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Fathers' Involvement at Home and Children's Achievement: Evidence from Rural China, Gansu Province

Abstract

Based on the *Gansu Survey of Children and Families* (GSCF, 2007), this thesis investigates the hierarchical effects of teacher personal characteristics and teaching job attributes as determinants of wages and sources of variations from the perspective of Hedonic Wage Theory.

Based on the Hedonic Wage Theory, this study has made use of a scientific sampled micro data set to analyze teacher wage disparities in rural Gansu, which is a typical less-developed northwestern remote province in Mainland China. Hierarchical Linear Modeling(HLM) is employed to study the regional effects. Major foci of this thesis consist of: (1)The nature and strength of economic values of teacher personal characteristics and teaching job attributes. (2)The substitution between pecuniary rewards from wages and non-pecuniary benefit derived from working conditions and living amenities, and its implications for teacher personnel costs. (3)How regional policies are related to teacher wage variations and what can government do to narrow the consequential gap in education service.

The conclusions of the study include: Both teacher personal characteristics and teaching job attributes are major determining factors of wages. Human capital components proxying higher teacher quality are positively compensated, while better daily working and living conditions are paid in the form of lower wages. In other words, hardships are associated with compensating wage differentials.

Working conditions in schools and living conditions in community where the teaching position is located are substitutable with wages. The substitution between wages and job conditions varies from -0.03 to 0.05. Negative values mean that teachers are willing to accept lower wages to work in a better-off county. It costs more for hard-to-staff regions to recruit a comparable teacher.

In consideration of wage compensations, the "Helping the Poor" policy can give a better indication than the "Subsidy to Remote and Difficult Districts Scheme". Dis-utilities from uncomfortable working and living environment in poor counties cost 15% extra wage expenditures.

Accounting for teacher utility preference, disadvantageous counties classified by economic-geographic features should be financially aided based on teacher cost index(TCI) to recruit and retain quality teachers. Simulation implies that counties labeled as "poor" should be provided 10% more marginal personnel budget in order to hire an average teacher who meets the basic education requirements. However, fiscal assistances based on degree of remoteness do not show consistent patterns. The most remote counties can hire a comparable teacher at a cost of only 74% of the average, while those second most remote ones pay 3.6-11.8% more.

There are two major policy implications from the results of the study: (1)The "Subsidy to Remote and Difficult Districts Scheme" and the "Helping the Poor" policy have different focuses. Though the former scheme may have public-goods considerations, the latter can give a clear and differentiative policy implication for education finance. (2)It would be an equitable and efficient way to incorporate uncontrollable external factors into a teacher wage index(TCI), and to use it to adjust education financial strategies to these difficult areas.

Keywords

social sciences, education, China, Gansu, job attributes, personal characteristics, rural education, teacher compensation, wage variations

Disciplines

Education | Social and Behavioral Sciences | Sociology

Comments

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Fathers' Involvement at Home and Children's Achievement: Evidence from Rural China, Gansu Province

A Thesis
submitted to the Faculty of the
Graduate School of Arts and Sciences
of Georgetown University
in partial fulfillment of the requirements for the
degree of
Master of Public Policy
in Public Policy

By

Jinghan Sun, B.A.

Washington, DC
April 25, 2011

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Fathers' Involvement at Home and Children's Achievement: Evidence from Rural China, Gansu Province

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ABSTRACT

This Master's thesis explores a somewhat under-explored area of a father's impact on his child's educational performance in the rural province of China. Employing the Gansu Survey of Children and Families, this study measured the father's effect upon the cognitive aspect of his children, measured by the cognitive test result the children undertook in 2000. Policy recommendations considered the rural setting, to capitalize on the following findings.

Several factors were significant throughout the OLS regression models. Other studies have confirmed that boys did better than girls in rural China, while a mother that encouraged her child often seems to be followed by a lower test score. Among other factors, interaction with the father, generally measured as a frequent conversation with the child, and the father's provision of assistance in homework, often estimated a higher score for the child, except when the father was uneducated. A good marital relationship also contributed to higher scores, whereas parent occupation was not significant.

The central message and policy recommendation is to raise awareness of the father on his critical role and impact on his child's educational future. As the government is the central authority on development decisions, it should provide telecommunication infrastructure for rural Chinese for the large number of fathers that left the village for city jobs to communicate with their children often. Advertisements should also inform fathers of the benefit of a good marriage

and frequent interaction with his child. In the long run, other means should be explored for rural development to retain fathers with his family, as well as for the region to be prosperous for more educated children to find jobs that suit their education.

ACKNOWLEDGEMENTS

Thank you to my advisor Donna Morrison for all her help and guidance,
to Eric Gardner for his assistance in managing the data,
and to Jeffrey Mayer for his writing help

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I. INTRODUCTION

A large body of research in the U.S. shows that father involvement is highly beneficial to their children's social, emotional, and cognitive development (Koestner, et. al, 1990; Krampe & Fairweather, 1993; Radin, 1994; Le Menestrel, 2000; Hofferth, 2006). Academic performance, in particular, is positively related to fathers' engagement with their children, even when parental education, household income, mother involvement, and parents' educational expectations for their children are controlled (Nord, Brimhall, & West, 1997). In contrast, comparatively little is known about the role of Chinese fathers in shaping the academic achievement of their children. This is an especially important gap in the literature given a significant loosening of traditional gender roles for mothers and fathers in China (Evans, 2010).

Another related development is that children in rural China are increasingly likely to experience father absence for at least part of the year (Lu & Zeng, 2004). A combination of a decreasing availability of farmland in China's countryside and unbalanced economic development favoring the coastal cities has prompted large numbers of men to migrate from country to city in search of employment opportunities. As a result, a growing population of fathers from rural areas lives away from home during most of the year.

While many studies have investigated parental involvement as a predictor of student achievement in Western countries, relatively few studies have explored this relationship in rural Chinese families. The one exception is the work of Hannum and Kong (2007) that used the Gansu Survey of Children and Families to examine determinants of educational aspirations and

achievement among children in rural China, and found that the father matters in a child's education.

The goal of the present paper is to examine whether, and if so to what extent fathers' involvement influences children's performance at school. The study hypothesized that greater paternal involvement, including help from fathers on homework and talking with the child, is independently associated with better achievement, holding parental relations, engagement with school, educational expectations, mother's involvement, and demographic factors constant. The analysis is conducted with the Gansu Survey of Children and Families (GSCF), the same data utilized by Hannum and Kong (2007). The sample children range in age from 9 to 13 years old in the year 2000. I use multivariate regression with the dependent variable measured as the child's age-standardized score on an achievement test administered as part of the study.

