Short and Long-term Consequences of Family and Neighborhood Poverty in Rural China

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Abstract

Do deprivations experienced in childhood - including deprivations in the family, community, and school - have implications for welfare outcomes in young adulthood? Using a longitudinal study of 2000 nine- to twelve-year-old children from 100 villages in one of China's poorest provinces (initial contact in the year 2000 and follow-ups in 2004, 2007, 2009, and 2015), we analyze the associations of economic and social deprivations experienced at ages 9 to 12 with outcomes 15 years on: educational, demographic, economic, and psychological outcomes. Following the Multi-dimensional Poverty Index (MPI)1 approach, we define multi-dimensional poverty to include social and economic deprivations in the domain of the household, but we also extend the concept to consider social and economic deprivations in communities and in primary schools attended by children. We gen- erate a summary multi-dimensional poverty index (MPI) and create domain-specific poverty indices (household social and economic deprivations, school social and economic deprivations, and community social and economic deprivations). We then investigate the relationships of the summary and domain-specific poverty indices

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1 Introduction

Numerous papers have been written on the importance of parental socioeconomic status on the well-being of children. Parents' socioeconomic status, in particular income, can influence children's day-to-day lives through inadequate nutrition, instability of residence, low quality of schools, ..., and so on. This combination of factors lead to the gap in health and cognitive development between poor and nonpoor children. In addition to providing basic necessities, families transmit cultural and educational values and help children to adapt to societal demands and opportunities. Furthermore, children in lower income families are likely to experience more stress, more family instability, and less quality time with parents, among other experience of disadvantage. Thus, family socioeconomic status also influences the acquisition of noncognitive skills during childhood.

In addition to the family environment, the impact of neighborhood environment has also become the subject of intense study in economics in recent years[1]. Evidence from US longitudinal data (PSID data, NLSY) documents that growing up in poor neighborhood predicts lower high school completion, more teenage pregnancy, and lower adult incomes. For example, based on tax return data and those who switch neighborhoods in childhood, Chetty et al. (2016a) find that young kids who move out of a high-poverty neighborhood do much better later on. Specifically, low income children do worse in counties with concentrated poverty, income inequality, worse schools, more single-parent families, and more crime. Boys are more sensitive to the influence of disadvantaged neighborhoods.

[1] Chetty et al. (2016a); Chetty et al. (2016b),Chetty and Hendren (2017),Sampson et al. (2002).

Although there are heated debates about the topic “it’s too difficult for students from poor and humble families to become outstanding" in social media in China[2] [3], virtually no evidence from developing countries or rural setting has examined the relationship between childhood poverty and adult outcomes. Taking advantage of our unique data set from rural China, this paper is the first to study how multiple dimensions of childhood poverty affect adult outcomes in a rural, developing country setting. We use the longitudinal survey of rural kids in Gansu[4] survey of Children and Families (GSCF) from the year 2000 to 2015 in this study. One advantage of this data set is that it has extensive information on child circumstances, which include not only children’s home environment but also their school and community environment. Furthermore, the GSCF data sets tracks sampled children’s cognitive and noncognitive skills from youth to early adulthood. This is especially useful for our analysis, as we aim to examine whether the childhood poverty measured in multiple aspects will have impact on a variety of children’s outcomes during different life stages.

Social scientists have been investigating links between family poverty and subsequent child outcomes for decades. When talking about poverty, most of the previous work typically focus on one-dimensional measures, such as income, to distinguish poor and non-poor. However, no one indicator alone can capture the multiple aspects that constitute poverty. Poor people describe their experience of deprivation in multiple ways - such as poor health, lack of education, inadequate living standard, lack of income, poor quality of work and threat from violence. Moreover, multidimensional aspects of childhood life are playing important roles in developing

[2] 1,http://edu.ifeng.com/news/special/qionghaizi/.
[3] 2,http://news.xinhuanet.com/politics/2017-07/12/c_1121304083.htm
[4] Gansu is an interior province in Northwest China characterized by high rates of rural poverty.

their cognitive and non-cognitive skills, such as family structure (Black et al., 2005), the parent-child interaction(Nokali et al., 2010), the neighborhood environment(Chetty and Hendren, 2017), the access to quality education(Borghans et al., 2015) and so on. These above-mentioned are also proved to be related to children's welfare outcomes in adulthood. A multidimensional measure can incorporate a range of indicators to capture the complexity of poverty and better inform policies to relieve it. For example, an area in which most children are deprived in education is going to require a different poverty reduction strategy to an area in which most children are deprived in housing conditions.

We propose an in-depth study of the influence of poverty on the 9 to 12 year-old children in rural Gansu, an interior province in Northwest China characterized by high rates of rural poverty. Substantively, the proposed study is innovative in adopting an integrated approach: it focuses on the community, family and school contexts in which children grow up.

To incorporate family, school and village environment into our definition of poverty, we define a multi-dimensional poverty index (MPI) following the Alkire and Santos' work for the 2010 Human Development Report[5], which considers not only the income and consumption, but also the household living conditions to define poverty. The MPI has ten indicators[6] in three dimensions: health, education, and standard of living. Poor households are identified and an aggregate

[5] Alkire, S. and Santos, M.E. (2010). "*Acute Multidimensional Poverty: A New Index for Developing Countries*." OPHI Working Papers 38, University of Oxford. The original multidimensional poverty index was developed by Sabina Alkire and James Foster (AF method) at OPHI, which is a flexible technique for measuring poverty or well-being. It can incorporate different dimensions and indicators to create measures specific to particular contexts. The AF method can be used to create national, regional or international measures of poverty or wellbeing by incorporating dimensions and indicators that are tailored to the context. For example, the AF method is used to construct the global MPI that features in UNDPâ€™s flagship Human Development Reports, and would underlie the MPI2015+ proposed for the post-2015 development context. It has also been adapted by countries including Mexico, Colombia and Bhutan to create their national measures of poverty or well-being.

[6] The 10 indicators include years of schooling, child enrolment, child mortality, nutrition, electricity, drinking water, sanitation, flooring, cooking fuel and assets.

measure constructed using a methodology proposed by Alkire and Foster (2007, 2009). Each dimension is equally weighted; each indicator within a dimension is also equally-weighted. The MPI reveals the combination of deprivations that batter a household at the same time. A household is identified as multidimensionally poor if and only if it is deprived in some combination of indicators whose weighted sum exceeds 30% of all deprivations. In our paper, we extend their framework and investigate if the household is deprived in the following six domains of factors: family economic conditions, family social and human capital, school economic conditions, school social capital, village economic conditions and village social capital. A child is defined multi-dimensionally poor only if he or she is deprived in at least half of these six domains. We attempt to study whether the multidimensional poverty is associated with children's cognitive, non-cognitive skills, health status and early adulthood outcomes such as marriage, fertility, education, employment and earnings. Furthermore, we investigate how deprivation in each of these six domains affect children's performance in these outcomes.

Using the longitudinal survey of rural kids in Gansu survey of Children and Families (GSCF) from the year 2000 to 2015 in China, this paper begins by looking at the impact of MD poverty on short-term outcomes such as cognitive and non-cognitive performance in 2000, the same year in which we measure the childhood poverty when the sampled children are aged 9 to 12. We then look at the academic performance, self-esteem and depression scales in 2009 when children are 18 to 21 years old, as well as the impact of childhood poverty exposure on marriage, fertility, employment and earnings in 2015, when they are 24 to 27 years old. We find that childhood poverty is associated with short-term cognitive and non-cognitive skills, as well as the early adulthood welfare outcomes. The associations are statistically significant. However, we don't find

strong association between MD poverty and long-term non-cognitive characteristics, such as self-reported depression, extraversion, agreeableness, conscientiousness, neuroticism, and openness scales measured in 2015. We further examine which specific domains of poverty measures are the statistically significant predictors of outcomes. We document three facts of the relationship between domain-specific poverty and outcomes: First, deprivation in economic (whether it is at family, school or village level), rather than the deprivation in social, is linked to short- and long-term outcomes. Second, deprivation in family social (i.e., parents' literacy, health and migration) has significant negative impact on cognitive skills across all years. Third, village social is more likely to be correlated with marriage and fertility rather than the cognitive and non-cognitive skills.

The rest of the paper is organized as follows. Section 2 discusses poverty and child development, and reviewing previous empirical studies. Section 3 discusses the data and Section 4 presents the methodology. Section 5 presents the results and discusses the findings, followed by the conclusion in Section 6.

2 Childhood Poverty and Children Development

What does poverty mean for children? The economic definition of poverty is typically based on income measures. Thus, poverty is linked to the lack of income, which would influence children's day-to-day lives through inadequate nutrition, instability of residence, low quality of schools, ..., and so on. In addition, families are the primary socializing agents for their children[7]. Evidence suggests that many of the effects of poverty on children are influenced by families' behavior. In addition to providing basic necessities, such as food, shelter, and clothes, families

[7] REPETTI, R.L., S.E. Taylor & T.E. Seeman (2002) Risky families: family social environments and the mental and physical health of offspring. Psychological Bulletin. 128: 330-366.

transmit cultural and educational values and help children adapt to societal demands and opportunities. Early parent-child interactions help children learn regulatory process and socialize them into the rhythm of their family and culture. To understand the multiple mechanisms linking poverty with children's education and development, we extend the poverty concept by incorporating both the family economic conditions and family social conditions into the definition of poverty.

Moreover, low income families tend to live in low-income neighborhoods, where schools are often under-funded, staffed by poorly equipped teachers and thus children might be confronted with difficulties meeting their educational mandates. Furthermore, in developed countries like USA, low-income neighborhoods are also associated with higher crime rates and lack of role models among neighborhood peers, which are also attributed to the deleterious effects of poverty on children. In rural China, low-income neighborhoods might be lack of sufficient infrastructure services and thus be isolated from the outside world. Also, in some parts of rural China, the son preference among villagers might lead to girls more likely to drop out of schools, migrate out, or be married at an early age. To sum up, children growing up in poor might have different family, school, and community environment than their peers from nonpoor families. In order to find which deprivation measures of the childhood environment have the strongest association with development and adulthood outcomes, we use a broader definition suggesting that "poor" means lacking not only material assets and health but also the disadvantage in family social capital and interactions, and the deleterious factors in their neighborhood and school environment.

3 Data

To answer our research questions, we use data from the Gansu Survey of Children and Families (GSCF), a longitudinal survey of 2,000 rural children living in 100 villages of 20 randomly sampled counties in Gansu province who were between nine and twelve years old in 2000. The GSCF contains questions of children's educational, health, and psychosocial development outcomes in rural, underdeveloped areas and has detailed measures of family, school and village environment. The same children were reinterviewed in 2004 when they were 13 to 16 (GSCF-2) and again in 2009 when they were 18 to 21 (GSCF-3). In 2015, the children are 24 to 27 years old (GSCF-4), and at this time, most had completed their education, and some had made transitions to marriage, migration, and employment.

