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Who Drops Out from Primary Schools in China? Evidence from Minority-Concentrated Rural Areas

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Abstract

One of the Millennium Development Goals (MDG) is to ensure universal access to primary education by 2015. However, primary school dropout remains a challenge in many developing countries. While official statistics in China report aggregated primary school dropout of only 0.3%, almost no independent, survey-based studies have sought to verify these dropout rates in rural areas. Our survey of 14761 primary students demonstrates that the annual dropout rate in poor rural areas is 2.5%, suggesting cumulative dropout of 8.2%. Importantly, Hui and Salar minority students drop out at rates that are significantly higher than the official rates.

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1. Introduction

In developing countries, low enrollment rates in primary education remain a major concern. In 2012, 58 million children of primary school age around the world were not enrolled in school (UNESCO, 2012). Seventy-eight percent of these unenrolled primary-school aged children live in developing countries. Among the different regions that are plagued by high rates of out-of-school children, next to Africa, Asia has the highest number and proportion of unenrolled children (UNESCO, 2012).

Is primary school dropout a problem for the world's largest developing country? China's government has made an effort to eliminate unenrolled children since early 2000 when the Compulsory Education Law was revised to make universal participation in primary schools a national priority (Lo, 1999; Hawkins, 1992; Liu, 2004; Yi, 2012). By 2007 the government claimed that China's nine-year compulsory education (including primary and junior high education) had been successfully "universalized" (Minority of Education of China, 2012a). Specifically, the official enrolment rate in 2013 of primary school-aged children is reported to be 99.7% (Minority of Education of China, 2013a) and the annual dropout rate for primary schools has been reported to be lower than 1% since 2006 (Minority of Education of China, 2012b). In recent years, however, in-the-field studies have shown that rates of school dropout in poor rural areas are often much higher than official, nation-wide statistics suggest (Chung and Mason, 2012; Yi et al., 2012; Mo et al., 2013). Although these studies reveal an alarming trend of school dropout in rural China, all of them focus on junior high education rather than primary education.

The level of dropout in rural primary schools remains an open question given the almost complete absence of large-scale, empirical evidence. There have been a few studies

that suggest the actual primary school dropout rate is higher than those that are based on official statistics in China (Chung and Mason, 2012). However, these studies are based on small, often non-random samples. Moreover, almost none of the work has examined what factors might be influencing the decision of primary school students to drop out (Hannum, 2002; Hannum et al. 2008; Hannum and Wang 2010). Even fewer studies have examined the levels of school dropout among China's vulnerable ethnic minority populations (Lofstedt, 1994; Kwong and Xiao, 1989; Ma et al., 1996; Wang, 1996).

The overall goal of this paper is to document the dropout rate in primary schools in rural China and compare the dropout rate of ethnic minority and Han students. In particular, we have four specific objectives. First, we document the primary school dropout rate in China's poor rural areas. Second, we compare the dropout rates across different ethnic groups. Third, we identify the characteristics correlated with dropout. Fourth, we examine whether there is heterogeneity in the probability to drop out by a number of characteristics of the students in our sample.

The rest of the paper is organized as follows. The next section discusses possible factors that may lead to primary school dropout in rural China. The third section describes the data and the statistical approach. The fourth section presents the analytical results. The last section draws conclusions.

2. Why primary school dropout may be a concern in rural China

China's education system has many characteristics that have been found to be associated with high rates of dropout in the international literature. First, studies have suggested that poverty contributes to early dropout in education (Brown and Park, 2002; Filmer, 2000; Bray et al., 2004). In China, over 250 million people are still surviving at or

below 2 USD per day (World Bank, 2011). Although primary education in China is still nominally free, families still need to pay for meals, books, schools activities and transportation (Bhatty, 1998; Banerjee et al., 2000). Further, during the early 2000s, the government implemented a School Merger Policy that shut down village schools and merged students into more centralized schools (that are often located in townships far from the home villages of many students—Liu et al., 2010; Mo et al., 2012; Chen et al., 2014). As the distance from home to school increased for most of the students in these merged schools, the cost of education has also increased—the students (and their families) now have to pay additional commuting and boarding fees. Hence, it is possible that families in poverty may simply be unable to afford schooling and thus have no choice but to let their children drop out of school.

