-.00	.09**	.69**	—							
12.Father Occupation	-.38**	.19**	.15**	.17**	.24**	.31**	-.08**	-.03*	.08**	.57**	.50**	—						
13.Mother Occupation	-.33**	.16**	.14**	.17**	.23**	.33**	-.05**	-.04**	.06**	.45**	.54**	.52**	—					
14.Type of Housing	-.51**	.19**	.12**	.14**	.26**	.36**	-.15**	.01	.10**	.45**	.44**	.44**	.37**	—				
15.Desk	-.26**	.14**	.17**	.16**	.25**	.27**	-.18**	-.06**	.17**	.29**	.30**	.27**	.22**	.39**	—			
16.Book	-.33**	.24**	.20**	.19**	.30**	.30**	-.15**	-.05**	.15**	.40**	.41**	.36**	.32**	.40**	.44**	—		
17.Computer	-.31**	.13**	.18**	.17**	.24**	.29**	-.21**	-.01	.16**	.35**	.35**	.36**	.29**	.44**	.40**	.39**	—	
18.Internet	-.31**	.13**	.17**	.16**	.24**	.30**	-.21**	-.04**	.18**	.35**	.36**	.36**	.29**	.45**	.38**	.38**	.83**	—

** $p < .01$. * $p < .05$. (two-tailed tests of significance) (N=7,386).

Correlations among variables are shown in Table 2. Besides the dummy variables living with no parent and living with one parent, all the other variables are significantly and negatively associated with Hukou type. The correlations range from low (.08) to high (.51). In other words, compared to the urban respondents, the rural ones are at a disadvantage in parental expectation, academic achievement, number of siblings, family structure, family SES, and home educational resources. On the other hand, all the variables are significantly and positively associated with academic achievement with the correlations ranging from .06 to .42 except the Hukou type and the dummy variables living with no parent and living with one parent.

Regression results

For the dependent variable academic achievement, four models are estimated using ordinary least squares regression. The rural-urban difference is first examined and then the extent to which only-child status, family structure, family SES, home educational resources, parental expectation are responsible for the rural-urban achievement gap.

Table 3 reports the coefficients from OLS regression models. Baseline estimate of the rural-urban gap in academic achievement is shown in the first regression models. According to the results, compared to the urban students, rural students' average test score in Chinese, mathematics, and English is 2.50, 5.81, and 10.05 points lower. Thus, the research hypothesis 1 (compared to urban students, the rural ones have lower academic achievement) is supported by the data.

In models 2, with the control of only-child status, family structure, and family SES, for both Chinese and mathematics achievement, the coefficients on the Hukou type variable become positive, suggesting the rural students outperform their urban counterparts in these two subjects; for English achievement, there is no significant difference between the rural and urban eighth-

Table 3. Unstandardized Coefficients from OLS Regression Models of Academic Achievement on Family Background and Parental Expectation

Predictors	Chinese				Mathematics				English			
	1	2	3	4	1	2	3	4	1	2	3	4
Rural Hukou	-2.50**	1.49**	1.64**	1.43**	-5.81**	2.22**	2.42**	1.99**	-10.05**	.14	.41	.01
Only-child Status		.39	-.18	-.06		2.82**	2.12**	2.37**		3.13**	2.12**	2.34**
<i>Family Structure</i>												
No Parents		-1.81**	-.39	-.25		-4.10**	-2.37*	-2.08*		-3.37**	-.99	-.72
One Parent		-1.36*	-.77	-.12		-3.10**	-2.35*	-1.02		-3.96**	-2.80**	-1.59
<i>Family SES</i>												
Father Education		.63**	.52**	.20		1.16**	1.02**	.38		1.44**	1.24**	.66**
Mother Education		.92**	.74**	.56**		1.54**	1.31**	.95**		1.18**	.85**	.51**
Father Occupation		.37	.07	.00		.87*	.51	.37		.87**	.40	.27
Mother Occupation		.22	.15	.16		.64*	.55	.58		.76**	.64*	.66*
Type of Housing		.22	-.43**	-.59**		.19	-.60*	-.93**		1.83**	.71**	.41
<i>Home Educational Resources</i>												
Desk			2.09**	1.96**			2.72**	2.46**			4.94**	4.70**
Book			1.21**	.71**			1.61**	.60*			2.46**	1.54**
Computer			2.36**	2.33**			2.58*	2.51*			2.04	1.98*
Internet			.55	.79			.63	1.10			1.02	1.45
Parental Expectation				2.84**				5.74**				5.26**
Constant	70.81**	60.08**	56.70**	41.10**	68.14**	47.18**	42.83**	11.30**	68.58**	41.59**	35.00**	6.14**
Adjusted R ²	.01	.05	.07	.16	.01	.07	.08	.19	.04	.13	.15	.26