To better understand the context within which the children are growing up, it is worthwhile examining the household and village data. In each wave, the GSCF collected extensive data on these children using separate questionnaires administered to children, their parents, teachers, school principals, and village leaders. Thus, it provides a unique data source that enables us to construct the multidimensional poverty measures and also to study the links between early poverty exposure and a variety of short-term outcomes related to education and welfare, and long-term outcomes in young adulthood, including educational attainment, family formation, migration, employment, and self-esteem.

Do impoverished children perform more poorly in schools and also in development than their non-impoverished counterparts? If so, what factors in the home, community or school might be useful in explaining differences? To answer this question, we need first define the poverty criteria in our context. In most of the previous work, income or consumption poverty are used to

identify whether a household is impoverished or not. Income poverty is when a family's income fails to meet an established threshold that differs across countries. Typically it is measured with respect to families and not the individual, and is adjusted for the number of persons in a family. Economists often seek to identify the families whose economic position (defined as command over resources) falls below some minimally acceptance level. Similarly, the international standard of extreme poverty is set to the possession of less than 1$ a day.

But income is just one way to measure poverty, Meyer and Sullivan (2003)argue that consumption offers a more robust measurement of poverty than income. They find that income and consumption measures of the poverty gap have generally moved in opposite directions in the last two decades, with income based poverty gaps rising, but consumption based poverty gaps falling. They show that how poverty is measured affects the composition of the poor, and that the consumption poor appear to be worse off than the income poor.

3.1 Multi-dimensionally Poverty

Today it is widely held that one cannot consider only the economic part of poverty. Poverty is also social, political and cultural. For example, sociologists generally study the reasons for poverty, such as the roles of culture, power, social structure and other factors largely out of the control of the individual. Accordingly, the multidimensional nature of poverty, in particular social aspects such as housing poor, health poor or time poor, needs to be understood in order to create more effective programs for poverty alleviation. Hypotheses that typically play a role in sociological theories of poverty are based on the idea that individuals are influenced by the physical and cultural context in which they live.

We define a multidimensional poverty index following the AS approach as been developed by Alkire and Santos (2010) for the 2010 Human Development Report, which complements the money metric measures of poverty by considering overlapping deprivations suffered in other dimensions at the same time. Alkire and Santos (2010) uses micro data from household surveys to measure multiple deprivations at the household level in education, health and standard of living.

Following the AS approach, we construct the MPI for Gansu kids in the six aspects (Family Economic, Family Social, School Economic, School Social, Village Economic, and Village Social), specifically. Table 1 lists the detailed indicators we include for each of the following domains:

[(1)]

1. "Family Economic" is represented by 6 indicators in the household financial resources and living standards: consumption per capita, wealth per capita, income per capita, time to get water, home construction materials and also cooking fuel.
2. "Family Social" includes 9 indicators reflecting the family human and social capital, such as mother's literacy, father's literacy, mother's health status, father's health status, parents' migration, and maternal life satisfaction scale.
3. "School Economic" considers 3 indicators of the village school economic resources: per capita student expenditure, percentage of unsuitable classrooms (dangerous or non-rainproof classroom, or students without enough chairs/desks), and also whether the school has libraries.
4. "School Social" includes 8 variables to reflect teachers' quality and collaboration within the school.

5. "Village Economic" includes 12 indicators to measure villages' infrastructure and access to the outside world.
6. "Village Social" is composed of the village average education level and also the neighborhood environment for the children.

Within each of the above six domains, we define a multi-dimensional (MD) poverty index using a dual-cutoff method. That is, we first define the cutoffs (z_j) in each poverty indicator (y_{ij}), assign weights (w_j)to these indicators, and then aggregate weighted poverty and apply a cross-dimensional poverty cutoff (k). Specifically, we weigh each of the six dimensions equally and within each dimension, each indicator is weighed equally. The weighted deprivations are then summed up, and the cross dimensional cut-off is applied. A cutoff of 50 percent, which is equivalent to k=1/2 of the weighted indicators, is used to distinguish between the multidimensionally poor and non-poor[8].

Using this criteria, we can see that 16.8% children are multi-dimensionally poor in 2000, and this ratio increases to 27.8% in 2004. In 2004, we do not have the school-level information for the sampled children[9]. Thus, only four domains are included to define the multidimensional poverty. The reduction in the number of domains might lead to the increase in the poverty ratio from 2000 to 2004.[10] As we have poverty indicators for all 6 domains in 2000 than in 2004, using

[8] A household is defined multidimensionally poor if $\sum_j w_j * p\{y_{ij} \leq z_j\} \geq k$. The detailed algorithm we use to construct the summary of MPI and domain-specific deprivation indices can be found in our companion working paper "Multidimensional Childhood Poverty in Rural China: Measurement and Implications".

[9] When we tried to match the school codes in the 2004 child data to the school codes in the principal data, we found that the matching rate is only around 40%. We suspect that the coding rules in the two data files might be different.

[10] If we look at the deprivation in each domain, the poverty ratios range from 11.6% to 27.5% in 2000, with the lowest value in school social and the highest value in family economic. However, the domain-specific poverty ratios are much higher in 2004 with the lowest value 16.4% in family social.

the 2000 poverty measures to define the multi-dimensional poverty index might be more comprehensive. Further, the previous literature documents that the timing of poverty is important that poverty in early years has more prominent effects than in later years (Brooks-Gunn and Duncan, 1997). Thus, we define the childhood poverty using the data in 2000, which is the first year we conducted the survey when sample children are 9 to 12 years old, in this paper.

Table 2 reports the mean values of children, family and village characteristics for all households, MD poor (deprived in at least three out of six domains) and non-poor households, as well as the difference between poor and non-poor groups. From the descriptive statistics, girls and households with larger family size are more likely to multi-dimensionally deprived. On average, parents in MD poor families have less education, poorer health conditions, and more likely to be migrant works than parents in non-poor families. When we consider the child neighborhood environment, children from non-poor families are from richer villages, closer to township and county seat, with more households, larger population, and better infrastructure facilities such as railway stations and bus services, compared with children from poor families.

3.2 Measures of Child Well-Being

To better understand the impact of the context within which the children are growing up on children development , it is worthwhile examining the short- and long-term outcomes for children from MD poor and non-poor families. This paper examines four groups of outcomes: (1)cognitive skills; (2)noncognitive skills; (3)early adulthood outcomes; (4)health status across years.

The Chinese and mathematics achievement tests collected in waves 1 and 2 were designed by experts at the Gansu Educational Bureau to cover the range of the official primary

school curriculum. The academic tests were administered in school classrooms for currently enrolled children, and in the village committee office for children who were no longer enrolled. In the first wave, half of the sample children were randomly assigned to take the Chinese test, while the other half took the mathematics test. Children were given 45 minutes to take the math test and 60 minutes to take the Chinese test. Chinese and mathematics tests were not administered in wave 3, since less than half of the sample were still in school in 2009, so there is no clear reference curriculum on which to base the tests.

Literacy ("life skills") tests were administered in waves 2 and 3, where children were given 30 minutes to take the test. The tests are modeled after the International Adult Literacy Surveys (OECD and Statistics Canada, 2000) and were designed by an expert from the China Educational Research Institute in Beijing. In contrast to the Chinese and math achievement tests administered in waves 1 and 2, the literacy test focuses on how to apply literacy and numeracy skills to function effectively in society. The same test was taken by everyone in the sample, regardless of their grade level. The wave 2 and 3 tests are not identical, since by 2009 these young adults should have developed more advanced skills. In particular, the wave 3 test include more questions on reading comprehension.

Explain why we don't include the cognitive skills outcomes in 2004.

In recent years, increasing emphasis has been placed on the importance of personality traits, also known as noncognitive skills, on employment and labor productivity in adulthood (see Almlund et al. (2011) for a review). In this paper, we are also interested in how the noncognitive skills are related to childhood poverty in household, school and community levels. Measurements of non-cognitive skills are constructed from sets of questions included in the child questionnaires in each

wave of the GSCF. Measures of internalizing behavior and externalizing behavior are asked in exactly the same way in waves 1 and 2. Internalizing behavior problems are intrapersonal in nature. The internalizing index captures the extent to which the child suffers from anxiety, depression and withdrawal. Externalizing problems are interpersonal in nature and are characterized by destructive behavior, impulsiveness, aggression and hyper-activity (Achenbach and Edelbrock, 1978; Hinshaw, 1992; Dearing et al., 2006). The child psychology literature suggests that environments that impede a child's self-regulatory efforts, as well as the presence of anti-social role models, increase the likelihood of a child developing externalizing problems (Evans, 2004). Environments that destabilize a child's sense of self control over his or her life may increase the likelihood of internalizing problems (Dearing et al., 2006; Chorpita and Barlow, 1998).

To measure internalizing and externalizing behavior, children were read 36 statements and asked whether they fully agreed, agreed, disagreed, or totally disagreed with the statement. An example of a statement used for the internalizing index is: "I am shy." An example for the externalizing index is: "I often lose my temper with others." From the two indices, the internalizing and externalizing Item Response Theory (IRT) scores were calculated by fitting the rating scale model (RSM; Andrich 1978). For both, higher scores indicate more behavioral problems. All noncognitive skill measures except educational aspirations were similarly transformed into IRT scores.

The third wave in 2009 did not collect data on internalizing and externalizing behavior, nor on resilience, but it did administer two sets of questions to measure two other types of noncognitive skills, the Rosenberg Self-Esteem Scale assessment and the Center for

Epidemiological Studies Depression Scale (CES-D). The main reason for using different tests is that the internalizing, externalizing and resilience tests are designed for children, while the self-esteem and depression test are designed for adults, and by wave 3 the children were 18-21 years old. The Rosenberg scale measures perceptions of self-worth. It is a 10-item scale, designed for adolescents and adults, that measures an individual's degree of approval or disapproval toward himself (Rosenberg, 1965). The scale is short, widely used, and has accumulated evidence of validity and reliability. It contains 10 statements of self-approval and disapproval to which respondents are asked to strongly agree, agree, disagree, or strongly disagree[11]. Give "Strongly Disagree" 1 point, "Disagree" 2 points, "Agree" 3 points, and "Strongly Agree" 4 points. Sum scores for all ten items. Keep scores on a continuous scale. Higher scores indicate higher self-esteem.

CES-D is one of the most frequently used depression questionnaires that psychologists have constructed that can be used in general surveys to detect the presence of depressive symptoms[12]. It consists of 20 statements[13], such as "I felt that everything that I did was an effort". For a reference period of the past week, the respondent is asked to express the frequency of such

[11] The ten statements are: (1) On the whole, I am satisfied with myself; (2) At times I think I am no good at all; (3) I feel that I have a number of good qualities; (4) I am able to do things as well as most other people; (5) I feel I do not have much to be proud of; (6) I certainly feel useless at times; (7) I feel that I'm a person of worth, at least on an equal plane with others; (8) I wish I could have more respect for myself; (9) All in all, I am inclined to feel that I am a failure; (10) I take a positive attitude toward myself. Items 2, 5, 6, 8, 9 are reverse scored.