II. BACKGROUND AND LITERATURE

Context of Gansu Province

Gansu, located in northwest of China, is one of the country's poorest interior provinces (Hannum, Kong, & Zhang, 2009). Seventy-six percent of the province was comprised of rural residents in the year 2000 (Gansu Province Government [GPG], 2007). The availability of cultivated land is low, as is its capacity to grow crops (GPG, 2007). In 2000, the per capita GDP was \$464 in Gansu Province while the per capita net income of rural residents was \$173 (GPG, 2007).

China has implemented a number of educational reforms in recent years, including the 1986 law that raised the level of compulsory education to nine years (six years primary school and three years middle school) (Zhang & Zhao, 2006). Despite this, the average level of education remains low in the rural areas of Gansu and other autonomous regions located in China's less-developed interior. The increase in compulsory is unpopular among rural families in central and west of China who cannot afford the corresponding increases in tuition (University of Pennsylvania [UP], GSCF). In the year 2001, the dropout rate of primary school students in Gansu was more than 1 percent, and the dropout rate of junior secondary school students was more than 3 percent in Gansu (Zhang & Zhao, 2006). In the sample of GSCF, almost half of the families did not have a telephone at home and did not have postal services in the villages when the survey was conducted in the 2000. The residents could access to roads and railroads five years before the survey (UP, GSCF).

Chinese Parenting Styles

In modern China, parents place a high priority on their children's education, driven in part by keen competition of the Chinese society. Chinese parents do not mind spending extra money, time, or energy to help their children get into prestigious schools, even imposing their own goals for their children's futures instead of considering children's feelings and abilities (Li, 2004).

Parental involvement with their children, standards for their children's academic performance, and parents' expectations for their children's education attainments are shaped by the values in their own cultures (Chen & Stevenson, 1995; Dandy & Nettelbeck, 2002; Georgiou, 1999; Stevenson et al., 1990). Chinese parents are influenced by deeply held Confucian beliefs (Watkins & Biggs, 2001). There is one type that some Chinese parents expect or require their children to do whatever they want their children do, for example, to have good manners, good academic score, self-discipline (Chan & Elliot, 2004). Otherwise, children might get punished (Tang, 2006). Strict Chinese parents are considered responsible and their actions are thought of as for their children's benefits. These are seen as strategies that contribute to the harmonious function of the family, instead of "negatively as dominating" (Chao 2001; Rohner & Pettengill 1985). Tobin, Wu, and Davidson (1989) thought that for Asian children, authoritarian parenting is associated with caring and love. Studies have shown that in the Chinese context more authoritarian parenting styles are associated positively with children's achievement (Chao, 1994). There is another type of Chinese family, which is the "indulgent type," since today in China a child would be the only child in a family, so parents and grandparents would give the

child too much love (Goh, 2006).

Mothers and fathers usually have different ways to interact or play with their children (Parke, 1995). According to Parke, fathers are “qualitatively different stimulatory patterns from mothers” (1995, p. 33). Parke’s research was based in the US. It may apply to China as well. According to U.S. studies, boys are likely to get more of the fathers’ attention than girls (Marsiglio, 1991; Lamb, 1986; Radin, 1981). The same situation also happened in China. Most Chinese mothers count on their sons to be looked after in old age (Hannum, Emily, Kong and Zhang, 2009).

The role of Fathers in China

The father in a traditional Chinese family is the “undisputed head” (Das & Gupta, 1995). However, there are some changes in fathers’ roles in modern China. Das and Gupta maintain that this is the result of urban fathers in China being increasingly exposed to “western child-rearing values” as Chinese society becomes more involved with the rest of the world. Zhang (1997) pointed out that Chinese fathers have higher expectations for their children in modern Chinese society, and demonstrate their fatherly contribution to their children in two ways: by being strict and also warm (as cited by Shwalb, D., Nakazawa, J., Yamamoto, T. & Hyun, J., 2004, p.162).

Contributors to Academic Success

According to existing studies, American children benefit academically when their parents are involved in their schools. A study using the 1996 National Household Education Survey (NHES: 96) showed that the children of involved parents were more likely to get mostly A's for

grades, enjoy school, participated in extracurricular activities and never repeated a grade or ever suspended or expelled (Nord, Brimhall, & West, 1997). Parental engagement is also associated with greater enjoyment of school and educational success (Buchmann, 2002; Ho & Willms, 1996; McNeal, 1999; Schneider & Coleman, 1993; Zellman & Waterman, 1998). Studies focusing specifically on fathers' involvement in their children's schools have demonstrated a significantly positive relationship with children's school outcomes. This effect remains even controlling for the parents' education, household income, the mothers' involvement in two-parent families and the parents' educational expectations for their children (McBride, Sullivan, & Moon-Ho Ho, 2005). Father engagement was associated with better grades and was more important than the involvement of mothers. Research has been conducted on parental involvement in urban China, such as one about the mathematical performance of children in Beijing, and another on middle school performance in Taiwan. (Stevenson, Lee, & Stigler, 1990; Kung, 2002).

In the most extensive study of its kind, Hannum and Kong (2007) used the Gansu Survey of Children and Families to examine determinants of educational aspirations and achievement among children in rural China. The investigators found that the a standard deviation increase in a father's education level, the expected years of a child's educational level increases by 0.08 years, and a standard deviation increase in household wealth increases grade advancement of a little over a tenth of a year. These two independent variables also show similar effect for a child's continuing school enrollment. Also, the father's level of education attained positively impacted the child's academic confidence, while the same increased child aspiration for attaining a higher level of education when school and teacher characteristics were accounted for. Further,

the father's level of education strongly impacted the child's average math and language scores. (Hannum and Kong, 2007) Considering that most other independent variables in this study were not statistically significant, the research strongly supports the proposition that the father matters in a child's education.

There is some evidence that girls (Chi and Rao, 2003; Hannum and Kong, 2007) do not perform as well as boys, most likely due to traditional gender expectations . Interestingly, Hannum and Kong found that being a girl predicted a student to be highly industrious in school.

Research shows that parental expectations play an important role in children's achievement. (Stevenson, Lee, & Stigler, 1990). A survey conducted by Stevenson and colleagues revealed for example, that Chinese parents and teachers were less pleased than their American counterparts, even when their children out-performed the American children on a math test. The researchers attributed the discrepancy in the reactions of Chinese versus American parents to the higher expectations held by Chinese parents for their children.

Kung (2002) reported that Chinese parents and children rated parental encouragement as the most significant factor in promoting academic success. Kung also found that other intangible variables, such as a supportive learning environment in the home, strict observance of schedules, and availability of academic help, were positively associated with achievement in middle school. Socioeconomic status, not surprisingly had a positive effect on performance as well.