** . $p < .01$; * . $p < .05$.

grade students. At the same time, it is showed that compared to students who have siblings, only children perform better in mathematics and English, but no significant difference is found in Chinese. In addition, students living with none or one of the parents score lower in the tests of all these three core subjects compared with the ones living with two parents. Moreover, parental educational attainment is significantly and positively associated with children's Chinese, mathematics, and English achievement. Both father's and mother's occupational status are significant and positive predictors of mathematics and English achievement, but they have no significant impact on Chinese achievement. In terms of family income, it only plays a positive role significantly in students' English achievement. Overall, only-child status, family structure, and family SES are positively associated with students' academic achievement (hypothesis 2 is supported).

Models 3 involve home educational resources in the regression analysis when the variables in Models 2 are controlled. The results show that students who own a desk and have more books at home perform better in Chinese, mathematics, and English tests than the ones who own no desk and fewer books. Additionally, compared to students who don't have a home computer, the ones who have one score 2.36 and 2.58 points higher in Chinese and mathematics tests while there is no significant difference in English achievement between these two groups. However, access to the Internet at home has no significant effects on student achievement, regardless of the subject. Overall, the results support hypothesis 3 that students with more educational resources at home have higher academic achievement. Additionally, with the introduction of home educational resources variables, compared to models 2, the gaps of Chinese and mathematics scores are slightly larger between rural and urban students; also, the influence of only-child status, family structure, and family SES has reduced.

The final regression model adds parental expectation as an explanatory variable. Controlling the Hukou type, only-child status, family structure, family SES, and home educational resources, students' scores on average increase 2.84, 5.74, and 5.26 points significantly in Chinese, mathematics, and English when parental expectation raises one level. Therefore, hypothesis 4 (controlling other variables, parental expectation is a significant and positive predictor of students' academic achievement) is well supported by the results. With the introduction of parental expectation, the achievement gaps among students with diverse family structures, parental education, and amounts of books at home have reduced, even become insignificant; on the other hand, there are more achievement differences in Chinese and mathematics among students with disparate family income. Further, the addition of parental expectation to the regression model contributes most to the overall predictive power of the model. In predicting eighth-grade students' academic achievement in Chinese, mathematics, and English, the introduction of parental expectation makes the adjusted R^2 increase from .07 to .16, .08 to .19, and .15 to .26 respectively.

Chapter V

Discussion and Limitation

Utilizing a large, nationally representative sample, the present study examines the relationship between family background, parental expectation, and academic achievement of middle schoolers in mainland China. The rural-urban stratification labeled by Hukou type is a major consideration of this research. The previous studies suggested that there were disparities in academic achievement between rural and urban residents (Li & Qiu, 2018; Luo & Zhang, 2017). Based on the research literature, this study proposes four hypotheses. To test the hypotheses and explore factors influencing students' academic achievement, OLS regression models are employed based on the data collected by the China Education Panel Survey (CEPS) program for the academic year 2014-2015.

Discussion of main findings

The regression results in this study lend support to the argument that urban students have higher academic achievement than rural ones (Li & Qiu, 2018). The results also show that the achievement gap between rural and urban students is due to the differences in family background. Behind Hukou type de-facto is the social stratification of family SES, sibling size, family structure, and educational resources available at home. Rural students generally have multiple disadvantages of family background, which lead to lower academic achievement in Chinese, mathematics, and English. Once the family background variables are controlled, Hukou type becomes an insignificant predictor of English achievement. In contrast, for Chinese and mathematics, rural students outperform their urban counterparts. One possible interpretation for the reverse is that rural students are more motivated to study harder because higher score is a

major, if not the only thing they can rely on to realize upward mobility with Chinese exam-oriented education system (Kipnis, 2001).