Second, the opportunity cost of attending school—even primary schools—may also induce students to drop out of school in China (Angrist and Lavy, 2009). Opportunity costs have risen as a result of increasing wages in China's unskilled labor market (Fizbein and Shady, 2009; Li et al., 2012). The real wages for unskilled workers has increased tremendously, by an annual rate of more than 10% from 2001 to 2010 (Lu, 2012). As children get older (even as young as 10, 11 or 12 years old), it is possible for them to find work on the family farm or in the family business (or even find a job in the off-farm labor market). Age can thus be a critical factor that may be associated with dropout as older students may be induced to drop out in order to work in the on- or off-farm labor market (Bhatty, 1998; Barrera-Osorio et al., 2008). The rising opportunity costs of education may also be reinforcing the disadvantages of being a poor rural girl. Many families in rural China still regard male children as the future supporters of the family (Summerfield, 1994). At the same time, girls are often thought to be of less use to the family since they eventually will have to leave the family after marriage. Therefore, it could be that the schooling of girls is

particularly susceptible to the rising opportunity costs that are pervasive in China (Hannum, 2003). It could also be that girls may be kept out of school to help with housework and or to take care of younger siblings in order to let their mother work off the farm.

Third, the level of competitiveness of a nation's educational system has also been shown to correlate highly with the school dropout rate. In competitive educational systems, such as China's, students are more likely to drop out if the expected probability of succeeding in the system is small (Chuang 1997; Clarke et al., 2000; Reardon and Galindo 2002; Rumberger and Lim 2008; Liu et al., 2010). China's competitive educational system only provides limited enrollment in academic high schools and universities (Loyalka et al., 2013; Loyalka et al., 2014). In particular, less than half of China's junior high school students are able to test into high schools (Chen, 2008) and the national gross enrollment rate of higher education was only 34.5% in 2013 (Ministry of Education of China, 2013b). In this system system, test scores are the decisive yardstick of success in entering academic high school and college (Fields, 1988; Alapaugh, 1998; Mare, 1980). Only students that score high enough on high-stake entrance exams are able to secure one of the limited spots in these schools (Loyalka et al., 2014). The National Education Longitudinal Study of 1988 provides evidence showing that test scores matter for educational attainment starting when children are as young as twelve years old (Lazear, 2003). As early as primary school, students' test scores are used to judge their likelihood of succeeding in the educational system. When students believe their probability of being further promoted to high school or university is low, poor performing students may invest less time and energy into schooling or even drop out (Valenzuela, 2000).

Ethnic factors may also contribute to the dropout rates, especially in areas in which minority subpopulations are concentrated. While China's population has 56 officially recognized ethnic groups, fully 91.5% of the population is Han (CNBS, 2010a). In China ethnic minorities have been shown to have disadvantages in education relative to Han

students. Hannum and Wang (2010) find that 16- to 21-year old minority students are nearly one-third as likely as Han students to have attained nine years of compulsory schooling. There are of course economic reasons. In 2002, individuals and families living in minority areas remained more than one and a half times as likely as the rural Han majority to be in poverty and twice as likely to have experienced poverty in the past two years (Hannum and Wang, 2010; Gustafsson and Sai, 2009).

Apart from reasons of relative poverty, it could also be that cultural norms play a role in inducing minorities to drop out of school at higher rates. Specifically, studies have also suggested that the cultural and language differences between minorities and Han have contributed to the educational disadvantages of minorities (Au, 1980; Byers and Byers, 1972; Dumont, 1972; Erickson and Mohatt, 1982; Jacob and Jordan, 1987; LaBelle, 1976). One barrier for learning is that the language of instruction at school (Mandarin) is different from the languages that many minority students speak at home (Gustafsson and Sai, 2014; Lai et al., 2015). A survey of nearly 21,000 primary school students showed that minority students whose primary language is not standard Mandarin scored, on average, more than 0.6 standard deviations lower than Han students on standardized exams in math and Chinese (Yang et al., 2015). Cultural differences may also be a particularly important factor for the educational attainment of girls. In certain ethnic minority groups, girls are not expected to obtain a good education (Earle and Roach, 1989). Girls are expected to stay at home and help their mothers raise the younger children or do housework (Liu, 1999; Wang, 1996). Girls may also be expected to marry at an early age . Because of this, girls in ethnic minority families may be more likely to be kept home for the years before they get married, especially if they are not performing well in school (Wang, 1996; Ren, 1995).