Brown (2003) examined the relationship between Chinese parental education and two parenting practices: the amount they spent on optional educational goods, which excludes all required textbooks, uniforms, school fees, and how much time they spent with their children engaging in activities that promote education, such as helping homework and discussing child

performance and expectation. These were formulated as demand functions for educational goods, and demand for parental time to product child's human capital. Brown found that a year increase in the father's education increased education spending by 2.2%. He also found that a year of father's education increased the chance that children's books were available in the household by 1.6% for girls and 1.5% for boys. The estimated effect of a year increase in a father's education on time spent assisting his child's homework was between 21 to 25 minutes per week for girls and about 19 minutes per week for boys. Brown suggests that more parental education leads to greater demands by parents for time and goods towards their children's education.

III. CONCEPTUAL MODEL

The conceptual framework guiding this study assumes that children's achievement at school is a function of a number of interrelated factors, primarily a combination of parents' nurturing and the child's own hard work. Parents nurturing includes parents' involvement at home and with their child's school. Other factors also affect children achievement, like parental and children's demographic factors, parental relationship, parents' residence, parents' expectation and community factors.

Methods of measuring paternal or parental involvement vary by researcher. In the GSCF study, father involvement was measured by how long father talks with his kid every week and how long father helps his child's homework. The parent involvement with the child's school was a control variable in the study, because the data did not have specific questions specifically for determining father involvement at school. Quantity doesn't equal quality, so it might be that a father used lot of time talk with his child, but nothing helps the child's academic performance at school. However, in the quantitative study, it is one way to measure father involvement.

The parents' engagement with their children's school can be expected to vary based on whether parents attend meetings held by the teacher or the school principal, whether they spoke with the homeroom teacher (teacher in charge of a class) or school principal, whether they work

as volunteers in the school, whether they attended school activities, such as artistic performances, sports meetings, and whether inquire about the child's performance from the teacher.

Parental demographic factors, including the parents' age, education background, marriage status, occupation, and health status would be expected to affect children's achievement at school and have a correlation with father involvement at home. In my study, only children who live with both biological parents are included. A distinction should be made between fathers in two-parent families and fathers who are heads of single-parent families, because of the different roles and child-rearing responsibilities fathers take in two-parent or single-parent families. However, all children who have a nonresident parent (for example, children whose fathers stay away from home to work in bigger towns or cities most of the year) are included in the analyses that examine whether nonresident parents are engaged with their children's schools.

Children's demographic factors, including the children's age, health status, and gender would also be expected to affect children's achievement at school and have a correlation with father involvement at home. For example, it is assumed that younger children or children in a poor health situation would get more attention from their parents and fathers would be expected to engage more with boys, since boys are more preferred by Chinese parents.

The parents' relationship should also be concluded. Whether parents have a good relationship could influence children's growth and correlate with father involvement. The parents' relationship can be expected to vary based on whether parents talk to each other about encountering something unpleasant outside of the home, whether the mother notices that the father is unhappy and takes the initiative talk with him, and whether father notices the mother's bad mood and takes the initiative to talk with her. For example, if the father easily notices the

mother's bad mood, it could be expected that he involves more with his children at home by sensing their disposition.

Parents' residence and expectations, and whether the community environment could also be expected to influence children's academic development.

This study focuses on father involvement at home as a factor that impacts children's achievement at school. The study tests the hypotheses that there is a positive association between the more father involvement and expectation of higher child achievement at school after controlling for other children's and parents' demographic factors, parental relationship, parents' residence, parents' expectation, and community factors.

IV. DATA AND METHOD

A. Data

The data used in this paper is from the Gansu Survey of Children & Families (GSCF), sponsored by the United Kingdom Department for International Development and Economic & Social Research Council. The survey follows the sampled children of 2000, from 9-13 years old, until 2009; it is a longitudinal data, collected in 2000, 2004, 2007, and 2009. The final dataset sample was limited to kids with valid test scores and parents were still in their first marriages. This resulted in a sample of 1,892 children ages 9 to 13. The unit of analysis for the data is in persons.

The present study uses data from the first wave of the four waves, which was the year 2000. In the first wave of the GSCF, which were sponsored by the World Bank, the Spencer Foundation and the United States National Institute of Health, they randomly sampled 20 countries from 83 countries in Gansu province, selected 42 sample townships from 447 townships within 20 countries, selected 100 villages from 700 villages within 42 sample townships, and drew 2000 sample children from 13,520 children from 9-12 years old within 100 villages. This data targeted children of ages ranged 9-13 in 2000. Aside from the sampled children, his/her parents, siblings, target/teacher, the principle of his/her school and the village's

leader were surveyed as well. While the data were in separate files, the GSCF had a unique ID code, so data from Mother's file; household's file and the village leader's file were combined with the children's data.

B. Operationalization of Key Constructs

Dependent Variable

(1) *The age standardized score of a test of cognitive achievement.*

The child's score on a cognitive tests score served as the dependent variable. The cognitive test had 3 parts: questions of *basic knowledge* (e.g., How many seasons are in a year?), *logic* (e.g., What do "fruit" and "apple" have in common?), and *math* (e.g., if you have ¥ 2, and your mother gives you another ¥ 7, then how much money you have?). The original score was not standardized by age and predictably performance increased with the age of the child. To remedy this, I created a standardized z score. For descriptive analyses I collapsed continuous test scores into three categories -- low, medium and high. The middle category includes scores within plus or minus one half a standard deviation of the mean, with low and high relative to that amount.

Explanatory Variables

(1) *Father's Involvement at home*

Father involvement is measured in two ways. The first relates specifically to schoolwork and is based on the response to the question " Please recall how many hours the father spent on

helping his children with their homework every week over the last year.” The second taps the father and child relationship more broadly, drawn from responses to the question “ Please recall how many hours the father spent on Playing or talking with children (does not include time spent watching TV) every week over the last year.” Both of the questions are from Household form of the survey. Responses to both questions were measured by hours, and the range was from 0-60 hours per week for fathers’ helping with children’s homework and 0-40 hours per week for fathers’ talk. I coded into 3 categories for each measure of father involvement: father never helps his children’s homework (0 hour), helps his children’s homework sometimes (less than 2 hours per day in a week), and helps often (more than 2 hours per day in a week); father never talks with his children (0 hour), talks sometimes with his children (less than 2 hours per day in a week) and often talk with his children (more than 2 hours per day in a week).