As expected, family SES is significantly and positively associated with students' academic achievement. This finding is in line with previous research (Long & Pang, 2016; Li & Qiu, 2018; Sirin, 2005; Bodovski & Farkas, 2008; Duffett-Leger et al., 2011). However, different aspects of family SES impact student achievement in different ways across three subjects. Firstly, parental education has a significant and positive association with student achievement, especially mother's education, which is a more stable predictor. Prior research (Suizzo & Stapleton, 2007; Murnane, Maynard, & Ohls, 1981) has well documented that maternal education is more highly correlated with student achievement than the educational level of father. Because mothers are usually the primary care provider for children, teaching them academic, language, social skills, and appropriate behaviors (Kong et al., 2015; Roksa & Potter, 2011). Secondly, with control of home educational resources and parental expectation, parental occupation has no significant influence on academic achievement except that mother's occupation affects English achievement of children positively. Again, the important role mother plays in student achievement is confirmed. However, these results are not consistent with Marks's (2008) research findings applicable to many countries that parental occupational status impacts on children's achievement significantly and father's occupation has a greater impact than mother's occupation. The nonsignificant relationship between parental occupation and academic achievement may be explained in terms of the less differentiation of occupational status in the rural population. Specifically, the descriptive statistics of data (see Appendix B) shows that 88% rural fathers' and 77.2% rural mothers' occupations are concentrated in the second-level and third-level domains. Lastly, as an indicator of family income, type of housing

in the full model shows a significantly negative association with Chinese and mathematics achievement but no significant association with English achievement. These results contradict the phenomenon found in other countries that children from richer families performed better academically because wealthy parents have more resources to invest in their children (OECD, 2017; Duncan, Magnuson, & Votruba-Drzal, 2014). However, these findings reported here are not isolated. Other researchers (Kim et al., 2017) have also observed that wealth was a negative factor influencing children's academic achievement in the case of a Chinese city. According to their study (Kim et al., 2017), the converse effect of parental wealth on children achievement might due to two reasons. On the one hand, as a distinct social class in China, the wealthier but less educated business-owner parents are usually too busy to be involved in their children's education; on the other hand, the wealthier students are more likely to be distracted by consumption and less motivated to obtain academic success.

With respect to the relationship between the only-child status and academic achievement, this study demonstrates that only children have higher mathematics and English achievement compared to those with siblings while for Chinese achievement, there is no significant difference between these two groups. Overall, these results are consistent with earlier studies (Liu et al., 2017; Ponczek & Souza, 2015; Knodel & Wongsith, 1991), which suggested that only children had advantages in academic achievement. Also, this study lends support to previous research (Pong, Dronkers, & Hampden-Thompson, 2003; East, Jackson, & O'Brien, 2006; Wu & Zhang, 2017) with the finding that children living with both parents have better academic performance in comparison with the ones from single-parent or no-parent families.

In terms of home educational resources, besides access to the Internet, a special desk to study at, more books, and a computer available at home significantly contribute to higher student

achievement in all three subjects. It is necessary to note that, with controlling home educational resources in models 3, the differences in academic achievement between children living in intact and non-intact families have been reduced and become insignificant. These results confirm the consistent finding from prior studies (Mayo & Siraj, 2015; Roscigno & Ainsworth-Darnell, 1999) that the increase or enrichment of home educational resources can partially offset the adverse effects of unfavorable family environments on student achievement.

In addition, the often-observed positive relationship between parental expectation and academic achievement (Froiland & Davison, 2014; Bodovski & Farkas, 2008; Yamamoto & Holloway, 2010; Ma, Siu, & Tse, 2018; Long & Pang, 2016) has been supported by this study. Meanwhile, the results show that parental expectation plays a mediating role between family background and children's achievement. Including parental expectation in the model also results in a relatively large growth of adjusted R^2 , suggesting the salient power of parental expectation in explaining the variation of student achievement. These findings have important implications for the endeavors to raise the academic achievement of children, especially the ones from disadvantaged families. According to previous studies (Seginer, 1983; Yamamoto & Holloway, 2010), parental expectation is relatively malleable, which can be influenced by school feedback. Positive comments from teachers could expand parents' expectations so that they make more efforts to help their children succeed. Therefore, school efforts that aim to enhance students' academic achievement may include conveying more positive feedback to parents about their children's performance.

Limitations

This study has several limitations. Firstly, one possible limitation of this study is the representativeness of the sample. This study didn't include observations with missing values.

Consequentially, approximate one-fifth of the original 10,750 sample students were excluded from this analysis at risk of biasing the results of this study. The group of children with the greatest chance of being excluded is probably the ones from the most disadvantaged families, for instance, the rural students living with none of the parents, because their care providers are usually grandparents or other relatives who are not capable of answering parent questionnaires. Further, according to the statistics from the All-China Women's Federation in 2013, 38 percent of rural children were left behind by their migrant parents living in nonintact families. But, based on the final sample adopted by the study, only a total 19.2 percent of rural children live in no-parent or one-parent families, suggesting the possibility of missing much data on left-behind children in rural areas. As a result, the impact of family structure on academic achievement probably is not reflected fairly in this study. Also, the de facto disparities between rural and urban residents in China may be larger than what has been shown by the current study.