3. Methods

3.1 Sampling

This paper draws on two different panel survey datasets. Dataset 1 was collected among 12,938 grade 4 and 5 students in 130 rural primary schools in Qinghai Province during the 2013-2014 academic year. Dataset 2 includes information on 1823 grade 4 students from 51 primary schools in Ningxia Province during the 2011-2012 academic year. Both datasets include two rounds of surveys (at the beginning and end of the school year) with which we were able to accurately measure dropout across the academic year.

Our sampling strategy in Qinghai Province (Dataset 1) had four steps. We targeted Qinghai Province, both because it is one of the poorest provinces in China and also because the province houses a large ethnic minority population. There are 43 ethnic minorities that make up 47% of the population in Qinghai Province, including Hui, Tibetan, Salar, Tu and Mongolian (CNBS, 2010a). First, we restricted our sampling frame to Haidong Prefecture, a poor minority area located in northeast Qinghai. Four out of six counties in the prefecture are designated ethnic minority autonomous counties and five of them are nationally designated poor counties (State Council Leading Group Office of Poverty Alleviation and Development, 2012). Second, we included all six counties from this prefecture in our sampling frame. Third, we obtained a list of all primary schools with 1 to 6 grades in the sample counties and randomly selected 130 schools as our sample schools. All grade 4 and 5 students in the sample schools participated in our survey.

The sampling strategy in Ningxia Province was similar to that used in Qinghai Province. Ningxia Province is also a poor area with a concentrated ethnic minority population. Approximately 35% of Ningxia's population is of the Hui minority. It is one of China's largest Muslim settlement areas (CNBS, 2010b). First, we targeted three southern counties in the province because this is where most of the poor Hui minority population resides. Second, we obtained a list of all primary schools with 1 to 6 grades in the three

counties and randomly chose 51 sample schools. In each sample school, we surveyed all grade 4 students.

3.2 Data collection

In order to collect our data, we visited each sample primary school in the county and undertook a two-part survey effort. The first part is a baseline survey conducted in the early September, at the beginning of the academic year. The second part is a follow-up survey conducted in June, at the end of the same academic year.

The student baseline survey consisted of two blocks. In the first block, all Qinghai sample students were given a standardized English test; all Ningxia sample students were given a standardized math test. The students were required to finish the tests in 30 minutes. During the exam the students were closely proctored to prevent cheating and time limits were strictly enforced. For the analysis, we standardized the test scores using the score distributions of each dataset (Dataset 1 and Dataset 2), and based on the standardization, we generated the variable, *baseline test score (SD)*, which is measured in units of standard deviations.

In the second block, students were asked to answer a series of questions about their individual and family characteristics. We included questions on whether each student *belongs to ethnic minority* (1=yes, 0=no) and their specific ethnic group (*Han, Hui, Salar, Zang or Tu*), *student gender* (1=boy, 0=girl) and *student age* (years). We also collected data to generate variables describing family characteristics, including *family asset* (1=higher than the median, 0=lower or equal to the median)*, father has a migrant job* (1=yes, 0=no)*, mother has a migrant job* (1=yes, 0=no)*, father completed primary school* (1=yes, 0=no) and *mother completed primary school* (1=yes, 0=no).

The follow-up survey at the end of the academic year was almost identical to the baseline survey. The first block was another standardized test but during the endline the test was made up of different question items that were designed to reflect the levels of student learning one academic year after the baseline. The second block re-asked the ssame socioeconomic questions as in the baseline.

One additional activity was carried out in order to identify which students had dropped out during the academic year. In particular, we carefully identified which students were present at the baseline but absent during the endline survey and carefully documented the reasons for their absences. We consulted with teachers and classmates to sort students into one of four groups. First, we identified the students that were absent due to illness or some other short-term reason. Second, we identified the students who were in another class in the same school (either held back a year or switched classes within the same grade) and those that had transferred to a different school. Finally, we identified the students that had dropped out of school. We took great pains to ensure that these identifications were correct. To do this, we asked several classmates and several teachers to verify the status of each student. In addition, we also made phone calls to families to confirm that all students who had been reported as dropouts had truly left school for good. With this careful protocol, we believe that we successfully minimized any potential measurement error for the dropout rate in our dataset.