Control Variables

1. Child-Level Factors

Child-level factors include the child’s age (ranges from 9 to 13), gender (54% male) and health status. Child’s health was captured by 5 categories: very good, good, average, poor and very poor. 75% of children were in good or very good health situation. Only 4% of children were in poor or very poor health situation.

2. Community-level factors

This is measured by a continuous variable indicating the enrollment rate of the junior high school in the village. The mean of the enrollment rate is 90%.

3. Father Demographic Factors:

Father demographic factors are measured by including indicators of the fathers' education level and occupation.

i. Father education level

This set of binary variables measure the highest degree fathers obtained: no education (8%), primary school (33%), middle school (39%), high school or higher education (19.5% fathers). These variables are based on a variable captured specifically in GSCF, from no schooling, one to six year(s) primary school, one to three year(s) middle school, one to three year(s) high school, one or two year(s) junior trade school, one to five year(s) senior trade school/university to 6 year and above senior trade school/university, totally 21 categories.

ii. Fathers' occupation

Father's were asked to select from 12 possible occupations to identify their current jobs. Answers to these were government official, technician, state-owned/collective enterprise head, government clerk, private enterprise owner, township/village cadres, worker, contract worker, peasant, worker of township-owner enterprise, head of township-owner enterprise, and others. Since in GSCF 80% of fathers were peasants, the fathers' occupation was collapsed into two categories: peasants and other occupations, with father with other jobs serving as the reference groups.

4. Other Factors

i. Mother or other adult's involvement at home

Mother or other adult's involvement at home is measured in four ways. The first one is

based on the response to the question “ Please recall how many hours the mother spent on helping her children with their homework every week over the last year.” The second one is from the response to the question “ Please recall how many hours the mother spent on playing or talking with children (does not include time spent watching TV) every week over the last year.” Both of the questions are from Household form of the survey. Responses to both questions were measured by hours, and the range was from 0-60 hours per week for mothers’ helping with children’s homework and 0-40 hours per week for mothers’ talk. Like the coding used for fathers’ involvement, I created 3 categories for each measure: mother never helps his children’s homework (0 hour), helps her children’s homework sometimes (less than 2 hours per day in a week), and helps often (more than 2 hours per day in a week); mother never talks with her children (0 hour), talks sometimes with her children (less than 2 hours per day in a week) and often talk with her children (more than 2 hours per day in a week). There are two series of binary variables: mother never discussed with child his/her interest, discussed with the child his/her interest sometimes, discussed often; and never helped her child with homework, helped sometimes and often helped.

The other two measurements are based on the responses to the question “did you, your husband or other adults frequently do activities with the child, such as playing cards, playing hide-and-seek, playing ball etc? ” and the question “ did you, your husband or other adults frequently praise the child? ” from Mothers’ form of the survey. The original possible response options are “never”, “sometimes”, and “often” for both questions. I combined “never” and “sometimes” into “never and rarely”, and kept the “often” option. So there are four binary

variables: compliment or appreciated her child often, never or rarely compliment her child, play with her child often, and never or rarely play with her child.

ii. Expectation of the child's life

To capture the extent of value parents place on education, I used responses to the question “To live a happy life, do you think that to receive a good education is important, somewhat important or not important?” and “What is the highest grade that you wish your child could achieve?” from the Mother form of the survey. The original options for latter questions are “Graduate from primary school”, “Graduate from junior high school”, “Graduate from senior high school”, “Graduate from college or higher” and “Others”. I combined the “education is somewhat is important” and “education is not important” together into “education is somewhat or not important”.

There are two binary variables to capture importance of attaining good education to lead a happy life: education is important and education is somewhat or not important. And there are a series of binary variables highest grade mother wishes her child can achieve (with collage as the reference category): Primary school (2%), Middle school (12%), Senior High school (27%), College (58%), others (less than 1%).

iii. Mothers' engagement with school

Mothers' engagement with school was measured by responses to the questions “During this school year, did you or your family members go to school to attend Parents' meeting held by teacher or the school principal”? And “did you or your family members go to school to inquire about the child's performance from the teacher?” from Mother form of the survey. The original possible response options are “never”, “once or twice” and “often”. I combined the “often” and

“once or twice” together for both of the nominal variables here. Go to parents meeting held by class or school (sometimes or often 11%), inquire about the child’s performance from the teacher (sometimes or often 23%).

iv. Fathers’ residence

To capture the fathers’ residence, I used responses to the question “In the last year (1999), number of months of residence at home” of each family member from Household form of the survey. The set of binary variable measure how long father stays at home with 1-6 months as references: 1 to 6 months (21%), 7 to 11 months (10%), and 12 months (69%).

v. Parents’ relationships

To capture parents’ relationship, I used responses to the questions “When you [mother] or your husband encounter something unpleasant outside of home, you tell each other after coming back home.” And “When you [mother] feel unhappy, your spouse can easily notice it.” from Mother form of the survey. The original response options included “never”, “sometimes” and “often”. I combined “sometimes” and “often” together. So the parental relationship is included in the model as two binary variables: mother and father talked about problems they have out of home to each other (sometimes or often 84%), father easily noticed mother is unhappy (sometimes or often 89%). (See Table 1)

C. Limitations:

The data used for this study only include children with two first-married parents. However, the data did not distinguish between natural parents and adoptive parents, and between an individual that married another who already had children from a prior relationship: The GSCF offered 6 choices for parental marital status: single, married (first-marriage), re-married, separated, divorced, and widowed. The prevalence of remarriage is unknown, while no data was collected on whether there were non-biological parents. This may be important to know because fathers in an intact natural family and an adoptive family may have different levels of involvement with the children. An assumption is, therefore, that the number of such non-biological relationship is miniscule enough to not affect this study.

Birth order is another factor we can not know from the survey. There may be favoritism towards the first-born, initially at least, when the father has no other child to interact with. The arrival of another child may dilute his attention and time that would otherwise go entirely to one child. Father time allocation on his children could include the time spend on other siblings rather than the sample child.

Also, there was no measure to know the general substance or length of father-child conversations. Perhaps any communication sufficed to have an impact on the child's development. Nevertheless, greater precision Maybe it is irrelevant with his kid's school work.

An important short-coming of variables measuring how much fathers talk with the child and with principals and teachers is that there is no information about the subject of the conversations. For example, a father-child conversation could be harsh and scolding, warm and affectionate, or neutral such as discussing driving arrangements for an afterschool activity or

other conventional matters. We also don't know whether a father's interactions with teachers are prompted by troubles in school or routine discussions of progress.

The most serious potential problem in this study is endogeneity bias. The models estimated here assume that father involvement influences a child's test performance, but it is just as likely that father engagement may stem from difficulties the child is having at school.