[12] It was developed in the 1970s by Radloff (1977), while she was a researcher at the U.S. National Institute of Mental Health.

[13] The 20 statements are: (1) I was bothered by things that usually don't bother me. (2) I did not feel like eating; my appetite was poor. (3) I felt that I could not shake off the blues even with help from my family or friends. (4) I felt I was just as good as other people. (5) I had trouble keeping my mind on what I was doing. (6) I felt depressed. (7) I felt that everything I did was an effort. (8) I felt hopeful about the future. (9) I thought my life had been a failure. (10) I felt fearful. (11) My sleep was restless. (12) I was happy. (13) I talked less than usual. (14) I felt lonely. (15) People were unfriendly. (16) I enjoyed life. (17) I had crying spells. (18) I felt sad. (19) I felt that people disliked me. (20) I could not get "going".

feelings on a four point scale (No, Once in a while, Sometimes, and Frequently). In scoring the CES-D, a value of 0, 1, 2 or 3 is assigned to a response depending upon whether the item is worded positively or negatively. Possible range of scores is 0 to 60, with the higher scores indicating the presence of more symptomatology.

Due to the data availability, we use a different subset of the cognitive and noncognitvie measures across waves. Appendix Table 1 reports the specific cognitive and non-cognitive skill outcomes we use in each year. Appendix Table 2 shows the list of survey questions we used to construct each noncognitive skill scale.

What does the long-term picture look like for children growing up poor? Previous literature suggests that adult achievement is related to childhood poverty and the length of time they live in poverty(Ratcliffe, 2012). By the year 2015, our fourth wave, the sampled children are aged 24-27, when some of them already entered the marriage and the job market. We examine whether the childhood poverty has the long-term impact in these early adulthood outcomes, such as migration, marriage, fertility, education attainment, employment and earnings.

Income poverty is the condition of not having enough income to meet basic needs for nutrition and shelter. Research in the United States finds that compared with nonpoor children, poor children experience diminished physical health as measured by a number of indicators of health status and outcomes(Brooks-Gunn and Duncan, 1997). In this paper, we examine the association of childhood poverty with self-reported health status and BMI indicators. Our measure of poor overall health was based on the most recent response to the question “I have a few questions about your health. Would you say your health in general is excellent, very good, good, fair, or poor?” Individuals are considered in poor health if they responded that their health was either

fair or poor. Our measure of adult body mass index (BMI) is calculated based on reports in the survey of children's weight in pounds and their height in feet and inches. We calculate BMI using the following formula: $\frac{Weight*703}{Height^2}$ where weight is measured in pounds and height is measured in inches. We follow convention and define "overweight" as a BMI greater than or equal to 25. The self-reported health data is available in mothers' questionnaire for all four waves. However, as the height information is not recorded in 2000, the BMI indicator is not available in the first wave.

Table 3 below reports the mean values of each dependent variable for all households, MD poor (deprived in at least three of six domains) and non-poor households. From the descriptive statistics of the dependent variables, non-poor group out-performed their peers in almost every aspect. Compared with poor children, non-poor have better cognitive skills, less chance to have internalizing or externalizing behaviors, higher college aspiration, higher self-esteem, less depression tendency. With regards to early adulthood outcomes, children exposed to childhood poverty are more likely to be married and have kids at an early age, attain fewer years of education, and receive lower wages than the children from non-poor families. In next section, we will discuss these findings in details.

4 Results and Discussion

This paper studies the relationships and the consequences for children of growing up poor. We begin with a long, but by no means exhaustive, list of child outcomes that have been found to be associated with poverty in the previous literature. Table 4 shows the correlation between the MD poverty indicator and 31 outcomes. Panel A reports the results for cognitive and noncognitive skills in childhood and adolescents. Panel B reports the results for noncognitive

outcomes in early adulthood. Panel C reports the association between poverty and several aspects in migration, marriage, fertility, education attainment, and labor market outcomes. Panel D reports the link between poverty and health status from childhood to adulthood. Table 5 is arranged in the same structure, but shows the correlation between outcomes and six domain-specific poverty indicators.

The column (1)-(3) in both table 4 and 5 report the results for cognitive skills. Consistent with previous studies, children suffering from deprivation in more than 3 domains did worse than children in nonpoor families. And the negative effects of childhood poverty are long-term. When we examine the impact on literacy skills in the year 2009 - the year when sample kids are aged 21-24, we still find negative and statistically significant association between the literacy performance and the family poverty. Specifically, children from poor families are 0.697 standard deviation lower in Chinese, 0.384 standard deviation lower in Math, and 0.431 standard deviation lower in Literacy than their nonpoor peers. The difference between poor and nonpoor in test scores is quite high from an educational perspective. Given the mean value of these test scores, our results implies that poverty in 3 or more dimensions is linked to a reduction of test scores by **% in Chinese, **% in Math and **% in Literacy. If we look at the correlation between test scores and deprivation in each domain, we find that the children deprived in family economic scored between 18 and 31 points lower on the three tests. The magnitudes are still higher than the finding in previous research in US, which documents that poorer children scored between 6 and 13 points lower on various standardized tests of IQ, verbal ability and achievement. One possible reason might be that the previous results are presented after controlling for maternal age, parents' marital status, education and ethnicity.

Column (4)-(8) of Panel A and the whole Panel B in table 4 and 5 show the correlation between poverty and noncognitive skills. Generally, poor children suffer from emotional and behavioral problems more frequently than do non-poor children. We find that poverty was positively related to the presence of internalizing symptoms (such as dependence, anxiety, and unhappiness) and more externalizing problems (such as hyperactivity, peer conflict, and headstrong behavior). However, the effects of poverty on emotional outcomes are not as large as those found in cognitive outcomes. On average, children living in multi-dimensional poverty ranked ** to ** percentile points higher (indicating more problems) on a behavior problem index than children not suffering form multi-dimensional poverty. Second, the correlation between poverty and emotional outcomes decay over time. The magnitude of the correlation in both self-esteem and depression scales (column (7)-(8) of panel A and column (1)-(2) of panel B) are smaller in later years. One reason might be that younger children are more affected by poverty than older ones. It may also be self-reporting by the early adults rather than maternal reporting, as used in the data sets on younger children, to account for the differences. Last, the measurement of noncognitive skills matter. Poverty are correlated with Rosenberg self-esteem and CES-D depression scales, but not with Big 5 Personality scales[14].

Previous studies (Condliffe and Link, 2008) on the United States find that poor children experience diminished physical health as measured by a number of indicators of health status and outcomes. However, we do not find similar effects in this paper. The MD poverty indicator is

[14] According to Fletcher and Wolfe (2016), the limited agreement on both the conceptualization of noncognitive skills and inconsistent measurement may contribute to the lack of attention by economists. For adults, economists have tended to use a five-factor model related to personality psychology: conscientiousness, emotional stability, agreeableness, extraversion and autonomy (Nyhus and Pns, 2005). These overlap but are not entirely identical to the big five among psychologists who use "OCEAN": openness to experience, conscientiousness, extraversion, agreeableness and neuroticism (similar to emotional stability).

only weakly associated with health outcomes across years. We find the negative impact of childhood poverty on the self-reported health in 2004 (when children are aged 13-16) and on the self-reported BMI in 2009 (when the children are 18-21), but not in other waves. The direction and magnitude of the association also vary in different years. Self-reporting in later years rather than maternal reporting on childhood and youth may account for the variation across years. These findings point to the need for consistent measures on health status in future research.

Panel C of table 4 and 5 show the correlation between poverty and early adulthood outcomes. Poverty is positively linked to chance of migration but the correlation is not statistically significant. One reason might be that the impact of poverty on rural households' migration decision might be twofold. On one hand, poverty might motivate the rural youth to migrate to large cities for high-paying jobs. However, on the other hand, extreme poverty could also undermine the migration probability for not being able to afford the initial migration cost. As a result, the linear relationship between poverty and migration might be unclear[15]. Numerous papers have been written on the impact of parents' marriage status on children's welfare. For example, Chetty et al. (2016b) find that children in non-intact families face a higher risk of poverty through childhood, and the negative economic consequences of divorce tend to be greater for women and children than men. However, few research studies correlations between childhood poverty and the children's own marriage life in adulthood. In our study, the rural Gansu children growing up poor are more likely to be married and have kids in their mid-20's than those form non-poor families. One reason might be that the poor children's marriage is less likely to be

[15] Du et al. (2005) finds an inverted-U-shaped relationship between household endowments and the likelihood of migration.

delayed by the college and postgraduate education. Thus, children growing up in poor families are likely to quit school early and also enter the marriage life early than their non-poor counterparts. Column (5) and (6) show that the poor children attain less education achievements, which supports our conjecture. Obviously, the impact of poverty on marriage and fertility might be quite different by gender. Besides of the years of schooling, poverty might affect marriage life through the dowry payments mechanism in China. The latter channel has opposite direction of impact on boys and girls. Poor girls might marry early to obtain dowry from the grooms to reduce their family economic burden. However, boys from poor families tend to marry late as they cannot afford the marriage dowry. We also examine the relationship between childhood poverty and adulthood labor market outcomes. We do not find that poverty reduces the probability of being employed, because the definition of employment is not restricted to working in firms and farming in rural villages is also treated as being employed in this study. However, childhood poverty is linked to lower hourly wage and monthly wage in early adulthood. This might happen due to the reduced cognitive and noncognitive skills by childhood poverty.

If we look at the specific effects of different dimensions of poverty in Table 5A-D, we find that deprivation in economic status, including family economic, school economic and village economic, has significant negative impact on almost all outcomes of cognitive and noncognitive skills in short term as reported in column (1)-(6). However, only family social poverty has statistically significant impact on multiple noncognitive skills in long-term. The other poverty dimensions only have significant impact on one or two noncognitive traits as see in table 5A column (7) & (8)and table 5B. This is consistent with the literature that parents' (especially mothers') education and interaction with children are crucial to children's development of

cognitive skills. When we look at early adulthood outcomes, we find that both family and village poverty have significant outcomes on education attainment such as whether the children are college graduates or not, and the years of schooling by the age of 24-27. However, school poverty only has insignificant impact. In terms of migration, only school economic and village economic poverty have significant impact and their impacts are in opposite directions. For other adulthood outcomes, only deprivation in family economic status has significant impact. Table 5D implies that early childhood poverty also impact the health status, and the health status even lasts till adulthood.

As discussed above, we used 38 family, village and school indicators to define MD poverty, and then regress the children welfare outcomes on the MD poverty indices. One might be interested to know that among 38 poverty measures, what indicators mattered the most. To answer this question, we redo our analysis in the following two ways: (1) regress all the outcome variables on 38 poverty indicators directly rather than on the MD poverty indices; (2)regress the outcome measures on the specific poverty indicators from 1 particular domain while controlling for all other 5 domain-specific MD poverty indices. After running the regressions, we count the number of times that each of the 38 indicators has statistically significant impact on children outcomes. The results are reported in Table 6. From the statistics in column (1) and (2), we can see that village poverty measures has the strongest associations with the children development. Among the village characteristics, whether the village has bus services, its literacy rate among the female labor force, and village children friendship environment play the top 3 important roles. The conclusions still hold when we use the second specifications (see column (3) and (4) of table 6).