3.3 Statistical Approach

Our statistical analysis has three parts. First, we describe overall dropout rates and dropout rates by ethnicity and gender. Second, we examine the correlates of dropping out to find out what kind of students are more likely to drop out of primary school in rural China.

Third, we examine whether there is heterogeneity in dropout rates by different characteristics within different ethnic groups.

To explore the correlates of dropouts, we estimate a linear probability model:

$$yis=\beta 0+\beta 1Xis+\varphi s+\varepsilon is \qquad (1)$$

where yis is the dropout status of student i in school s (yis equals 1 if the student dropped out and 0 if otherwise); xis is a vector of variables that includes student baseline characteristics, including ethnicity, student gender, student age, baseline test score, family asset, parental education and parental migrant job. We also include school-level dummy variables (or fixed effects) to control for all fixed (or non-time varying) school effects (represented by φs in the equation). We use a linear probability model instead of a probit or logit model because it is more tractable and flexible in handling unobserved heterogeneity, and it allows for straightforward interpretation of coefficients (de Janvry et al., 2006). We compute heteroskedasticity-robust standard errors in all regressions to improve efficiency.

To identify heterogeneity in dropout rates within different ethnic groups, we included interaction terms between the ethnicity variable and a set of key variables (student gender, age, family asset and baseline test score). The research questions that the heterogeneity analysis addresses is whether female or male students; older or younger students; richer or poorer students; and better performing or worse performing students drop out more in the different ethnic groups.

4. Results

4.1 Dropout rates

Among all of our sample's 14761 grade 4 and 5 students, the overall dropout rate across one academic year is 2.5% (Table 1, row 1). We arrive at this statistic by dividing 365

dropped out students by the total number of observations (14761). Looking separately at grade 4 and grade 5, we find grade 5 students drop out more, at 2.8%, while grade 4 students dropped out at 2.2% (Table 1, rows 2 and 3). Under the assumption that dropout increases by a similar margin for grade 6 students, we estimate an approximate cumulative dropout rate for rural primary schools of 8.2% (where students drop out at 2.2% in grade 4, 2.8% in grade 5 and 3.4% in grade 6). This rate is more than 20 times higher than the official rate reported in China's statistical yearbooks (0.3%, Ministry of Education of China, 2013a).

Cross tabulations suggest that there are large differences in annual dropout rates across ethnic groups (Table 2). In briefest terms, while Han and Tu students have low annual rates of dropout (rows 4 and 5, column 1), the annual dropout rates of Hui and Salar minorities are significantly higher, both at 5.4% (row 1 and row 2, column 1). The differences between Han and Hui minority and between Han and Salar minority are both significant at the 1% level.

Within the high dropout groups (Hui and Salar), our data show sharp gender differences (Table 2). Specifically, according to our study, Hui and Salar girls drop out at an annual rate of about 7% (rows 1 and 2, column 2). In contrast, the annual rate of dropout for Hui and Salar boys is only about 4% (rows 1 and 2, column 3). The girl-boy difference is significant at the 1% level for the Hui minority; but not significant for the Salar minority (rows 1 and 2, column 4).

The descriptive statistics also suggest that Hui and Salar students are more likely to drop out when they get older (Table 3). Hui girls drop out at an annual rate of 5.6% in grade 4; in grade 5, they drop out at an annual rate of 8.6% (rows 1 and 8, column 1). The same is true—though the rate of rise is slower—for Hui boys. Hui boys drop out at an annual rate of 3.6% in grade 4 and 5.4% in grade 5 (rows 1 and 8, column 2). Similarly, Salar students also drop out more in grade 5 than in grade 4. The difference in the annual dropout rates between

grades 4 and 5 is 4.6% for Salar girls and 5.5% for Salar boys (rows 2 and 9, columns 1 and 2). Under the assumption that the rise in dropout rates is roughly linear from grade 4 to grade 6, our data suggest that at least 23% of Hui girls and 22% of Salar girls drop out of primary school before the end of grade 6. Note that these estimates of the cumulative dropout rate are likely to slightly underestimate the dropout rate because we assume students only start to drop out during grade 4.