Secondly, this study dichotomizes samples into rural or urban residents under the Hukou system despite the fact that there are three types of Hukou since 2014 in China. As a group, the holders of recently added residential Hukou bear the similarity to the urban Hukou holders in many characteristics of family background, so it is valid to put into one category. However, the dichotomization probably prevents this study from providing insights into the complexity of contemporary Chinese society. Since the economic and social differentials among different groups are embedded in the Hukou system, the future research can examine further the relationship between family background, parental expectation, and student achievement according to the current classification of Hukou.

Finally, this study doesn't take into account school factors. Many scholars (Fu & Ren, 2010; Cheng, 2009; Zhang, Li, & Xue, 2015) have noticed that the rural-urban disparities in

student achievement are partially due to the gap of school quality caused by the unequal distribution of educational resources between rural and urban areas. Therefore, schooling is another important consideration referring to the rural-urban inequality in the social context of China. This limitation provides two directions for future research. First, it should be noticed that the school children can attend is influenced by family SES (Li & Qiu, 2018), implying that the low-SES students are less likely to receive quality schooling. Research on the relationship between family SES and school quality may help us understand the dual dilemma the disadvantaged students must experience. Second, it is important to know which school factors influence academic achievement most and how. The policies targeting at promoting educational equality should be based on further investigation of these questions.

Appendix A

Items Used to Measure Dependent and Independent Variables.

Variables	Question No.	Question & Answer options
Parental Expectation	Parent A29	What is the highest level of education do you expect this child to receive? 1. Drop out now 2. Graduate from junior high school 3. Go to technical secondary school or technical school 4. Go to vocational high school 5. Go to senior high school 6. Graduate from junior college 7. Get a bachelor's degree 8. Get a master's degree 9. Get a Doctor degree
Hukou Type	Parent D2	What is the type of his/her Hukou at present? 1. Agricultural Hukou 2. Non- Agricultural Hukou 3. Residential Hukou 4. Other
Only-child Status	Student A5	Are you the only child of your family? 1. Yes, I am. 2. No, I am not.
Family Structure	Student A7	Which of the following people live in the same household with you at present? (Please mark all that apply.) 1. Biological father 2. Biological mother 3. Stepfather 4. Stepmother 5. Full or half-sibling(s) 6. Grandparent(s) on mother's/father's side 7. Other relative(s) 8. Other non-relative(s)
Father Education	Parent E8	What is the highest education level of this child's father? 1. None 2. Finished elementary school 3. Junior high school degree 4. Technical secondary school or technical school degree 5. Vocational high school degree 6. Senior high school degree 7. Junior college degree 8. Bachelor's degree 9. Master's degree or higher
Mother Education	Parent E17	What is the highest education level of this child's mother? Answer options are the same with the last question.
Father Occupation	Parent E9	What is the current occupation of this child's father? 1. Government official/cadre 2. Cadre/Official/Administrator of public institutions, enterprises/corporations 3. Scientist, engineer, university professor or other professionals 4. Doctor, lawyer, high school/primary school teacher 5. Accountant, nurse, computer programmer or other technical staff 6. Ordinary staff or worker (for example secretary, bank clerk, or librarian)

		<ul style="list-style-type: none"> 7. Ordinary staff or worker in business or service (for example salesperson, agent, cook, barber, or cosmetologist) 8. Technical worker (for example driver, electrician, plumber, or mechanist) 9. Ordinary worker (for example porter, or production line worker) 10. Farmer, herdsman, fisherman 11. Elementary worker (for example cleaner, guard, housekeeper, or sanitation worker) 12. Self-employed worker 13. Unemployed or laid-off worker 14. Other (Please specify _____)
Mother Occupation	Parent E18	<p>What is the current occupation of this child's mother?</p> <p>Answer options are the same as the last question.</p>
Type of Housing	Parent E27	<p>What type of house/apartment do you live in?</p> <ul style="list-style-type: none"> 1. Temporary work shed 2. Basement 3. Rural bungalow 4. Rural building with more than one story 5. Urban bungalow 6. Ordinary urban apartment 7. Urban housing estate 8. Other
Desk	Student A10	<p>Do you have a writing desk of your own at home?</p> <ul style="list-style-type: none"> 1. Yes, I do. 2. No, I don't.
Book	Student A11	<p>How many books do your family own? (not including textbooks or magazines)</p> <ul style="list-style-type: none"> 1. Very few 2. Not many 3. Some 4. Quite a few 5. A great number
Computer	Student A12	<p>Do your family own a computer and have access to the Internet?</p> <ul style="list-style-type: none"> 0. No, we don't. 1. We have a computer but no access to the Internet. 2. Yes, we have both.
Internet	Student A12	<p>Do your family own a computer and have access to the Internet?</p> <ul style="list-style-type: none"> 0. No, we don't. 1. We have a computer but no access to the Internet. 2. Yes, we have both.