As we study deprivations in both family and neighborhood characteristics, one might be interested to know whether it is worse to be rich in a poor village or poor in a rich village. To answer this question, we first look at the population shares in these different cells in the joint distribution of deprivations. Table 7 reports the distribution of our sampled 2,000 children being deprived in different domains. From last row of the table, we can see that 17.90% are deprived in both family and neighborhood measures; 49.30% deprived in neither family nor neighborhood measures. Meanwhile, we have 19.70% of the population deprived in the family but not the neighborhood measures; however, 13.10% deprived in the neighborhood but not in the family measures. We are curious to see how much different life prospects are if children are in one of the poorest villages versus one of the richest villages. Therefore, we examine the difference in family and neighborhood characteristics among children in the four cells of the joint distribution. Table 7 also reports the mean values of household, school and village characteristics for the different groups of population. Column (3) and (4) list the mean values of household and neighborhood characteristics for poor people in non-poor villages and non-poor people in poor villages, respectively.

Table 8 reports the impact of family poverty on outcomes controlling for versus not controlling for neighborhood effects. We compare three specifications: (1) not controlling for any neighborhood effects; (2) controlling for all 26 neighborhood poverty indicators; (3) controlling for neighborhood fixed effects. In panel A, we can see that the three specifications have significantly different results on all outcomes, indicating that beside of the family poverty, neighborhood environment has important impact on cognitive and noncognitive skills in short term, and thus should not be neglected from the analysis. However, the three specifications have

no statistically significant difference for the analysis of noncognitive outcomes in 2015 in panel B. In panel C and D, specification only matters for education attainment and early health outcomes in 2000 and 2004.

5 Robustness Check

5.1 Multiple Inference

As we have 31 outcomes being tested in the paper, one might have the concern of over-rejection of the null hypothesis due to multiple inference. One approach to dealing with multiple outcomes is to aggregate them into particular groupings to examine whether the overall impact of the treatment on a family of outcomes is different from zero. However, we are interested in whether childhood poverty are linked to the short-term and long-term outcomes, rather than whether the average effect over all types of outcomes is positive or not. The solution then are approaches which consider the significance of individual coefficients when viewed as part of a family of multiple hypotheses. To address this concern, we use the two-stage BH (Benjamini and Hochberg, 1995) procedures to adjust the p values for multiple inference as proposed in Anderson (2008)[16]. Table 9 compares the naive p values and our adjusted q values. We can see that our conclusions do not change too much after the correction. As before, only poverty in family economic and social status has significant impact on most outcomes. Deprivation in other

[16] Another approach often used in the literature to address the multiple inference issue is to report the family-wise error rate. The family-wise error rate is then defined as the probability of at least one type I error in the family. Then, we can maintain the family-wise error rate at some designated level Î±, such as 0.05 or 0.10, by adjusting the p-values used to test each individual null hypothesis in the family. The simplest such method is the Bonferroni method, which uses as critical values Î±/n. Thus, with 10 outcomes in a family, we would need to use a cutoff of a p-value less than 0.01 when testing each individual outcome to maintain the family-wise error rate at 10 percent. The downside of the Bonferroni adjustment is that it assumes outcomes are independent, and so can be too conservative when outcomes are correlated. There are some refinements that offer slightly more power (e.g. Holm and Hochberg's methods), but in order to account for correlations, the current best-practice approach is to follow Katz, Kling and Liebman (2007) in calculating bootstrapped estimates of adjusted p-values using a modification of the free step-down algorithm of Westfall and Young (1993).

neighborhood dimensions only have significant impact on short-term cognitive and noncognitive skills. The only exception is deprivation in village social status, which has important impact not in Rosenberg self-esteem in early childhood and education attainment in 2015.

5.2 Continuous Measures of Poverty

As discussed in the data part, we use a dual-cutoff method to define our MD poverty and the cutoffs are set at one half. However, one might concern that our choice of cutoffs are arbitrary and the results may change using different cutoffs. In a companion paper[17], we argued that the correlation between the relationship between poverty and outcomes persist in most cases. In addition, we attempt to use 38 poverty indicators to construct a continuous measure of poverty rather than the dichotomous MD poverty indices to further assess the correlations between poverty and outcomes. Specifically, we first standardize all the 38 poverty measures and then compute the weighted average of non-missing variables. Equal weight is given to each domain and within a domain, each indicator is given an equal weight. The weighted average is used to measure overall poverty. Smaller values of the continuous poverty measures mean poorer. We compare top 10% (rich) and bottom 10% (poor) sample and their associations with children welfare outcomes in table 10. The results support our previous findings: First, nonpoor children do better in cognitive tests and are less likely to emotional problems than their poor peers. Second, the association between childhood poverty and cognitive skills is stronger than that between poverty and emotional outcomes. Third, measurements of noncognitive skills matter. Correlation between childhood poverty and Rosenberg self-esteem is strong, but that is not true

[17] See Hannum, Hu and Park (2017).

for the correlation between poverty and other measurements of personality traits. Finally, compared with the dichotomous version, we find some significantly negative correlation between poverty and health status. However, the results are still not consistent across years as before. Moreover, we adjust the cutoffs to match the MD poverty ratio, 0.1695, and compare whether the correlations are consistent with the one using dual-cutoff MD poverty indicator. Table 11 reports the results using this continuous version of poverty measures. The associations between childhood poverty and later outcomes are quite close to the result we obtained using the MD poverty index.

5.3 Measurement Error

One might be concerned that measurement error might be different across our measures of different poverty dimensions because they are based on more or fewer numbers of indicators. To check the robustness of our results, we restrict the poverty indicators to each being a function of the same number of basic indicators. (TO BE CONTINUED)

6 Conclusions

We document three facts using the longitudinal survey of rural kids in Gansu Survey of Children and Families (GSCF) from the year 2000 to 2015. Generally, deprivation in economic (whether it is at family, school or village level), rather than the deprivation in social, is linked to short- and long-term outcomes. Second, deprivation in family social (i.e., parents' literacy, health and migration) has significant negative impact on cognitive skills across all years. Third, village social is likely to be correlated with marriage and fertility rather than the cognitive and non-cognitive skills.

The evidence found in this paper supports the conclusion that family poverty can substantially influence child, adolescent, and early adulthood well-being. Childhood poverty seems to be more strongly related to children's ability and achievement-related outcomes than to emotional outcomes.

This paper suggests that living in poverty exacts a heavy toll on children. However, it does not shed light on the pathways or mechanisms by which poverty exerts its effects on children. Exploration of these pathways is important for a more complete understanding of the effects of poverty on children.

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Poverty Measures		Cutoffs
1 Home/Family		
1.1 Financial Resources and Living Standards	consumption per capital	using China low income level in 2000, deprived if a
	consumption per capita	consumption per capita<=865 RMB
	wealth per capita	deprived if annual wealth per capita is lower than the 25th percentile of the 2000 sampled families
	income per capita	using China low income level in 2000, deprived if annual income per capita<=865 RMB
	time to get water (unit: minutes)	deprived if the time to get clean water is higher than the 75th percentile of the 2000 sampled families
	home construction materials (bricks or concrete =1, wood or others=0)	deprived if home construction materials is not b
	cooking fuel (coal or gas=1, wood or other=0)	not deprived if cooking fuel is coal or natural gas; deprived if cooking fuel is firewood, straw or others
1.2 Human and Social Capital	mother's literacy	deprived if mother is reading and writing illiterate
	father's literacy	deprived if father is reading and writing illiterate
	mother's health status	deprived if mother has poor health, or disabled,
	father's health status	deprived if father has poor health, or disabled, c
	parents migration	deprived if either father or mother is a migrant v
	maternal life satisfaction scale	construct a maternal life satisfaction scale from a set of mother's self-response to questions like "are you proud of yourself?"; define deprived if below the 25th percentile

%unsuitable classrooms	deprived if the percentage of unsuitable rooms i percentile, unsuitable rooms = dangerous classr classrooms, or students without enough chairs/c
school with a library?(yes=1, no=0)	deprived if school has no libraries
2.2 Social Capital	
%teachers' education degree higher than zhongzhuan	compute the percentage of teachers whose educ lower than zhongzhuan (i.e., middle school ungra ungraduated, zhongzhuan ungraduated, or other if the school average percentage is above 75th p
teacher turnover rate	the percentage of teachers leaving and coming is percentile
total number of teachers	total number of teachers is below the 25th perce schools
teacher time for teaching related activities (unit: hours)	compute the school average of teachers' total ho preparation, attending teaching-related seminar curricular further education; define deprived if tl below the 25th percentile
teacher moral	construct a job satisfaction scale from teacher's r questions like "do you like to be a teacher?" for e then compute the school average; define deprive average scale is below the 25th percentile
teacher professional development opportunities	construct teacher's professional improvement sc questions like "do you attend any professional w organized by schools?", compute the school aver define deprived if the school average is below th among all schools
teacher collaboration (preparing lectures together more than half the time? Yes=1, no=0)	deprived if teachers preparing lectures together time
school average absence rate among all grades	the school average of the student absence rate a above the 75th percentile

	land per capita (unit: mu)	village-level land per capita is below the 25th perc villages' averages
	electricity access (% households with electricity)	village average electricity access rate is below the among all villages
	village has preschool/kindergarten classes (yes=1, no=0)	deprived if no preschool/kindergarten in the villag
	village has primary school (yes=1, no=0)	deprived if no primary school in the village
	village or nearby has middle school (yes=1, no=0)	deprived if no middle school in the village
	village is mainly mountainous areas? (yes=1, no=0)	deprived if the village is mainly mountainous area
	distance to nearest township (kilometers)	deprived if the distance from the village to the nea above the 75th percentile
	distance to county seat (kilometers)	deprived if the distance from the village to the nea above the 75th percentile
	village with railway/highway passing through (yes=1,no=0)	deprived if without railway/highway passing throu
	village with bus stations (yes=1,no=0)	deprived if without bus stations
	village without telephone, mail and radio service (yes=1,no=0)	deprived is without telephone, mail or radio servic
3.2 Human and Social Capital	illiteracy rates among female labor force (%)	deprived if the village average illiteracy rate amon is above the 75th percentile
	illiteracy rates among male labor force (%)	deprived if the village average illiteracy rate amon is above the 75th percentile
	how often village children fight violently in groups (always/sometimes=1, never=0)	deprived if it is often to see violent fights among v