The cumulative rates are also high for boys—using a similar set of assumptions. According to our data, about 13% of Hui boys drop out of primary school by the end of grade 6. In the same window, about 14% of Salar boys drop out.

4.2 Correlates of Dropout

The results of multivariate correlation analysis are consistent with the descriptive analysis. First, the result shows that the dropout rate is correlated with ethnicity, age, and gender (Table 4). Being a member of an ethnic minority subpopulation (that is, any non-Han minority group) increases the likelihood of a dropout (in any given year) by 1% (significant at the 1% level, row 1, column 1). Looking at specific minority groups, Hui students are more likely to drop out from primary school than Han students by 2 to 3% (significant at the 1% level, row 2, columns 2 to 4). In contrast, Tibetan and Tu minorities have no distinguishable observed differences in rates of dropping out (rows 4 and 5, columns 2 to 4).

Consistent with the descriptive statistics, the multivariate correlation analysis also demonstrates that older students and girls are more likely to drop out. The difference between students who are in grade 5 and those who are in grade 4 is significant at the 1% level (row 6) columns 3 and 4. In addition, on average, boys are less likely to drop out than girls, by 1% (significant at the 1% level—row 7, columns 3 and 4). The magnitudes and the levels of significance remain mostly robust even when we control for other student and family

characteristics and school fixed effects (columns 2 to 4). Our multivariate results also show (similar to the findings in the literature—e.g., Filmer 2000; Brown and Park 2002; Connelly and Zheng 2003) that poor academic performance is correlated with dropping out. When a, Our data show that a score of one standard deviation lower on a standardized test is associated with a 1 percentage point increase in the probability of dropping out (significant at the 1% level—row 8, columns 3 and 4). This indicates that less students who are less competitive on standardized tests are more likely to leave school early.

4.3 Heterogeneous Effects

In this section we examine how dropout rates in the two most vulnerable minority subpopulations—the Hui and Salar—vary by the student and family characteristics of the individuals in those populations. The multivariate analysis examining heterogeneous effects by age, gender, family asset and test score among Hui students yield similar conclusions as the descriptive analysis (Table 5). Hui students are more likely to drop out when they are older, if they are girls, from poorer family or poorer performing academically (significant at the 1% or 5% levels, rows 2 to 5).

The case is different, however, for Salar students (Table 6). Although Salar students are also more likely to drop out as they grow older, none of the other three characteristics (gender, baseline test score and family asset) matter for the likelihood to drop out (rows 2 to 5, columns 1 to 4). The coefficient on the interaction term between the Salar indicator and family asset and the coefficient on the interaction term between the Salar indicator and baseline test score are both statistically zero.

5. Why minority students drop out from primary schools

By conducting the multivariate correlation analysis, we have identified three major dropout determinants: poverty, opportunity cost and poor performance in a competitive educational system. First, our results show that economic hardship seems to be an important factor that affects minorities' decision to drop out. Especially among Hui minorities, poverty is associated with higher likelihood to leave primary education. One of the reasons may be that as the minorities are more likely to have lived in more remote areas and have attended small village schools that were merged during the School Merger Program in the 2000s (Yi, et al.，2012), minority families may have been disproportionately confronted with higher commute and boarding costs relative to Han students.

Second, opportunity cost seems to play a role in pushing minority students out of school. First, we show that ethnic minority students are more likely to drop out as they get older. Age may be an important indicator of relative opportunity cost. As students get older (10-12 years old), they become increasingly able to provide help to family businesses. Salar and Hui minorities are known for running small-scale family businesses, such as restaurants (Ma, 2011). Having kids help out at a restaurant as a waiter, for example, may save large costs for these small businesses. In many cases such family businesses are the only income source for the whole family and therefore children's continued schooling can be of high opportunity cost (Ma, 1996; Ma, 2011). Second, we show that ethnic minority girls are more likely to drop out of primary school. This may also be related to opportunity cost concerns. Girls' opportunity cost of schooling is likely higher than boys because in these cultures they are expected to take primary responsibility for housework in the family (Ma, 1996). Almost all rural Hui families have family members migrating for work (Gustafsson and Sai, 2014). Mothers are more able to migrate—and thereby increase household earnings—if girls at home can help take care of housework and younger siblings.