Notes: Parent=Parent questionnaire; Student=Student questionnaire. For both father occupation and mother occupation variables, the answer options are recoded from low to high as follows: "11. Elementary worker & 13. Unemployed or laid-off worker" are recoded as 1; "9. Ordinary worker & 10. Farmer, herdsman, fisherman" become 2; "7. Ordinary staff or worker in business or service & 8. Technical worker & 12. Self-employed worker" are 3; "4. Doctor, lawyer, high school/primary school teacher & 5. Accountant, nurse, computer programmer or other technical staff & 6. Ordinary staff or worker" are 4; "1. Government official/cadre & 2. Cadre/Official/Administrator of public institutions, enterprises/corporations & 3. Scientist, engineer, university professor or other professionals" are 5. For the variable type of housing, the answer options are recoded from low to high as follows: "1. Temporary work shed & 2. Basement & 3. Rural bungalow" are recoded as 1; "4. Rural building with more than one story" is 2; "5. Urban bungalow" is 3; "6. Ordinary urban apartment" is 4; "7. Urban housing estate" is 5.

Appendix B

Sample Characteristics by Hukou Type (Percentages).

Variables		Percentages									
		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>	
Parental Expectation	Rural	0.2	1.7	4.3	3.8	5.6	19.2	36.6	12.2	16.4	
	Urban	0.2	0.7	2.7	1.7	3.0	10.2	39.5	25.4	16.6	
	Total	0.2	1.2	3.6	2.8	4.4	15.0	38.0	18.4	16.5	
Chinese			<i><69.5*</i>	<i>=69.5</i>	<i>>69.5</i>						
	Rural	46.2	0.1	53.7							
	Urban	37.6	0.1	62.3							
Mathematics			<i><65.0*</i>	<i>=65.0</i>	<i>>65.0</i>						
	Rural	46.7	0.8	52.6							
	Urban	36.5	0.6	63.0							
English			<i><63.2*</i>	<i>=63.2</i>	<i>>63.2</i>						
	Rural	51.7	0.0	48.3							
	Urban	34.8	0.0	65.2							
Only-child Status			<i>Yes</i>								
	Rural	25.8									
	Urban	67.3									
Family Structure			<i>No-parent</i>	<i>One-parent</i>	<i>Two-parent</i>						
	Rural	10.6	8.6	80.9							
	Urban	4.8	8.8	86.4							
Father Education			<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>
	Rural	0.8	18.5	58.6	3.9	3.0	12.3	1.9	0.9	0.2	
	Urban	0.3	5.9	25.9	11.4	4.7	14.6	17.0	17.6	2.6	
Mother Education			<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>	<i>8</i>	<i>9</i>
	Rural	4.3	26.4	51.9	3.2	2.8	9.1	1.6	0.5	0.2	
	Urban	1.4	7.4	27.8	11.4	5.2	13.3	16.6	15.6	1.3	
Father Occupation			<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>				
	Rural	3.8	46.2	41.8	2.7	5.5					
	Urban	6.2	13.1	40.2	12.8	27.8					
Total	4.9	30.7	41.0	7.4	15.9						

Continued		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
Mother Occupation	Rural	15.3	50.7	26.5	5.1	2.5
	Urban	16.8	14.6	29.4	24.9	14.3
	Total	16.0	33.8	27.8	14.3	8.0
Type of Housing	Rural	34.5	32.5	5.9	26.0	1.1
	Urban	7.1	9.3	5.4	74.4	3.7
	Total	21.7	21.7	5.7	48.6	2.3
Desk	Rural	<i>Yes</i>				
	Urban	69.5				
	Total	90.4				
Book	Rural	79.2				
	Urban	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
	Total	16.4	19.8	42.0	16.1	5.7
Computer	Rural	6.2	8.1	34.1	30.9	20.7
	Urban	11.6	14.4	38.3	23.0	12.7
	Total	<i>Yes</i>				
Internet	Rural	61.1				
	Urban	88.4				
	Total	73.9				
Internet	Rural	<i>Yes</i>				
	Urban	51.8				
	Total	81.7				
		65.8				

Total N = 7,386 (Rural N= 3,939; Urban N= 3,447).