Table 2. Summary Statistics of Household and Village Characteristics

	All (1)	MD Poor (2)	MD Non-poor (3)	Difference (4)
Household Characteristics				
Child				
Female(%)	0.464	0.515	0.453	-0.063**
Age(years)	10.615	10.511	10.638	0.127*
No. Siblings	1.319	1.415	1.297	-0.118***
No. Older brothers	0.295	0.298	0.294	-0.004
No. Older sisters	0.362	0.401	0.353	-0.048
No. Younger brothers	0.413	0.384	0.419	0.035
No. Younger sisters	0.249	0.331	0.23	-0.101***
Parents				
Father's age	37.075	36.595	37.179	0.584*
Mother's age	34.702	33.979	34.859	0.879***
Father reading or writing literacy	0.801	0.579	0.849	0.270***
Mother readin or writing literacy	0.505	0.206	0.571	0.365***
Father's years of schooling	6.589	4.291	7.092	2.801***
Mother's years of schooling	3.478	1.277	3.958	2.681***
Father health	0.068	0.145	0.051	-0.094***
Mother health	0.105	0.234	0.076	-0.158***
Father migrated	0.271	0.348	0.254	-0.095***
Mother migrated	0.034	0.047	0.03	-0.017
ln(net income pc)	6.701	6.172	6.819	0.647***
ln(consumption pc)	7.125	6.766	7.204	0.438***
Village Characteristics				
#households	363.75	229.772	393.06	163.289***
village population	1580.37	1092.175	1687.172	594.996***
village average income per capita (yuan)	1306.74	386.124	1499.427	1113.303***
village land per capita (mu)	2.175	2.411	2.124	-0.287***
Distance to township (km)	5.263	9.563	4.322	-5.241***
Distance to county (km)	27.22	35.656	25.374	-10.282***
village with railway passing through	0.54	0.393	0.572	0.179***
village with bus service	0.59	0.281	0.658	0.376***
Observations	2000	359	1641	2000

Table 3. Mean Values of Outcome Measures

	All		Mean Value for Poor (Deprived in at least 3 of the 6 dimensions)	Mean Value for Nonpoor (Deprived in at most 2 dimensions)	Diff Non
	Mean	Standard Deviation			
	(1)	(2)	(3)	(4)	
kills and Non-cognitive Skills					
in 2000	32.52439	21.51511	-0.574	0.123	0.69
2000	38.83845	24.98792	-0.314	0.071	0.38
009	13.78215	4.469195	-0.357	0.075	0.43
ıg Behaviors in 2000	0.0000046	0.9310124	0.235	-0.051	-0.2
ıg Behaviors in 2000	0.0000534	0.9506399	0.253	-0.055	-0.3
n 2000	0.5835	0.4931017	0.499	0.602	0.10
Self-Esteem in 2009	0.0060729	0.8219717	-0.200	0.041	0.24
ı in 2009	-0.0004613	0.8877928	0.171	-0.036	-0.2
Self-Esteem in 2015	0.0170147	0.8661157	-0.167	0.034	0.20
ı in 2015	-0.0135816	0.8826953	0.116	-0.024	-0.1
ın in 2015	0.016357	0.7243682	-0.024	0.005	
ıess in 2015	0.0088929	0.780528	0.023	-0.005	
ɔusness in 2015	0.0089704	0.8263884	-0.015	0.003	
ın in 2015	-0.0028628	0.7623456	0.057	-0.012	
n 2015	-0.0168705	0.9039396	-0.027	0.005	
ıood Outcomes					
	0.6452064	0.4786182	0.688	0.637	
	0.5478316	0.4978657	0.611	0.535	-0.0
	0.4191693	0.4935809	0.500	0.403	-0.0
	0.513738	0.6656317	0.674	0.481	-0.1
	0.3252551	0.4686195	0.205	0.350	0.14
	11.20433	3.512798	9.842	11.482	1.64
	0.873805	0.3321749	0.857	0.877	
	2.419301	0.971809	2.214	2.457	0.24
	7.834168	0.8705403	7.661	7.870	0.20
ıs across Years					
Good or Very Good Health in 2000	0.5065	0.5000828	0.563	0.494	-0.0
Good or Very Good Health in 2004	0.6209491	0.4852913	0.610	0.623	
	18.09483	2.375997	18.263	18.059	
Good or Very Good Health in 2009	0.6196137	0.4856622	0.602	0.623	
	19.92951	2.307508	19.678	19.981	0.30
Good or Very Good Health in 2015	0.6709531	0.4700449	0.625	0.680	
	22.26394	5.18096	21.950	22.328	
ıtions	2000	2000	359	1641	

sion analysis, all the cognitive and non-cognitive skills in Panel A are normalized to mean 0 and standard deviation 1. In colum mean and standard errors. In column (3) and (4), we report the standardized mean values for all outcomes except for college (5), we report the difference between column (4) and (3). * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Panel A: Impact of Poverty on Cognitive and Non-Cognitive Skills (2000-2009)

	(1) Chinese00	(2) Math00	(3) Literacy09	(4) Internal00	(5) External00	(6) Mcollege00	(7) Rosenbe
Deprived in at least three domains in 2000	-0.693***	-0.384***	-0.434***	0.271***	0.291***	-0.099***	-0.235
	(0.079)	(0.082)	(0.072)	(0.058)	(0.057)	(0.029)	(0.07
N	1029	970	1322	2000	2000	2000	133

Panel B: Impact of Poverty on Non-Cognitive Skills (2015)

	(1) Rosenberg15	(2) Depress15	(3) Extraver15	(4) Agreeable15	(5) Conscientious15	(6) Neurotic15	(7) Open
Deprived in at least three domains in 2000	-0.214***	0.140**	-0.027	0.022	-0.012	0.06	-0.02
	(0.071)	(0.071)	(0.071)	(0.071)	(0.071)	(0.071)	(0.08
N	1397	1397	1397	1397	1396	1396	987

Panel C: Impact of Poverty on Early Adulthood Outcomes (2015)

	(1) Migrated	(2) Married	(3) Has kids?	(4) #Kids	(5) College Graduates?	(6) Years of Schooling	(7) Employ
Deprived in at least three domains in 2000	0.051	0.082**	0.099***	0.195***	-0.142***	-1.624***	-0.0(
	(0.034)	(0.032)	(0.032)	(0.043)	(0.032)	(0.233)	(0.02
N	1429	1568	1565	1565	1568	1571	156

Panel D: Impact of Poverty on Health Status across Years (2000-2015)

	(1) Health00	(2) Health04	(3) BMI04	(4) Health09	(5) BMI09	(6) Health15	(7) BMI1
Deprived in at least 3 dimensions	0.072**	-0.011	0.243*	-0.014	-0.228	-0.05	-0.2
	(0.029)	(0.031)	(0.140)	(0.035)	(0.168)	(0.034)	(0.37
N	2000	1728	1742	1346	1335	1322	131

Note: a. Standard errors clustered at village level are reported in parentheses. * p < 0.10, ** p < 0.05, *** p < 0.01. b. Variables calculated from fitting Iten with (IRT). The variable Resilience scale 2004 comes from fitting a confirmatory factor analysis model using the subscales of Resilience IRT variables. All IRT specifications, we control for gender and birth year dummies.

	(1) Chinese00	(2) Math00	(3) Literacy09	(4) Internal00	(5) External00	(6) Mcollege00	(7) Rosenb
Deprived in Family Economic in 2000	-0.182**	-0.151**	-0.333***	0.101*	0.084	-0.037	-0.0
	(0.072)	(0.074)	(0.066)	(0.053)	(0.052)	(0.026)	(0.06
Deprived in Family Social in 2000	-0.185**	-0.096	-0.306***	0.014	-0.018	-0.035	-0.206
	(0.080)	(0.085)	(0.073)	(0.060)	(0.059)	(0.030)	(0.07
Deprived in School Economic in 2000	-0.411***	-0.207**	-0.200***	0.160***	0.201***	0.013	-0.0
	(0.078)	(0.086)	(0.072)	(0.059)	(0.059)	(0.029)	(0.07
Deprived in School Social in 2000	-0.118	-0.057	-0.053	0.119	0.075	0.121***	-0.08
	(0.098)	(0.108)	(0.089)	(0.074)	(0.073)	(0.037)	(0.09
Deprived in Village Economic in 2000	-0.433***	-0.265***	-0.170**	0.122*	0.151**	-0.174***	-0.08
	(0.089)	(0.093)	(0.080)	(0.066)	(0.065)	(0.033)	(0.08
Deprived in Village Social in 2000	-0.144*	0.047	0.044	0.018	0.062	-0.043	-0.05
	(0.082)	(0.092)	(0.076)	(0.063)	(0.062)	(0.031)	(0.07
N	1029	970	1322	2000	2000	2000	133

Panel B: Impact of Poverty on Non-Cognitive Skills (2015)

	(1) Rosenberg15	(2) Depress15	(3) Extraver15	(4) Agreeable15	(5) Conscientious15	(6) Neurotic15	(7) Open15
Deprived in Family Economic in 2000	-0.191***	0.073	0.039	-0.026	0.024	0.061	-0.095
	(0.064)	(0.065)	(0.065)	(0.065)	(0.065)	(0.065)	(0.079)
Deprived in Family Social in 2000	-0.057	0.204***	-0.065	-0.048	-0.044	0.199***	0.08
	(0.073)	(0.073)	(0.074)	(0.074)	(0.074)	(0.073)	(0.087)
Deprived in School Economic in 2000	-0.044	-0.035	-0.045	0.041	-0.173**	0.043	0.115
	(0.074)	(0.075)	(0.075)	(0.075)	(0.075)	(0.075)	(0.090)
Deprived in School Social in 2000	0.01	0.154*	-0.035	-0.093	-0.016	-0.001	0.023
	(0.091)	(0.091)	(0.092)	(0.091)	(0.091)	(0.091)	(0.108)
Deprived in Village Economic in 2000	0.133*	0.031	0.004	0.075	0.062	0.04	-0.053
	(0.080)	(0.080)	(0.081)	(0.081)	(0.081)	(0.080)	(0.100)
Deprived in Village Social in 2000	-0.219***	-0.111	0.03	-0.002	0.019	-0.12	0.045
	(0.076)	(0.077)	(0.077)	(0.077)	(0.077)	(0.077)	(0.093)
N	1397	1397	1397	1397	1396	1396	987

Panel: Impact of Poverty on Early Adulthood Outcomes (2011)