D. Methods

To determine whether two measures of father involvement at home – how often father helps his children's homework and how often father talks with his children-- influence children's scores on a cognitive test., The first step in addressing the research question will be to examine bivariate relationships including: cross-tabulations (chi squared tests), tests for significant differences in means across children's school performance (children's age standardized achievement test score) versus fathers' involvement (t-tests), and correlations. Next, using the data, I run a multivariate regression between children's school performance and father's involvement, while controlling for parental-level and other factors with which both the independent and dependent variables related.

V. RESULTS

A. Multivariate Findings

In Table 2, I examined the relationship between children's achievement test score and child and family background characteristics. I coded children's aged standardized scores into three categories: "low" (less than mean - 1/2 standard deviation), "average" (between mean +/- 1/2 standard deviation) and "high" (above mean + 1/2 standard deviation), (Mean of standardized test score = 1.99, SD = .81). Then I cross-tabulated these measures with child and father demographic characteristics and a community level education measure. The results show a gender gap in achievement scores ($p < .01$). Just over the majority (53%) of the girls fall in the "low-performance" group while a larger majority of boys are ranked in the highest scoring group. Children's health status is positively associated with test performance. Children living in village where the junior high school in the village is strongly positively related to children's performance and fathers' involvement. Table 2 also shows that 13% of children whose fathers are without education scored in the low group, which over-represents the share of uneducated fathers in the sample (8%).

The next step is to examine the relationship between father involvement and child and family background characteristics. In the first three columns of Tables 3 and 5 we can see the distribution of "time fathers spend helping their children with homework." The last three columns present corresponding information for the amount of time fathers spend talking with their children. The findings reveal more highly educated fathers help their 9 to 13 year old children more often. Not surprisingly, fathers who live in the household for the full year spend

more engaged with their children in conversation and homework help than fathers who are around less often. Although the pattern of fathers' help with homework is unclear for children in poor health, the fathers of these children conversed with them notably more often than their counterparts whose children were healthier. Contrary to expectations, there was not a detectable difference in the amount of involvement fathers had with younger versus older children. Fathers spent roughly equal amounts of time talk with sons as with daughters or help with homework. Children whose fathers had higher educational attainment tended to receive more help with homework more often than those with less well educated fathers.

Table 4 presents the relationship between children's age standardized test score and an additional set of parental characteristics, including mothers' involvement, mothers' expectations for their children, parental engagement with school, fathers' residence, and the quality of the parental relationship. The results show that the majority of children who never received homework assistance from their mothers had test scores in the lowest range. Both the stronger a mother's belief that educational attainment leads to a happy life and the more ambitious goals she has for her child, the better the child's performance on the test.

The results in Table 4 also show a relationship between parental engagement with school and children's cognitive scores. Children, whose parents attend meeting held by their class or school more often, tend to have higher scores. There appears to be a similar benefit of parents inquiring about their children's school performance from the teacher. Not surprisingly the presence of the father in the home is advantageous to children's test performance. Finally, better parental relationships, for example, mother and father talk about their problems and fathers

notice when mother is in a bad mood, tend to be beneficial for children's achievement scores as well.

Interestingly Table 5 reveals correspondence across mothers and fathers in both the amount of homework help they give as well as in how often they talk with their children. Also, parents' expectation is positively associated with fathers' help to their children. When the child is expected to have a college degree, father tends to help more often. It is not surprising that fathers' presence in the home is significantly linked with both help with homework and discussions with children. Children whose fathers live at home from 1 to 6 months tend to earn lower test scores than their counterparts whose fathers live at home the year round. Children with more *sensitive* fathers – the father easily notices when the mother is unhappy” is bound up with father's help to his children's homework more.

Table 6 presents the distribution of children's test scores by father involvement variables and shows that fathers' involvement is positively related with children's achievement at school.

B. Regression analysis

The object of the regression analysis is to explore the relationships between father involvement at home and child achievement at school controlling for other factors that may be related to both.

I begin with a baseline model that only controls for basic demographic characteristics of the child to explain achievement on the age-standardized test score. As shown in Model 1, both being male ($\beta=.14$) and being very healthy ($\beta=.13$) are positively associated with test

performance. Model 2 adds the village junior high school enrollment rate. Although the estimated effect is extremely small, children's test performance is higher, on average, when a greater share of the community is enrolled at that level ($\beta = .01$).

Next we examine the relationships between children's test performance and fathers' educational attainment as well as with his occupation. Three dummy variables are added to the model: father has no formal education, father only attended primary school, and father is not a peasant. The results for Model 3 show that on average, having a father who lacks any formal education is associated with lower test performance ($\beta = -.27$).

Given that mothers may also shape a child's school success, Model 4 considers how the frequency of mother-child communication, playing together and her expressions of compliments or appreciation to the child affect his or her achievement at school. Unexpectedly, the results reveal that frequent compliments and expressions of affections from the mother adversely affect test scores ($\beta = -.19$).

Model 5, focuses on maternal activity that is specifically related to schooling; how often she helps her child with homework. All things being equal, the average child who sometimes receives his or her mother's help on homework performs better on the test ($\beta = .21$), than his or her counterpart who receives no help. There was no statistically significant difference, however, for those whose mothers helped quite often. The children got mothers' help more often might because they need more help about their homework from mothers. So when mothers help more, their achievement might not have to be higher than their counterparts.

Parents' expectations for the child are added to Model 6. The results revealed that those children whose mothers expected them to get a bachelor's degree, had scores estimated to be .24

higher, on average than children whose mothers had lower expectations. Model 7 explores the influence of mothers' engagement at school on child achievement; however there was no evidence of a statistically significant relationship for any of the measures.

Beginning with Model 8, we can examine the influence of father involvement specifically. Here we see that father absence, being at home less than half a year, is negatively associated with children's test scores. The results from Model 9 show that having a father who notices when his wife is in a bad mood and discusses problems with her makes a positive contribution to a child's academic performance. Finally, father involvement was entered in Model 10. Receiving a fathers' help with homework was associated with lower test performance, on average, while frequently talking with him was positively associated with children achievement at school. One reason why a father's help with homework may be negatively associated with test scores is that the more father helps his child with his or her homework, the more the child relies on the father's help rather than thinking or solving the problems him or herself.

VI. DISCUSSION

This study tests earlier findings using the used OLS regressions to examine whether a father's involvement at home affects his children's performance on a cognitive test. The results indicated that those male children whose fathers have some education, those whose mothers complimented rarely or never but helped with homework sometimes, and wish they could go to college, those whose parents' relationship was in a good shape, and those whose fathers talked with them quite often every week was more likely to have higher achievement scores, controlling for other demographic characteristics and child health status.