Third, minorities are particularly prone to dropping out if their academic performance is poor. This is especially the case for Hui minorities. While Hui families recognize the returns to college education and are more willing to invest in education for children who perform well at school, they appear to be less willing to make a similar investment for students who are unlikely to gain access to these higher rungs in the education system (Wan and Yang, 2008). While this disparity appears to emerge in ethnic minorities as early as primary school, research has shown that Han students with poor academic performance drop out at higher rates starting in junior high school (Yi et al., 2012; Mo et al., 2013). The difference in timing across these groups may be a result of the many educational disadvantages of minorities, including more limited educational resources at home and in the community (Kwong and Hong, 1989; Orfield and Wald, 2001). It may be the case that if minority students are performing poorly in primary education, it is harder for them to catch up as they progress through the educational system (Loyalka, 2014). In other words, if a Hui student is lagging behind in primary school, the family is likely to consider that the learning gap between their child and other children will only widen and the chance of attending college will only get smaller. This may lead to an ultimate decision to drop out.

Interestingly, we find that the only important predictor for the dropout decision of Salar students and families is student age. On the one hand, Salar minority is much less integrated into the Han-dominated culture and economy (Ma, 1996; Wang, 1996; Tao, 2007). Their communities are generally concentrated in a few counties and they speak their own language at home—unlike Hui communities, which are generally less isolated and native speakers of Chinese (Ma, 1996; Liu, 1996; Tao, 2007). Religion also plays a more important role in both life and education in Salar communities (Ma, 1996; Wang, 1996; Tao, 2007). Receiving a liberal education—especially one conducted in their non-native Chinese (Han language)—may therefore be of less value to Salar families (Ma, 1996; Wang, 1996; Liu,

1996; Tao, 2007). On the other hand, similar to Hui communities, Salar minorities have been very successful in family businesses (Tsung, 2014). Most of them choose to earn a living by running hotels or restaurants. When the kids are still young, schools can serve as a convenient child-care center (Ma, 1996). As children get older, the value of having them work at the family businesses and gain experience is more likely to offset the perceived low returns to education.

6. Conclusions

Data from a large-scale field survey has shown that the cumulative dropout rate for primary education is as high as 8.2% in rural areas. On average, students drop out at an annual rate of 2.2% in grade 4 and 2.8% in grade 5. Such figures suggest that the official statistic of 0.3% for primary school dropout at the national level may have masked this real and serious dropout problem in (at least some) rural primary schools.

Dropout rates are even higher if we look at specific ethnic minority and gender groups. Rates of dropout are particularly high among students that are from Hui and Salar minority communities. Using our data and a fairly conservative set of assumptions, we show that 23% of Hui girls and 22% of Salar girls are dropping out by the end of grade 6. The cumulative dropout rates for Hui boys and Salar boys are 13% and 14%.

When exploring the determinants of dropping out, we find students are more likely to drop out when they get older, if they are girls, if they have poorer academic performance and if they are from poorer families. These findings are consistent with what is known from the literature (from studies inside and outside of China) about the relationship between dropout and poverty, rising opportunity costs and a competitive educational system. Using our data, these factors are shown to be especially important in affecting the dropout decisions of Hui students.

Our analysis also shows that there are differences in the patterns of dropping out between Salar and Hui students. Salar students tend to drop out more as they get older, no matter if they are from richer or poorer families and without regard to their relative academic performance. We speculate that this pattern may be due to the fact that Salar minority communities traditionally have been more isolated—in terms of both their language and religion—relative to Hui minority communities. For some reason, it is commonly thought that many families in Salar communities place less value on education—especially when the language of instruction is Mandarin. As children grow older, the opportunity cost of primary education quickly outweighs the little value families and students themselves put on primary education.

To our knowledge, our paper is the first large-scale empirical study that reveals the dropout problem among rural primary schools in China, with a special focus on minority groups. Our findings should draw attention to a fundamental human capital problem of the rural population in China. As studies have shown, a well-educated labor force is essential to sustainable economic development and overcoming the middle-income trap (Schultz, 1963; Schultz, 1961; Rong and Shi, 2001). Moreover, without receiving the most basic education and language training, ethnic minorities are likely to face many challenges in the job market in the future. These human capital problems will likely only be reinforced by a clash of values and beliefs with Han and other ethnic groups.