	(1) Migrated	(2) Married	(3) Has kids?	(4) #Kids	(5) College Graduates?	(6) Years of Schooling	(7) Employ
Deprived in Family Economic in 2000	0.035	0.067**	0.088***	0.141***	-0.128***	-1.085***	0.00
	(0.030)	(0.029)	(0.029)	(0.039)	(0.028)	(0.207)	(0.02
Deprived in Family Social in 2000	-0.001	-0.012	0.009	0.006	-0.105***	-1.007***	-0.01
	(0.035)	(0.033)	(0.033)	(0.044)	(0.032)	(0.235)	(0.02
Deprived in School Economic in 2000	-0.083**	0.004	0.023	0.032	0.008	0.061	-0.01
	(0.035)	(0.033)	(0.033)	(0.044)	(0.032)	(0.235)	(0.02
Deprived in School Social in 2000	0.035	0.066	0.004	0.022	-0.017	-0.372	0.00
	(0.043)	(0.041)	(0.041)	(0.055)	(0.040)	(0.292)	(0.02
Deprived in Village Economic in 2000	0.091**	-0.026	0.019	0.05	-0.006	-0.568**	-0.02
	(0.038)	(0.036)	(0.036)	(0.049)	(0.035)	(0.260)	(0.02
Deprived in Village Social in 2000	-0.034	0.013	0.052	0.069	-0.091***	-0.671***	0.01
	(0.036)	(0.034)	(0.034)	(0.046)	(0.033)	(0.244)	(0.02
N	1429	1568	1565	1565	1568	1571	156

Panel B Impact of Poverty on Health Status across Years (2000-2015)

	(1) Health00	(2) Health04	(3) BMI04	(4) Health09	(5) BMI09	(6) Health15	(7) BM
Deprived in Family Economic in 2000	-0.01	-0.028	0.113	-0.048	-0.171	-0.095***	-0.
	(0.027)	(0.028)	(0.128)	(0.032)	(0.154)	(0.031)	(0.3
Deprived in Family Social in 2000	-0.077**	-0.088***	0.019	-0.088**	-0.002	-0.063*	0.4
	(0.030)	(0.032)	(0.144)	(0.036)	(0.170)	(0.035)	(0.3
Deprived in School Economic in 2000	0.04	0.002	0.142	0.021	-0.125	0.075**	-0.5
	(0.030)	(0.031)	(0.140)	(0.036)	(0.170)	(0.036)	(0.3
Deprived in School Social in 2000	-0.031	-0.081**	-0.274	0.004	-0.001	-0.068	0.5
	(0.037)	(0.040)	(0.179)	(0.044)	(0.209)	(0.043)	(0.4
Deprived in Village Economic in 2000	0.121***	0.080**	0.329**	-0.008	-0.195	-0.083**	-0.1
	(0.033)	(0.035)	(0.157)	(0.039)	(0.186)	(0.039)	(0.4
Deprived in Village Social in 2000	0.072**	0.04	0.344**	0.034	0.065	0.099***	-0.3
	(0.032)	(0.033)	(0.151)	(0.038)	(0.178)	(0.037)	(0.4
N	2000	1728	1742	1346	1335	1322	13

			observations	#outcomes with significant i
1	Family Economic	deprived in consumption per capita in 2000	1999	2
2		deprived in wealth per capita in 2000	1999	5
3		deprived in net income per capita in 2000	1999	6
4		deprived in time to get water in 2000	1999	2
5		deprived in housing materials in 2000	2000	2
6		deprived in cooking fuel in 2000	2000	8
7	Family Social	deprived in mother's literacy in 2000	2000	6
8		deprived in father's literacy in 2000	2000	9
9		mother's health is poor in 2000	2000	4
10		father's health is poor in 2000	2000	5
11		at least one parent migrated in 2000	2000	2
12		mother's life satisfaction scale is low in 2000	1998	4
13	School Economic	deprived in school avg. expenditure per student in 2000	2000	6
14		school with uncomfortable classrooms in 2000	2000	6
15		school without libraries in 2000	2000	6
16	School Social	deprived in school avg. teachers' education degree	1960	10
17		deprived in school turn over rate in 2000	1960	9
18		deprived in school-level number of teachers in 2000	2000	4
19		deprived in teacher time for teaching related activities	2000	6
20		deprived in school avg. teachers' morale in 2000	2000	4
21		deprived in teacher professional development opportunities	2000	3
22		deprived in teachers' cooperation within school in 2000	2000	6
23		deprived in school avg. absence rate in 2000	2000	8
24	Village Economic	deprived in village avg. net income in 2000	2000	7
25		deprived in village avg. land per capita in 2000	1980	6
26		village has households without electricity in 2000	1920	6
27		village without prenursery or kindergartens in 2000	1980	4
28		village without primary schools in 2000	2000	5
29		village without middle schools in 2000	2000	8
30		village located in remote mountainous area in 2000	2000	10
31		village far away from the township in 2000	2000	4
32		village far away from the countyseat in 2000	2000	8
33		village without railway passing through in 2000	2000	9
34		village without bus service in 2000	2000	15
35		deprived is without telephone, mail or radio service	2000	4
36	Village Social	deprived in literacy rate among male labor force	1980	5
37		deprived in literacy rate among female labor force	1980	14

	social			social, but not both			De
	# dimensions deprived at the village level:			# dimensions deprived at the village level:			# d
	0	1	2	0	1	2	
	(1)	(2)	(3)	(4)	(5)	(6)	
Part A: Cognitive Skills and Non-cognitive Skills							
Standardized Chinese test scores in 2000	0.179	0.126	-0.523	0.144	-0.440	-0.771	
Standardized Math test scores in 2000	0.085	0.087	0.140	0.090	-0.305	-0.446	
Standardized Literacy Scores in 2009	0.167	0.210	-0.181	-0.139	-0.297	-0.394	
Scale of Internalizing Behaviors in 2000	-0.082	0.076	-0.194	-0.042	0.208	0.290	
Scale of Externalizing Behaviors in 2000	-0.066	0.045	-0.126	-0.119	0.227	0.376	
College Aspiration in 2000	0.617	0.657	0.273	0.612	0.487	0.457	
Scale of Rosenberg Self-Esteem in 2009	0.061	0.102	-0.152	0.053	-0.299	-0.141	
Scale of Depression in 2009	-0.059	-0.192	-0.081	0.062	0.246	0.196	
Scale of Rosenberg Self-Esteem in 2015	0.061	0.059	0.105	0.020	-0.212	-0.328	
Scale of Depression in 2015	-0.049	-0.010	-0.457	0.071	0.060	0.170	
Scale of Extraversion in 2015	-0.017	0.115	0.168	-0.002	-0.019	-0.270	
Scale of Agreeableness in 2015	0.000	0.084	-0.023	-0.005	-0.057	-0.030	
Scale of Conscientiousness in 2015	0.002	-0.018	0.209	0.007	-0.023	-0.039	
Scale of Neuroticism in 2015	-0.041	-0.116	-0.294	0.127	0.077	0.169	
Scale of Openness in 2015	0.019	-0.043	-0.144	-0.061	-0.029	0.397	
Part B: Early Adulthood Outcomes							
Migrated	0.648	0.516	0.947	0.637	0.634	0.717	
Married	0.527	0.563	0.439	0.572	0.561	0.717	
Has kids?	0.372	0.461	0.366	0.461	0.446	0.660	
Number of Kids	0.443	0.551	0.415	0.558	0.628	0.868	
College Graduates?	0.415	0.280	0.300	0.253	0.243	0.094	
Years of Schooling	12.004	11.042	10.341	10.747	10.378	8.623	
Employed	0.884	0.857	0.951	0.874	0.824	0.868	
Log(hourly wage)	2.507	2.338	2.484	2.415	2.099	2.306	
Log(monthly wage)	7.901	7.793	7.864	7.850	7.548	7.789	
Part C: Health Status across Years							
Self-Reported Fair, Good or Very Good Health in 2000	0.504	0.565	0.455	0.421	0.534	0.741	
Self-Reported Fair, Good or Very Good Health in 2004	0.644	0.665	0.591	0.531	0.589	0.730	
BMI in 2004	17.960	18.371	18.328	17.946	18.546	18.259	
Self-Reported Fair, Good or Very Good Health in 2009	0.646	0.694	0.639	0.579	0.500	0.622	
BMI Iin 2009	19.993	20.152	19.839	19.880	19.683	19.681	
Self-Reported Fair, Good or Very Good Health in 2015	0.699	0.790	0.676	0.621	0.571	0.558	
BMI in 2015	22.384	22.253	22.406	22.011	21.676	22.327	

Table 8. Importance of Neighborhood Effects
on Cognitive and Non-Cognitive Skills (2000-09)

	(1) Chinese00	(2) Math00	(3) Literacy09	(4) Internal00	(5) External00	(6) Mcollege00	(7) Rosenbe
Family Economic	-0.389***	-0.230***	-0.392***	0.172***	0.167***	-0.060**	-0.05
	(0.070)	(0.071)	(0.062)	(0.050)	(0.050)	(0.025)	(0.06
Family Social	-0.279***	-0.136	-0.344***	0.046	0.018	-0.045	-0.224
	(0.082)	(0.085)	(0.072)	(0.059)	(0.059)	(0.030)	(0.07
Family Economic	-0.182**	-0.151**	-0.333***	0.101*	0.084	-0.037	-0.01
	(0.072)	(0.074)	(0.066)	(0.053)	(0.052)	(0.026)	(0.06
Family Social	-0.185**	-0.096	-0.306***	0.014	-0.018	-0.035	-0.206
	(0.080)	(0.085)	(0.073)	(0.060)	(0.059)	(0.030)	(0.07
Family Economic	-0.174**	-0.159**	-0.266***	0.112**	0.116**	-0.043	-0.00
	(0.074)	(0.076)	(0.067)	(0.054)	(0.054)	(0.027)	(0.06
Family Social	-0.222***	-0.11	-0.302***	0.028	0.003	-0.04	-0.206
	(0.081)	(0.086)	(0.072)	(0.060)	(0.059)	(0.030)	(0.07
od Quality	0.237***	0.092***	0.147***	-0.071***	-0.060**	0.020*	0.062
	(0.033)	(0.034)	(0.030)	(0.024)	(0.024)	(0.012)	(0.03
Family Economic	-0.239***	-0.175**	-0.370***	0.123**	0.115**	-0.050*	-0.02
	(0.072)	(0.073)	(0.065)	(0.052)	(0.052)	(0.026)	(0.06
Family Social	-0.201**	-0.114	-0.333***	0.023	-0.006	-0.04	-0.207
	(0.081)	(0.085)	(0.073)	(0.060)	(0.059)	(0.030)	(0.07
	-0.513***	-0.230***	-0.079	0.185***	0.196***	-0.039	-0.12
	(0.075)	(0.079)	(0.067)	(0.055)	(0.055)	(0.028)	(0.06
Family Economic	-0.245***	-0.173**	-0.335***	0.131**	0.132**	-0.035	-0.01
	(0.074)	(0.075)	(0.066)	(0.053)	(0.053)	(0.026)	(0.06
Family Social	-0.239***	-0.116	-0.325***	0.034	0.007	-0.037	-0.209
	(0.082)	(0.086)	(0.072)	(0.060)	(0.059)	(0.030)	(0.07
od Poverty (=1, if od quality below	-0.393***	-0.193**	-0.170**	0.122**	0.107*	-0.078***	-0.13

on Non-Cognitive Skills (2015)