The most interesting results of this study indicate that mother talking with the child and father helping the child with homework make no independent contribution to children's academic performance. However, mothers' help with homework sometimes and frequent father-child discussions have statistically significant positive associations with children's achievement at school. This might imply that, as a role model or a teacher, a father talking with his child more often could have a positive influence on his child achievement. For example, fathers may not assist children in their schoolwork directly, but fathers could talk or interact with children to teach children the difference between right and wrong, which could have long-reaching effects on children. Fathers might provide more stimulation, whereas mothers may provide more care and affection to their children. But in this case, mothers are more like monitors. Other's studies provided evidence that mothers are more restrictive with their young children than were the fathers. (Parke & Stearns, 1993), and that less well-monitored boys received lower grades than other children got more monitored (Crouter, MacDermid, & McHale, Perry-Jenkins, 2000).

Interestingly, in all of the models in which it was included, the village's junior high school enrollment rate was significantly associated with child achievement at 99.9% level of confidence. This shows that child performance at school is influenced by social circumstances and community expectations.

A mother's compliments to her child would be expected to play a positive role in the child performance. However, the results show that less flattery toward the child, the better the child's academic score. This corresponds with Ho's (1996), observation about Chinese culture: "[Chinese] parents must refrain from loving children too much for their own sake." Perhaps this result reflects the wisdom of this age-old sentiment.

In the case of both variables that measure parental relationship, and mainly how the father behaved in the relationship, the coefficients were statistically significant and in the expected direction. This is consistent with Amato's (1998) statement that "when the co-parental relationship is not supportive, children suffer" (Amato, 1998, cited by Allen & Daly, 2002). It is understandable. If a father only pays little attention or shows limited warmth to his wife, his wife is more likely to feel "emotionally drained," and this might diminish the patience or care she brings to taking care of their children (Allen & Daly, 2002).

This analysis is limited in several ways, including a lack of information about demographic characteristics that likely influence a child performance at school. These characteristics include the household income, the birth order of sample child, whether father or mother is a biological parent, father's mental health, and the child's characteristics. In addition, measuring father involvement as "time spent together with the child" is only one way that father

involvement could be measured. It may have been better to use measures of the quality of the father-child relationship (see also Allen & Daly, 2002).

This study confirmed the results of previous research. Under different social-cultural conditions in Chinese rural areas, we still find that fathers' involvement at home could affect child performance. However, both fathers' involvement and children's achievement are complex processes that are likely affected by other interests or factors. So if a father keeps pushing the child and helping with his child's school work, it could have a negative influence. It would be beneficial for future research to explore these unknown factors to give a better picture to policymakers addressing education issues.

The results of this study indicate that the achievement of children (ages 9 to 13) in Chinese rural area context would improve by engaging in more frequent conversation with their fathers. But the problem is that in Gansu Province, 30% of fathers work away from home the entire year in the year 1999 from the survey result, and 20% of fathers live at home less than half of the year. The negative effect of a father's absence from the home due to working away at a city need to be addressed. Given that over 43% of the villages in the GSCF sample indicated that their village did not have access to telephone services, policies could facilitate greater father-child contact. For example, more phones could be made available at home and information campaigns could be launched to educate fathers about the importance of their roles. Another option for enhancing student achievement might be to implement a national program to raise fathers' awareness of the benefits of more sensitive and frequent interactions with their wives. In the long run, other means should be explored for rural development to allow fathers to remain

with their families, as well as for the region to be prosperous for more educated children to find jobs that suit their education.

Table 1 Descriptive Statistics for All Variables Used in the Present Study

Variable	Mean	Standard Deviation
Dependent Variable		
Standardized achievement test score	1.99	.81
Key Independent Variables		
How often father helps child with homework per week		
Never	.45	.50
Sometimes	.43	.49
Often	.12	.33
How often father talks with child per week		
Never	.23	.42
Sometimes	.55	.50
Often	.22	.41
Child Characteristics		
Gender (Male=1)	.54	.50
Average Age (Range = 9 to 13 years)	11.09	1.14
Health Status		
Very good	.54	.50
Good	.21	.41
Average	.21	.41
Poor	.03	.18
Very poor	--	--
Community Level Education		
Village's junior high school enrollment rate	90.12	17.88
Father's Demographic Characteristics		
Education		
No education	.08	.28
Primary school	.33	.47
Middle school	.39	.49
High school or higher	.19	.39
Occupation		
Peasant	.80	.40
Other Parental Factors		
Mother's emotional warmth		
Plays with the child		

Variable	Mean	Standard Deviation
Never or sometimes	.94	.23
Often	.06	.23
Compliments or appreciates the child		
Never or sometimes	.91	.29
Often	.09	.29
How often mother talks with child per week		
Never	.18	.39
Sometimes	.53	.50
Often	.28	.45
Mother's Cognitive Stimulation		
How often mother helps child with homework per week		
Never	.55	.50
Sometimes	.36	.48
Often	.09	.29
Parents' expectations		
Importance of attaining good education to lead a happy life		
Somewhat or not important	.03	.17
Highest grade mother wishes child to achieve		
Primary school	.01	.11
Middle school	.08	.28
Senior high school	.22	.42
College	.67	.47
Other	.01	.10
Parental engagement with school		
Attends parents' meetings held by class or school	.15	.36
Never	.85	.36
Inquires about child's performance from the teacher	.26	.44
Never	.74	.44
Father's residence		
Portion of year father stays at home		

Variable	Mean	Standard Deviation
1 to 6 months	.20	.40
7 to 11 months	.11	.31
12 months	.69	.46
Parental Relationship		
Mother and father talk about problems	.89	.31
Never	.11	.31
Father easily notices mother is unhappy	.94	.25
Never	.06	.13

Note 1, "--" signifies too few cases for a reliable estimate.

2, the emotional warmth could come from mother or other adults.