Notes: *. Overall average midterm exam score.

For the non-binary variables, the corresponding item of each number can be found in Appendix A.

Appendix C

Sample Characteristics by Hukou Type (Means and Medians).

Variables	Rural		Urban		Residential	
	Mean	Median	Mean	Median	Mean	Median
Parental Expectation	6.76	7	7.36	7	6.99	7
Chinese	68.31	70.83	71.21	73.08	70.14	72.67
Mathematics	62.33	67.50	69.27	75.00	66.22	73.33
English	58.54	62.00	70.02	76.00	66.13	72.00
Only-child Status	0.26	0	0.72	1	0.60	1
No Parent	0.11	0	0.04	0	0.06	0
One Parent	0.09	0	0.08	0	0.10	0
Both Parents	0.81	1	0.88	1	0.83	1
Father Education	3.40	3	5.46	6	5.01	5
Mother Education	3.11	3	5.22	5.5	4.72	4
Father Occupation	2.60	2	3.50	3	3.31	3
Mother Occupation	2.29	2	3.13	3	2.92	3
Type of Housing	2.27	2	3.70	4	3.39	4
Desk	0.69	1	0.94	1	0.84	1
Book	2.75	3	3.63	4	3.34	3
Computer	0.61	1	0.92	1	0.82	1
Internet	0.52	1	0.85	1	0.77	1

Total N = 7,386 (Rural N = 3,939; Urban N = 2,172; Residential N = 1,275).

References

- All-China Women's Federation Research Group. (2013). Report on rural left-behind and rural-urban migrant children in China. *China Women's Movement*, 6, 30–34. (in Chinese)
- Blake, J. (1981). Family size and the quality of children. *Demography*, 18(4), 421–442.
- Bodovski, K., & Farkas, G. (2008). “Concerted cultivation” and unequal achievement in elementary school. *Social Science Research*, 37, 903–919.
- Bodovski, K. (2010). Parental practices and educational achievement: Social class, race, and habitus. *British Journal of Sociology of Education*, 31(2), 139–156.
- Bradley, R.H., & Corwyn, R.F. (2002). Socioeconomic status and child development. *Annual Review of Psychology*, 53, 371–399.
- Cabrera-Nguyen, P. (2010). Author guidelines for reporting scale development and validation results in the *Journal of the Society for Social Work and Research*. *Journal of the Society for Social Work and Research*, 1(2), 99–103.
- Cameron, L., Erkal, N., Gangadharan, L., & Meng, X. (2013). Little emperors: Behavioral impacts of China's one-child policy. *Science*, 339 (6122), 953–957.
- Campbell, L.A., & Parcel, T.L. (2010). Children's home environments in Great Britain and the United States. *Journal of Family Issues*, 31(5), 559–584.
- Chen, H., & Lan, W. (2006). Adolescents' perceptions of their parents' academic expectations: Comparison of American, Chinese-American, and Chinese high school students. *Family Therapy*, 33(2), 113–118.
- Chen, L.J., Yang, D.L., & Ren, Q. (2015). *Report on the State of Children in China*. Chicago: Chapin Hall at the University of Chicago
- Cheng, H. (2009). Inequality in Basic Education in China: A Comprehensive Review. *International Journal of Educational Policies*, 3(2), 81–106.
- China Education Panel Survey (CEPS) Program. (2017). *Data management manual for the China Education Panel Survey 2014-2015*. Retrieved from <http://cnsda.ruc.edu.cn/index>.

php?r=projects/view&id=61662993 (in Chinese)

- Chiu, M.M., & Chow, B.W.Y. (2015). Classmate characteristics and student achievement in 33 countries: Classmates' past achievement, family socioeconomic status, educational resources, and attitudes toward reading. *Journal of Educational Psychology, 107*(1), 152–169.
- Davis-Kean, P.D. (2005). The influence of parent education and family income on child achievement: The indirect role of parental expectations and the home environment. *Journal of Family Psychology, 19*(2), 294–304.
- Downey, D.B. (1994). The school performance of children from single-mother and single-father families: Economic or interpersonal deprivation? *Journal of Family Issues, 15*(1), 129–147.
- Downey, D.B. (2001). Number of siblings and intellectual development: The resource dilution explanation. *American Psychologist, 56*(6), 497–504.
- Duffett-Leger, L., Levac, L., Young-Morris, C., Watson, B., & Letourneau, N.L. (2011). Socioeconomic status and child development. *Journal of Emotional and Behavioral Disorders, 21*(3), 211–224.
- Duncan, G.J., & Magnuson, K.A. (2005). Can family socioeconomic resources account for racial and ethnic test score gaps? *The Future of Children, 15*(1), 35–54.
- Duncan, G.J., Magnuson, K.A., & Votruba-drzal, E. (2014). Boosting family income to promote child development. *Future of Children, 24*(1), 99–120.
- East, L., Jackson, D., & O'Brien, L. (2006). Father absence and adolescent development: A review of the literature. *Journal of Child Health Care, 10*(4), 283–295.
- Erikson, R. (2016). Is it enough to be bright? Parental background, cognitive ability and educational attainment. *European Societies, 18*(2), 117–135.
- Falbo, T., & Poston, D.L. Jr. (1993). The academic, personality, and physical outcomes of only children in China. *Child Development, 64*(1), 18–35.
- Fang, S., Huang, J., Curley, J., & Birkenmaier, J. (2018). Family assets, parental expectations, and children educational performance: An empirical examination from China. *Children and*