	(1) Rosenberg15	(2) Depress15	(3) Extraver15	(4) Agreeable15	(5) onscientious1	(6) Neurotic15	(7) Open15
Family Economic	-0.212***	0.079	0.034	-0.022	0.013	0.052	-0.078
	(0.061)	(0.061)	(0.062)	(0.062)	(0.062)	(0.061)	(0.075)
Family Social	-0.062	0.208***	-0.069	-0.045	-0.053	0.199***	0.09
	(0.073)	(0.073)	(0.073)	(0.073)	(0.073)	(0.073)	(0.086)
Family Economic	-0.191***	0.073	0.039	-0.026	0.024	0.061	-0.095
	(0.064)	(0.065)	(0.065)	(0.065)	(0.065)	(0.065)	(0.079)
Family Social	-0.057	0.204***	-0.065	-0.048	-0.044	0.199***	0.08
	(0.073)	(0.073)	(0.074)	(0.074)	(0.074)	(0.073)	(0.087)
	-0.149**	0.092	0.039	-0.033	0.018	0.064	-0.120
	(0.066)	(0.066)	(0.066)	(0.066)	(0.066)	(0.066)	(0.081)
Family Social	-0.039	0.213***	-0.067	-0.049	-0.051	0.203***	0.073
	(0.073)	(0.073)	(0.074)	(0.074)	(0.074)	(0.073)	(0.087)
	0.078**	0.016	0.006	-0.014	0.006	0.015	-0.051
	(0.030)	(0.030)	(0.031)	(0.031)	(0.031)	(0.030)	(0.037)
Family Economic	-0.199***	0.077	0.026	-0.041	0.001	0.070	-0.080
	(0.064)	(0.064)	(0.064)	(0.064)	(0.064)	(0.064)	(0.078)
Family Social	-0.054	0.207***	-0.074	-0.055	-0.060	0.209***	0.089
	(0.073)	(0.074)	(0.074)	(0.074)	(0.074)	(0.074)	(0.087)
	-0.052	0.007	0.030	0.071	0.045	-0.070	0.009
	(0.068)	(0.068)	(0.068)	(0.068)	(0.068)	(0.068)	(0.081)
Family Economic	-0.172***	0.113*	0.040	-0.039	-0.030	0.083	-0.096
	(0.065)	(0.065)	(0.065)	(0.065)	(0.065)	(0.065)	(0.080)
Family Social	-0.044	0.223***	-0.066	-0.052	-0.072	0.213***	0.082
	(0.073)	(0.073)	(0.074)	(0.074)	(0.074)	(0.073)	(0.087)
od Poverty (=1, if							
	-0.124*	-0.106	-0.020	0.053	0.134**	-0.098	0.054

/ Adulthood Outcomes (2015)

	(1) Migrated	(2) Married	(3) Has kids?	(4) #Kids	(5) College Graduates?	(6) Years of Schooling	(7) Employ
	0.04	0.076***	0.104***	0.170***	-0.147***	-1.367***	-0.00
	(0.029)	(0.028)	(0.027)	(0.037)	(0.027)	(0.198)	(0.019
Family Social	0.003	-0.009	0.015	0.017	-0.111***	-1.105***	-0.02
	(0.035)	(0.033)	(0.033)	(0.044)	(0.032)	(0.235)	(0.023
	0.035	0.067**	0.088***	0.141***	-0.128***	-1.085***	0.003
	(0.030)	(0.029)	(0.029)	(0.039)	(0.028)	(0.207)	(0.020
Family Social	-0.001	-0.012	0.009	0.006	-0.105***	-1.007***	-0.01
	(0.035)	(0.033)	(0.033)	(0.044)	(0.032)	(0.235)	(0.023
	0.022	0.068**	0.084***	0.133***	-0.128***	-1.062***	0.005
	(0.031)	(0.030)	(0.030)	(0.040)	(0.029)	(0.213)	(0.020
Family Social	-0.003	-0.011	0.009	0.006	-0.105***	-1.010***	-0.01
	(0.035)	(0.033)	(0.033)	(0.044)	(0.032)	(0.235)	(0.023
	-0.022	-0.009	-0.025*	-0.046**	0.024*	0.374***	0.007
	(0.014)	(0.013)	(0.013)	(0.018)	(0.013)	(0.097)	(0.009
	0.038	0.065**	0.090***	0.143***	-0.133***	-1.145***	-0.00
	(0.030)	(0.029)	(0.028)	(0.038)	(0.028)	(0.205)	(0.020
Family Social	0.002	-0.014	0.008	0.004	-0.104***	-0.996***	-0.02
	(0.035)	(0.033)	(0.033)	(0.044)	(0.032)	(0.235)	(0.023
	0.008	0.042	0.053*	0.108***	-0.060**	-0.891***	0.004
	(0.032)	(0.030)	(0.030)	(0.041)	(0.030)	(0.218)	(0.021
	0.016	0.079***	0.094***	0.149***	-0.126***	-1.112***	-0.00
	(0.031)	(0.029)	(0.029)	(0.039)	(0.028)	(0.209)	(0.020
Family Social	-0.006	-0.008	0.011	0.010	-0.103***	-1.013***	-0.02
	(0.035)	(0.033)	(0.033)	(0.044)	(0.032)	(0.235)	(0.023
od Poverty (=1, if od quality below	0.076**	-0.011	0.032	0.066*	-0.066**	-0.800***	0.004

lth Status across Years (2000-2015)

	(1) Health00	(2) Health04	(3) BMI04	(4) Health09	(5) BMI09	(6) Health15	(7) BMI
Family Economic	0.029	-0.017	0.220*	-0.039	-0.212	-0.093***	-0.25
	(0.025)	(0.027)	(0.122)	(0.031)	(0.146)	(0.029)	(0.32
Family Social	-0.061**	-0.083***	0.058	-0.086**	-0.034	-0.065*	0.41
	(0.030)	(0.032)	(0.143)	(0.035)	(0.168)	(0.035)	(0.38
Family Economic	-0.01	-0.028	0.113	-0.048	-0.171	-0.095***	-0.2
	(0.027)	(0.028)	(0.128)	(0.032)	(0.154)	(0.031)	(0.34
Family Social	-0.077**	-0.088***	0.019	-0.088**	-0.002	-0.063*	0.44
	(0.030)	(0.032)	(0.144)	(0.036)	(0.170)	(0.035)	(0.39
Family Economic	0.015	-0.023	0.149	-0.036	-0.147	-0.099***	-0.23
	(0.027)	(0.029)	(0.131)	(0.033)	(0.158)	(0.032)	(0.35
Family Social	-0.065**	-0.085***	0.039	-0.085**	-0.011	-0.067*	0.42
	(0.030)	(0.032)	(0.144)	(0.036)	(0.169)	(0.035)	(0.39
od Poverty	-0.017	-0.008	-0.085	0.004	0.076	-0.007	0.03
	(0.012)	(0.013)	(0.058)	(0.015)	(0.070)	(0.015)	(0.16
Family Economic	0.011	-0.029	0.133	-0.045	-0.171	-0.102***	-0.30
	(0.026)	(0.028)	(0.126)	(0.032)	(0.152)	(0.031)	(0.33
Family Social	-0.070**	-0.088***	0.018	-0.089**	-0.012	-0.071**	0.38
	(0.030)	(0.032)	(0.144)	(0.036)	(0.170)	(0.035)	(0.39
	0.069**	0.047	0.331**	0.020	-0.151	0.035	0.18
	(0.028)	(0.029)	(0.133)	(0.033)	(0.158)	(0.033)	(0.36
Family Economic	0.008	-0.014	0.134	-0.039	-0.145	-0.110***	-0.16
	(0.027)	(0.029)	(0.129)	(0.033)	(0.155)	(0.031)	(0.34
Family Social	-0.068**	-0.083***	0.030	-0.086**	-0.011	-0.072**	0.44
	(0.030)	(0.032)	(0.144)	(0.036)	(0.169)	(0.035)	(0.39
od Poverty (=1, if od quality below	0.065**	-0.008	0.261**	-0.002	-0.200	0.051	-0.29

chinese00	0.000	0.001	0.011	0.039	0.021	0.067	0.000	0.001	0.2
math00	0.000	0.001	0.042	0.120	0.260	0.538	0.016	0.094	0.5
literacy09	0.000	0.001	0.000	0.001	0.000	0.001	0.006	0.056	0.5
internal00	0.000	0.001	0.055	0.131	0.810	0.991	0.007	0.056	0.1
external00	0.000	0.001	0.108	0.240	0.759	0.991	0.001	0.010	0.3
Mcollege00	0.001	0.002	0.153	0.298	0.233	0.538	0.648	0.838	0.0
rosenberg09	0.001	0.004	0.842	0.871	0.006	0.030	0.869	0.930	0.3
depress09	0.005	0.012	0.010	0.038	0.049	0.139	0.526	0.820	0.3
rosenberg15	0.003	0.007	0.003	0.014	0.439	0.717	0.557	0.820	0.9
depress15	0.049	0.085	0.261	0.396	0.006	0.030	0.643	0.838	0.0
extraversion15	0.704	0.803	0.544	0.650	0.380	0.693	0.546	0.820	0.7
agreeableness15	0.758	0.811	0.693	0.759	0.513	0.795	0.582	0.820	0.3
conscientiousness15	0.870	0.870	0.710	0.759	0.553	0.817	0.021	0.094	0.8
neuroticism15	0.399	0.539	0.343	0.463	0.007	0.031	0.564	0.820	0.9
openness15	0.809	0.837	0.232	0.396	0.358	0.693	0.199	0.561	0.8
migrated15	0.138	0.214	0.247	0.396	0.987	0.992	0.018	0.094	0.4
ever_married15	0.010	0.020	0.021	0.066	0.722	0.991	0.901	0.931	0.1
kid_yn15	0.002	0.007	0.002	0.013	0.787	0.991	0.487	0.820	0.9
num_kids15	0.000	0.001	0.000	0.003	0.895	0.991	0.471	0.820	0.6
college_yn15	0.000	0.001	0.000	0.001	0.001	0.011	0.814	0.902	0.6
eduyrs15	0.000	0.001	0.000	0.001	0.000	0.001	0.795	0.902	0.2
ever_worked15	0.690	0.803	0.893	0.894	0.439	0.717	0.508	0.820	0.9
lnhwage15	0.010	0.020	0.049	0.128	0.983	0.992	0.803	0.902	0.2
lnmwage15	0.005	0.012	0.247	0.396	0.864	0.991	0.684	0.849	0.1
gd_health00	0.014	0.026	0.709	0.759	0.011	0.043	0.181	0.561	0.4
gd_health04	0.725	0.803	0.321	0.452	0.006	0.030	0.936	0.937	0.0
BMI04	0.083	0.136	0.380	0.491	0.893	0.991	0.309	0.799	0.1
gd_health09	0.695	0.803	0.143	0.295	0.014	0.048	0.556	0.820	0.9
BMI09	0.174	0.245	0.268	0.396	0.992	0.992	0.464	0.820	0.9
gd_health15	0.145	0.215	0.002	0.013	0.072	0.188	0.036	0.141	0.1
BMI15	0.509	0.659	0.539	0.650	0.257	0.538	0.166	0.561	0.2