Table 2 Distributions of Children’s Age Standardized Test Scores, by Demographic Characteristics

Explanatory Variables	Child Achievement (Age Standardized Test Score)		
	Low (%)	Medium (%)	High (%)
Child Characteristics			
Gender			
Male	47.57	55.81	58.49
Female	52.43	44.19	41.51
Age			
9	10.33	7.12	9.25
10	22.77	22.69	27.25
11	29.11	22.69	28.22
12	24.65	25.00	25.79
13	13.15	12.79	9.49
Health Status			
Very good	49.16	56.24	57.55
Good	23.59	17.36	21.38
Average	20.85	23.53	17.92
Poor	4.87	2.30	2.52
Very poor	--	--	--
Community Level Education			
Village’s junior high school enrollment rate	5.69	4.94	7.74
Father’s Demographic Characteristics			
Education			
No Education	12.79	6.31	6.31
Primary School	37.60	30.56	31.55
Middle School	34.55	42.04	40.85
High School or higher	15.07	21.09	21.29
Occupation			
Peasant	79.35	81.20	79.81

Source: the Gansu Survey of Children and Families (GSCF) (2000)

Note:

1. The middle category of age standardized test score is plus or minus one half standard deviations from the mean. (Mean of standardized test score= 1.99, SD=. 81)

Table 3 Distributions of Fathers' Levels of Involvement, by Demographic Characteristics

Explanatory Variables	Father helps child with homework/week			Father talks with child/week		
	None (%)	Sometimes (%)	Often (%)	None (%)	Sometimes (%)	Often (%)
Child Characteristics						
Gender						
Male	54.10	52.81	54.27	54.93	53.56	51.82
Female	45.90	47.19	45.73	45.07	46.44	48.18
Age						
9	8.20	7.49	11.54	10.33	7.12	9.25
10	22.12	25.72	22.65	22.77	22.69	27.25
11	31.03	30.34	30.77	29.11	32.40	28.22
12	26.40	24.09	23.93	24.65	25.00	25.79
13	12.25	12.36	11.11	13.15	12.79	9.49
Health Status						
Very good	52.68	55.88	56.41	48.24	58.65	50.61
Good	22.95	18.88	19.66	24.00	18.65	23.11
Average	19.02	22.50	20.51	23.53	19.13	21.41
Poor	3.80	2.50	2.14	3.76	2.98	2.43
Very poor	1.55	0.25	1.28	0.47	0.58	2.43
Community Level						
Education						
Village's junior high school enrollment rate	4.32	8.21	7.76	2.17	8.98	4.17
Father's Demographic Characteristics						
Education						
No Education	15.95	2.00	2.14	10.35	7.12	9.25
Primary School	37.98	30.21	24.36	30.12	34.04	33.33
Middle School	32.86	44.07	47.86	39.06	39.04	40.88
High School or higher	13.21	23.72	25.64	20.47	19.18	16.55
Occupation						

Explanatory Variables	Father helps child with homework/week			Father talks with child/week		
	None (%)	Sometimes (%)	Often (%)	None (%)	Sometimes (%)	Often (%)
Peasant	82.81	80.00	84.55	76.78	83.88	81.93

Source: the Gansu Survey of Children and Families (GSCF) (2000)

Table 4 Distributions of Children’s Age Standardized Test Scores by Parental Characteristics

Explanatory Variables	Child Achievement (Age Standardized Test Score)		
	Low (%)	Medium (%)	High (%)
Mother’s involvement			
Plays with your child	4.89	5.45	6.92
Never or rarely	95.11	94.55	93.08
Compliments or appreciates the child	10.89	8.48	8.02
Never or rarely	89.14	91.52	91.98
How often mother talks with child per week			
Never	17.71	20.94	16.08
Sometimes	52.82	54.02	53.10
Often	29.47	25.04	30.82
How often mother helps child with homework per week			
Never	63.87	51.82	49.41
Sometimes	28.23	37.54	41.37
Often	7.90	10.64	9.21
Parents’ expectation			
Importance of attaining good education to lead a happy life			
Somewhat or not important	4.14	3.02	1.73
Important	95.86	96.98	98.27
Highest grade mother wishes her child can achieve			
Primary school	2.05	1.29	0.63
Middle school	11.85	7.32	5.53
Senior High school	26.86	20.95	18.33
College	58.45	69.30	74.41
Parental engagement with school			
Attends parents’ meetings held by class or school	11.36	18.68	16.06

Explanatory Variables	Child Achievement (Age Standardized Test Score)		
	Low (%)	Medium (%)	High (%)
Never	88.64	81.32	83.94
Inquires about the child's performance from the teacher	23.38	26.83	28.35
Never	76.62	73.17	71.65
Father's residence			
Portion of year father stays at home			
1 to 6 months	22.12	20.70	16.56
7 to 11 months	11.99	9.48	10.03
12 months	65.89	69.83	73.41
Parental Relationships			
Mother and father talk about problems	85.01	89.05	92.97
Never	14.99	10.95	7.03
Father easily notices mother is unhappy	90.97	94.15	96.01
Never	9.03	5.85	3.99

Source: the Gansu Survey of Children and Families (GSCF) (2000)

Table 5 Distributions of Level of Fathers' Involvement, by and Parental Characteristics

Explanatory Variables	Father help child with the homework/week			Father talk with child/week		
	None (%)	Sometimes (%)	Often (%)	None (%)	Sometimes (%)	Often (%)
Mother's involvement						
Plays with your child						
Never or sometimes	95.11	94.76	91.45	95.98	94.71	92.46
Often	4.89	5.24	8.55	4.02	5.29	7.54
Compliments or appreciates the child						
Never or sometimes	91.64	90.13	91.03	92.16	91.25	88.56
Often	8.36	9.88	8.97	7.84	8.75	11.44
How often mother talks with child per week						
Never	19.88	15.26	19.83	69.45	2.14	4.67
Sometimes	50.84	61.03	38.36	19.81	84.27	11.06
Often	29.28	23.71	41.81	10.74	13.59	84.28
How often mother helps child with homework per week						
Never	70.84	40.73	45.26	60.62	51.51	56.9
Sometimes	21.45	55.86	19.4	28.88	40.82	30.79
Often	7.71	3.4	35.34	10.5	7.68	12.32
Parents' expectation						
Importance of attaining good education to lead a happy life						
Important	96.65	97.38	97.84	97.62	96.83	97.32
Highest grade mother wishes her child can achieve						
Primary school	2.07	0.75	0.86	2.14	0.48	2.77
Middle school	9.39	7.28	6.87	7.38	7.93	9.57
Senior high school	22.44	23.46	15.02	21.43	21.57	23.68
College	65.12	67.13	77.25	68.1	68.86	63.22

Explanatory Variables	Father help child with the homework/week			Father talk with child/week		
	None (%)	Sometimes (%)	Often (%)	None (%)	Sometimes (%)	Often (%)
Others	0.98	1.38	--	0.95	1.16	0.76
Parental engagement with school						
Attends parents' meetings held by class or school						
None or rarely	85.24	84.57	79.83	86.19	83.56	84.38
Often	14.76	15.43	20.17	13.81	16.44	15.62
Inquires about the child's performance from the teach						
None or rarely	75.34	72.31	72.10	71.84	73.33	76.32
Often	24.66	27.69	27.9	28.16	26.67	23.68
Father's residence						
Portion of year father stays at home						
1 to 6 months	20.67	14.79	11.16	23.81	16.43	11.25
7 to 11 months	10.1	11.53	10.73	9.29	11.40	10.76
12 months	69.23	73.68	78.11	66.90	72.17	78.00
Parental Relationships						
Mother and father talk about problems						
Never	12.15	10.55	6.87	12.65	10.26	10.27
Sometimes or often	87.85	89.45	93.13	87.35	89.74	89.73
Father easily notices mother is unhappy						
Never	7.59	5.56	3.43	6.44	5.24	8.37
Sometimes or often	92.41	94.44	96.57	93.56	94.76	91.63