Youth Services Review, 87, 60–68.

- Froiland, J.M., & Davison, M.L. (2014). Parental expectations and school relationships as contributors to adolescents' positive outcomes. *Social Psychology of Education*, 17(1), 1–17.
- Fu, Q., & Ren, Q. (2010). Educational inequality under China's rural-urban divide: The hukou system and return to education. *Environment and Planning A*, 42(3), 592–610.
- Han, W.J. (2014). The role of family SES and language background in shaping the well-being of children of Asian origin in the context of school mobility. *Race and Social Problems*, 6(1), 85–101.
- Kane, P., & Choi, C.Y. (1999). China's one child family policy. *BMJ: British Medical Journal*, 319 (7215), 992–994.
- Kiernan, K.E., & Mensah, F.K. (2011). Poverty, family resources and children's early educational attainment: The mediating role of parenting. *British Educational Research Journal*, 37(2), 317–336.
- Kim, S.W., Brown, K.E., Kim, E.J., & Fong, V.L. (2017). "Poorer children study better": How urban Chinese young adults perceive relationships between wealth and academic achievement. *Comparative Education Review*, 62(1), 84–102.
- Kipnis, A. (2001). The disturbing educational discipline of "peasants". *The China Journal*, 46, 1–24.
- Knodel, J., & Wongsith, M. (1991). Family size and children's education in Thailand: Evidence from a national sample. *Demography*, 28(1), 119–131.
- Kong, F., Chen, Z., Xue, S., Wang, Xu., & Liu, J. (2015). Mother's but not father's education predicts general fluid intelligence in emerging adulthood: Behavioral and neuroanatomical evidence. *Human Brain Mapping*, 36, 4582–4591.
- Lareau, A. (2011). *Unequal Childhoods: Class, Race, and Family Life* (2nd ed.). Berkeley, CA: University of California Press.
- Li, C. (2005). Prestige stratification in the contemporary China: Occupational prestige measures

- and socio-economic index. *Sociological Research*, 2, 74–102. (in Chinese)
- Li, Z., & Qiu, Z. (2018). How does family background affect children's educational achievement? Evidence from contemporary China. *The Journal of Chinese Sociology*, 5(1), 1–21.
- Liu, N., Chen, Y., Yang, X., & Hu, Y. (2017). Do demographic characteristics make differences? Demographic characteristics as moderators in the associations between only child status and cognitive/non-cognitive outcomes in China. *Frontiers in Psychology*, 8, 1–14.
- Long, H., & Pang, W. (2016). Family socioeconomic status, parental expectations, and adolescents' academic achievements: a case of China. *Educational Research and Evaluation*, 22(5-6), 283–304.
- Luo, F., & Zhang, Y. (2017). Probing the SES-achievement connection in the fast-changing society of China: A comparison of urban, rural, and migrant students. *Asia Pacific Education Review*, 18(1), 101–113.
- Ma, Y., Siu, A., & Tse, W.S. (2018). The role of high parental expectations in adolescents' academic performance and depression in Hong Kong. *Journal of Family Issues*, 39(9), 2505–2522.
- Mao, Y., & Wang, S. (2017). A study of learning experience of disadvantaged children in rural western China and policy suggestion. *Journal of Educational Studies*, 6, 48–56. (in Chinese)
- Marks, G.N. (2008). Are father's or mother's socioeconomic characteristics more important influences on student performance? Recent international evidence. *Social Indicators Research*, 85(2), 293–309.
- Mayo, A., & Siraj, I. (2015). Parenting practices and children's academic success in low-SES families. *Oxford Review of Education*, 41(1), 47–63.
- Mere, K., Reiska, P., & Smith, T.M. (2006). Impact of SES on Estonian students' science achievement across different cognitive domains. *Prospects*, 36(4), 497–516.
- Murnane, R.J., Maynard, R.A., & Ohls, J.C. (1981). Home resources and children's