Note: We use BH (Benjamini and Hochberg, 1995) two-stage procedures to calculate these FDR "q values" proposed by Michael Anderson (JASA,
computed for all hypotheses by performing the procedure for all possible q levels (e.g., 1.000, .999, .998) and recording when each hypothesis ce

Table 10. Mean values of outcomes for top 10% and bottom 10% sampled children

continuous version of MD poverty	top 10% (1)	bottom 10% (2)	difference (3)
Part A: Cognitive Skills and Non-cognitive Skills			
Standardized Chinese test scores in 2000	0.236	-0.756	0.992***
Standardized Math test scores in 2000	0.028	-0.448	0.476***
Standardized Literacy Scores in 2009	0.207	-0.496	0.703***
Scale of Internalizing Behaviors in 2000	-0.057	0.267	-0.325***
Scale of Externalizing Behaviors in 2000	-0.036	0.277	-0.313***
College Aspiration in 2000	0.575	0.435	0.140***
Scale of Rosenberg Self-Esteem in 2009	0.08	-0.295	0.376***
Scale of Depression in 2009	-0.2	0.152	-0.351***
Scale of Rosenberg Self-Esteem in 2015	0.063	-0.324	0.387***
Scale of Depression in 2015	-0.041	0.092	-0.133
Scale of Extraversion in 2015	0.089	-0.137	0.226*
Scale of Agreeableness in 2015	0.017	-0.089	0.106
Scale of Conscientiousness in 2015	0.07	-0.107	0.176
Scale of Neuroticism in 2015	-0.009	0.182	-0.191
Scale of Openness in 2015	-0.208	0.072	-0.280*
Part B: Early Adulthood Outcomes in 2015			
Migrated	0.679	0.767	-0.088
Married	0.553	0.617	-0.064
Have kids?	0.373	0.525	-0.151***
Number of Kids	0.447	0.702	-0.255***
College Graduates?	0.395	0.186	0.209***
Years of Schooling	12.046	9.493	2.553***
Employed?	0.908	0.873	0.035
Log(hourly wage)	2.624	2.447	0.177
Log(monthly wage)	8.045	7.838	0.207**
Part C: Health Status across Years			
Self-Reported Fair, Good or Very Good Health in 2000	0.61	0.635	-0.025
Self-Reported Fair, Good or Very Good Health in 2004	0.651	0.625	0.026
BMI in 2004	18.005	18.447	-0.442*
Self-Reported Fair, Good or Very Good Health in 2009	0.698	0.659	0.039
BMI Iin 2009	20.446	19.844	0.602**
Self-Reported Fair, Good or Very Good Health in 2015	0.74	0.602	0.138**
BMI in 2015	22.281	21.939	0.342
Observations	200	200	400

Note: To get a continuous version of MD poverty measure for each household, we first standardize all these 38 poverty measures used to compute MD poverty and then compute the weighted average of non-missing variables. Each weight is give to each domain and within a domain, each indicator is given an equal weight. Smaller values of the continuous poverty measures mean poorer. Standard errors are shown in parenthese. * p<0.10, ** p<0.05, *** p<0.01

	(1) Chinese00	(2) Math00	(3) Literacy09	(4) Internal00	(5) External00	(6) Mcollege00	Rose
MD Poverty Indicator	-0.693***	-0.384***	-0.434***	0.271***	0.291***	-0.099***	-0.2
	(0.079)	(0.082)	(0.072)	(0.058)	(0.057)	(0.029)	(0
1{Continuous MD Poverty Measure<=p(17.95)}	-0.705***	-0.395***	-0.545***	0.262***	0.272***	-0.135***	-0.2
	(0.078)	(0.083)	(0.072)	(0.058)	(0.057)	(0.029)	(0
N	1029	970	1322	2000	2000	2000	1

Panel B: Impact of Poverty on Non-Cognitive Skills (2015)

	(1) Rosenberg15	(2) Depress15	(3) Extraver15	(4) Agreeable15	(5) Conscientious15	(6) Neurotic15	Op
MD Poverty Indicator	-0.214***	0.140**	-0.027	0.022	-0.012	0.06	-0
	(0.071)	(0.071)	(0.071)	(0.071)	(0.071)	(0.071)	(0
1{Continuous MD Poverty Measure<=p(17.95)}	-0.238***	0.096	0.045	0.036	0.097	0.077	-
	(0.071)	(0.071)	(0.071)	(0.071)	(0.071)	(0.071)	(0
N	1397	1397	1397	1397	1396	1396	

	(1) Migrated	(2) Married	(3) Has kids?	(4) #Kids	(5) College Graduates?	(6) Years of Schooling	Emp
MD Poverty Indicator	0.051	0.082**	0.099***	0.195***	-0.142***	-1.624***	-0
	(0.034)	(0.032)	(0.032)	(0.043)	(0.032)	(0.233)	(0.
1{Continuous MD Poverty Measure<=p(17.95)}	0.078**	0.047	0.079**	0.152***	-0.155***	-1.817***	0.
	(0.034)	(0.032)	(0.032)	(0.043)	(0.031)	(0.231)	(0.
N	1429	1568	1565	1565	1568	1571	1

Panel D: Impact of Poverty on Health Status across Years (2000-2015)

	(1) Health00	(2) Health04	(3) BMI04	(4) Health09	(5) BMI09	(6) Health15	BM
MD Poverty Indicator	0.072**	-0.011	0.243*	-0.014	-0.228	-0.05	-(
	(0.029)	(0.031)	(0.140)	(0.035)	(0.168)	(0.034)	(0.
1{Continuous MD Poverty Measure<=p(17.95)}	0.080***	0.013	0.297**	-0.03	-0.222	-0.028	-0
	(0.029)	(0.031)	(0.139)	(0.035)	(0.169)	(0.034)	(0.
N	2000	1728	1742	1346	1335	1322	1

Note: Each coefficient is from a seperate regression. To get a continuous version of MD poverty measure for each household, we first standardize all thes MD poverty and then compute the weighted average of non-missing variables. Each weight is give to each domain and within a domain, each indicator is the continuous poverty measures mean poorer. Lastly, we set a threshold p(17.95) as the threshold to distinguish poor and nonpoor. The threshold p(17. used to match the previous indicator MD poverty ratio in table 5. Standard errors are shown in parenthese. * p<0.10, ** p<0.05, *** p<0.01

Appendix Table 1. Poverty Ratios in 2000 and 2004

Poverty Ratios	Year 2000 (1)	Year 2004 (2)
Multi-dimensional Poverty Ratio (i.e., Deprived in half of the poverty domains)	0.1795	0.2731
Deprived in Family Economic	0.275	0.287
Deprived in Family Social	0.17	0.164
Deprived in School Economic	0.19	n.a
Deprived in School Social	0.15	n.a
Deprived in Village Economic	0.16	0.231
Deprived in Village Social	0.23	0.23

Appendix Table 2. Child Development Measures

Year	*Cognitive Skills*	*Noncognitive Skills*
2000	1. Chinese Test 2. Math Test	1. Internalizing Behavior 2. Externalizing Behavior 3. College Motivation
2004	1. Chinese Test 2. Math Test 3. Literacy/Life Skills Test	1. Internalizing Behavior 2. Externalizing Behavior 3. College Motivation 4. Resilience
2009	1. Literacy/Life Skills Test	1. Rosenberg Self-Esteem Scale 2. Depression Scale (CESD)
2015		1. Rosenberg Self-Esteem Scale 2. Depression Scale (CESD) 3. Big 5 Personality Test

Appendix Table 3. Internalizing and Externalizing Behavior Indices

1. Internalizing Behavior Index Questions	**5. Rosenberg Self-esteem**
I don't want others to meddle in my own business.	I am pround of myself in many aspects.
I cannot concentrate on what I am doing.	I always do many things very well.
I have many strange/weird ideas (often daydream).	I constantly get praise from others.
I easily get flushed. (I am easily frustrated or anxious).	I cannot do things well when my parents are not present.
I cannot do things well when my parents are not present.	I feel like I should do very well in every aspect of life.
I am very indifferent to others.	I feel inferior to others.
I am very shy.	
I always want to be the center of attention.	**6. Big Five Personality**
I am often teased by classmates.	**(1)Extraversion**
I don't feel guilty, even if I have done something wrong.	I am good at communicating with others.
My temper changes quickly and easily.	I am energetic.
I feel inferior to others.	I am passionate.
I often am suspicious of others.	I am a little over-confident.
I prefer to be alone.	I am social extrovert.
I often feel nervous.	I am conservative.
I am often bored.	I am a person of few words.
I stay quiet when I am with my classmates or friends.	Sometimes, I am shy and timid.
There is always something to worry about.	
	(2)Agreeableness
2. Externalizing Behavior Index Questions	I like to help others and am not selfish.
I break things on purpose.	I am lenient in treating others.
I lose my temper.	Generally, I trust others.
Even if I know I am wrong, I am reluctant to listen to others.	I am almost kind to everyone.
I steal things from others or my home.	I like to cooperate with others.
I like to show off my strengths in front of others.	I am picky with others.
I always want to be the center of attention.	I often stir up quarrels with others.
I quarrel with others.	I am aloof.
I do not observe school discipline.	I am often rude to others.

I like to brag.
It bothers me if others do things better than I do.
I act impulsively.
I often am suspicious of others.
I often say obscenities.
I often make fun of others.
I sometimes tell lies.
I am easily angered.
I often disregard other people's ideas.
I sometimes menace and even hurt others.

3. Educational Aspiration
What level of education do you want to reach?

4. Depressive Symptoms
My life is in line of my expections in many ways.
I often feel unhappy.
I often feel lonely.
I don't want others to meddle in my own business
I cannot concentrate on what I am doing
I have many strange/weird ideas (often daydream)
I am very shy.
My temper changes quickly and easily.
I feel inferior to others.
I often am suspicious of others.
I prefer to be alone.
I often feel nervous.
I feel that I am very happy.
I feel that many people like me.
I like my current life.
I am satisfied with my life.

(3)Conscientiousness
I am earnest.
I am a reliable employee.
I am perservering.
I work efficiently.
I am able to make plans and certainly carry out them.
I am a little bit careless.
I am disorganized.
I am lazy.
I am easily distracted.

(4)Neuroticism
I am depressed.
I am often nervous.
I am often apprehensive.
I am emotional.
I am easy to be anxious.
I am able to handle stress with ease.
I keep stable emotionability and am not easy to feel sad.
I am able to keep calm in stressful situations.

(5)Openness
I am creative and able to come up with innovative ideas.
I am interested in a lot of things.
I am smart and profound.
I am imaginative.
I am good at creating something new.
I appreciate art and aesthetic enjoyment.
I am capable of cogitation.
I have some knowledge of art, music and literature.

I am confident for my future.	I like doing routine work.
I will have a better life than many others in future.	I am not interested in art.