Source: the Gansu Survey of Children and Families (GSCF) (2000)

Table 6 Distributions of Children’s Age Standardized Test Scores, by Level of Fathers’ Involvement

Key Explanatory Variables	Child Achievement (Age Standardized Test Score)		
	Low (%)	Medium (%)	High (%)
How often father helps child with homework per week			
Never	22.12	26.11	19.57
Sometimes	56.25	55.27	54.68
Often	21.63	18.63	25.75
How often father talks with child per week			
Never	49.12	43.66	41.64
Sometimes	38.84	42.44	46.99
Often	12.04	13.89	11.37

Source: the Gansu Survey of Children and Families (GSCF) (2000)

Table 7 Regression coefficients (β s) predicting children's achievement at school from father involvement

Predictors	Model1	Model2	Model3	Model4	Model5	Model6	Model7	Model8	Model9	Model10
Child Characteristics										
Male	0.14** (0.045)	0.13** (0.044)	0.13** (0.044)	0.12** (0.045)	0.12** (0.045)	0.09* (0.045)	0.09* (0.045)	0.09* (0.045)	0.09* (0.045)	0.10* (0.045)
Child in a very good health situation	0.13** (0.046)	0.11* (0.045)	0.10* (0.045)	0.09* (0.045)	0.09 (0.045)	0.08 (0.045)	0.08 (0.045)	0.08 (0.045)	0.07 (0.045)	0.07 (0.045)
Community Level Education										
Middle school enrollment rate of this village		0.01*** (0.001)	0.01*** (0.001)	0.01*** (0.001)	0.01*** (0.001)	0.01*** (0.001)	0.01*** (0.001)	0.01*** (0.001)	0.01*** (0.001)	0.01*** (0.001)
Father's Demographic Characteristics										
Father without education			-0.27** (0.084)	-0.28** (0.085)	-0.23** (0.086)	-0.20* (0.086)	-0.19* (0.086)	-0.19* (0.086)	-0.19* (0.086)	-0.22* (0.089)
Father in primary school education level			-0.08 (0.049)	-0.09 (0.050)	-0.08 (0.050)	-0.07 (0.049)	-0.06 (0.049)	-0.06 (0.049)	-0.06 (0.049)	-0.08 (0.050)
Dad's occupation-unpleasant			-0.09 (0.056)	-0.08 (0.059)	-0.08 (0.059)	-0.09 (0.059)	-0.09 (0.059)	-0.05 (0.062)	-0.04 (0.062)	-0.05 (0.062)
Mother's involvement										
Discusses with the child his/her interest <i>often</i>				0.06 (0.050)	0.06 (0.050)	0.06 (0.050)	0.06 (0.050)	0.06 (0.050)	0.07 (0.050)	-0.02 (0.066)

Predictors	Model1	Model2	Model3	Model4	Model5	Model6	Model7	Model8	Model9	Model10
Plays with her child <i>often</i>				0.10	0.10	0.08	0.07	0.07	0.08	0.08
				(0.098)	(0.098)	(0.097)	(0.098)	(0.097)	(0.097)	(0.097)
Compliments or appreciates the child <i>often</i>				-0.19*	-0.18*	-0.19*	-0.20*	-0.19*	-0.20*	-0.21**
				(0.078)	(0.078)	(0.077)	(0.078)	(0.078)	(0.078)	(0.078)
Helps the child with homework <i>often</i>					0.09	0.06	0.05	0.07	0.05	0.12
					(0.081)	(0.081)	(0.081)	(0.081)	(0.081)	(0.085)
Helps the child with homework <i>sometimes</i>					0.21***	0.20***	0.20***	0.20***	0.20***	0.21***
					(0.049)	(0.049)	(0.049)	(0.049)	(0.049)	(0.051)
Parents' expectation										
Attaining good education to lead a happy life is somehow or not important						-0.21	-0.21	-0.21	-0.20	-0.19
						(0.131)	(0.131)	(0.131)	(0.131)	(0.131)
Highest grade mother wishes her child can achieve is college						0.24***	0.24***	0.24***	0.23***	0.24***
						(0.048)	(0.048)	(0.048)	(0.049)	(0.049)
Parental engagement with school										
Attends parents meeting held by class or school <i>often</i>							0.12	0.12	0.12	0.12

Predictors	Model1	Model2	Model3	Model4	Model5	Model6	Model7	Model8	Model9	Model10
Inquires about the child's performance from the teach <i>often</i>							(0.063) 0.00	(0.063) -0.00	(0.063) -0.01	(0.063) -0.02
Fathers' residence Father stays at home 1 to 6 months one year							(0.053)	(0.053) -0.13*	(0.053) -0.12	(0.053) -0.12
Parental Relationships Father easily notices mother is unhappy								(0.062)	(0.063) 0.24*	(0.064) 0.24*
Mother and father talk about problems									(0.095) 0.15*	(0.095) 0.18*
Fathers involvement Father talks with his child per week <i>often</i>									(0.075)	(0.075) 0.17*
Father helps his child's homework per week <i>often</i>										(0.072) -0.14
Father helps his child's homework per week <i>sometimes</i>										(0.077) 0.00
										(0.052)

Predictors	Model1	Model2	Model3	Model4	Model5	Model6	Model7	Model8	Model9	Model10
Constant	-0.15*** (0.042)	-1.20*** (0.119)	-1.10*** (0.124)	-1.12*** (0.126)	-1.14*** (0.126)	-1.28*** (0.128)	-1.28*** (0.128)	-1.26*** (0.128)	-1.58*** (0.156)	-1.61*** (0.158)
R-squared	0.01	0.05	0.06	0.07	0.08	0.09	0.09	0.09	0.10	0.11
Adj.R-squared	0.01	0.05	0.06	0.06	0.07	0.08	0.08	0.09	0.09	0.10

Source: the Gansu Survey of Children and Families (GSCF) (2000)

Note: Sample size for all analyses is 1,891. The sample children's age was 9-13 in 2000

* p<0.05, ** p<0.01, *** p<0.001

VII. REFERENCES

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