- achievement. *The Review of Economics and Statistics*, 63(3), 369–377.
- OECD. (2017). *PISA 2015 results (volume III): Students' well-being*. Paris, France: OECD Publishing. Retrieved from <http://dx.doi.org/10.1787/9789264273856-en>
- Pensiero, N. (2011). Parent-child cultivation and children's cognitive and attitudinal outcomes from a longitudinal perspective. *Child Indicators Research*, 4(3), 413–437.
- Ponczek, V., & Souza, A.P. (2015). New evidence of the causal effect of family size on child quality in a developing country. *Journal of Human Resources*, 47(1), 64–106.
- Pong, S., Dronkers, J., & Hampden-Thompson, G. (2003). Family policies and children's school achievement in single-versus two-parent families. *Journal of Marriage and Family*, 65(3), 681–699.
- Radl, J., Salazar, L., & Cebolla-Boado, H. (2017). Does Living in a fatherless household compromise educational success? A comparative study of cognitive and non-cognitive skills. *European Journal of Population*, 33, 217–242.
- Rindermann, H., & Ceci, S.J. (2018). Parents' education is more important than their wealth in shaping their children's intelligence: Results of 19 samples in seven countries at different developmental levels. *Journal for the Education of the Gifted*, 41(4), 298–326.
- Roksa, J., & Potter, D. (2011). Parenting and academic achievement: Intergenerational transmission of educational advantage. *Sociology of Education*, 84(4), 299–321.
- Roscigno, V.J., & Ainsworth-Darnell, J.W. (1999). Race, cultural capital, and educational resources: Persistent inequalities and achievement returns. *Sociology of Education*, 72(3), 158–178.
- Rutkowski, D., & Rutkowski, L. (2013). Measuring socioeconomic background in PISA: One size might not fit all. *Research in Comparative & International Education*, 8(3), 259–278.
- Schulz, W., Schunck, R., Diewald, M., & Johnson, W. (2017). Pathways of intergenerational transmission of advantages during adolescence: Social background, cognitive ability, and educational attainment. *Journal of Youth and Adolescence*, 46(10), 2194–2214.

- Seginer, R. (1983). Parents' educational expectations and children's academic achievements: A literature review. *Merrill-Palmer Quarterly*, 29(1), 1–23.
- Shen, Y. (2017). The effect of family size on children's education: Evidence from the fertility control policy in China. *Frontiers of Economics in China*, 12(1), 37–65.
- Sherman, A., DeBot, B., & Huang, C.C. (2016). Boosting low-income children's opportunities to succeed through direct income support. *Academic Pediatrics*, 16(3), S90–S97.
- Shinn, M. (1978). Father absence and children's cognitive development. *Psychological Bulletin*, 85(2), 295–324.
- Sirin, S.R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research*, 75(3), 417–453.
- State Council of the P.R.C. (2014, July 30). *Opinions of the State Council on Further Promotion of Reform of the Household Registration System*. Retrieved from http://www.gov.cn/zhengce/content/2014-07/30/content_8944.htm
- Suizzo, M.A., & Stapleton, L.M. (2007). Home-based parental involvement in young children's education: Examining the effects of maternal education across U.S. ethnic groups. *Educational Psychology*, 27(4), 533–556.
- Thompson, M.S., Alexander K.L., & Entwisle D.R. (1988). Household composition, parental expectations, and school achievement. *Social Forces*, 67(2), 424–451.
- Wu, J., & Zhang, J. (2017). The effect of parental absence on child development in rural China. *Asian Economic Policy Review*, 12, 117–134.
- Yamamoto, Y., & Holloway, S.D. (2010). Parental expectations and children's academic performance in sociocultural context. *Educational Psychology Review*, 22, 189–214.
- Zhang, D., Li, X., & Xue, J. (2015). Education inequality between rural and urban areas of the People's Republic of China, migrants' children education, and some implications. *Asian Development Review*, 32(1), 196–224.
- Zhang, H., Behrman J.R., Fan, C.S., Wei, X., & Zhang, J. (2014). Does parental absence reduce cognitive achievements? Evidence from rural China. *Journal of Development Economics*,

111(11), 181–195.

Zhang, L., & Lee, K.A. (2011). Decomposing achievement gaps among OECD countries. *Asia Pacific Education Review*, 12(3), 463–474.