Table 1. Rates of dropout in primary schools in Qinghai and Ningxia, by grade

	Enrollment at the baseline	Enrollment at the endline	Change in enrollment (column 2 minus column1)	Dropout rate (%)
1.Full sample	14761	14396	-365	2.5
2. Grade 4	8222	8042	-180	2.2
3. Grade 5	6539	6354	-185	2.8

Source: Authors' survey.

Table 2. Rates of dropout in primary schools in Qinghai and Ningxia, by ethnic group

	Total sample (1)	Girls (2)	Boys (3)	(4) T-test (P-value) H_0: (2) = (3)
1. Hui	5.4	6.6	4.3	0.00
2. Salar	5.4	6.7	4.2	0.14
3. Zang	1.3	1.2	1.3	0.94
4. Tu	0.2	0.0	0.3	0.35
5. Han	0.2	0.2	0.3	0.38
6. T-test (P-value) H_0: Hui = Han	0.00	0.00	0.00	
7. T-test (P-value) H_0: Salar =Han	0.00	0.00	0.00	

Source: Authors' survey.

Table 3. Rates of dropout in primary schools in Qinghai and Ningxia, by grade and ethnic group.

Grade 4	Girls (1)	Boys (2)	(3) T-test (P-value) H_0:(1) = (2)
1.Hui	5.6	3.6	0.00
2.Salar	4.4	1.2	0.14
3.Zang	0.3	0.9	0.94
4.Tu	0.0	0.6	0.35
5.Han	0.2	0.3	0.38
6. T-test (P-value) H_0: Hui = Han	0.00	0.00	
7. T-test (P-value) H_0: Salar = Han	0.00	0.00	
Grade 5			
8.Hui	8.6	5.4	0.00
9.Salar	9.0	6.7	0.14
10.Zang	2.1	1.7	0.94
11.Tu	0.0	0.0	0.35
12.Han	0.2	0.3	0.38
13. T-test (P-value) H_0: Hui = Han	0.00	0.00	
14. T-test (P-value) H_0: Salar = Han	0.00	0.00	

Source: Authors' survey.

Table 4: OLS regression of determinants of dropout in primary schools in Qinghai and Ningxia

Dependent variable: Dropout (1=yes, 0=no)				
	[1]	[2]	[3]	[4]
1.Belong to ethnic minority (1=yes, 0=no)	0.01***			
	[0.00]			
2.Hui		0.03***	0.02***	0.02***
		[0.00]	[0.00]	[0.00]
3.Salar		0.04***	0.03**	0.03**
		[0.01]	[0.01]	[0.01]
4.Zang		0.00	-0.00	-0.00
		[0.00]	[0.00]	[0.00]
5.Tu		0.00	0.00	0.00
		[0.00]	[0.00]	[0.00]
6.Student age (year)			0.02***	0.02***
			[0.00]	[0.00]
7.Student gender (1=boy, 0=girl)			-0.01***	-0.01***
			[0.00]	[0.00]
8.Baseline test score (SD) [a]			-0.01***	-0.01***
			[0.00]	[0.00]
9.Family asset (1=higher than the median, 0=lower or equal to the median)[b]			-0.00	-0.00
			[-0.00]	[-0.00]
10.Father has a migrant job (1=yes, 0=no)				-0.01***
				[0.00]
11.Mother has a migrant job (1=yes, 0=no)				0.00
				[0.00]
12. Father completed primary schoo1 (1=yes，0=no)				-0.00
				[0.00]
13. Mother completed primary schoo1 (1=yes，				-0.00

0=no)				[0.00]
14.School dummies	YES	YES	YES	YES
15.Constant	0.02***	0.01***	-0.15***	-0.15***
	[0.00]	[0.00]	[0.02]	[0.02]
16.Observations	14761	14761	14761	14761
17.R-squared	0.082	0.083	0.098	0.099

Source: Authors' survey.

[a] Baseline test score is the score of the standardized English test that was given to students in grades 4 and5 in Qinghai sample schools and the standardized Math test that was given to students in grade 4 in Ningxia sample schools at the beginning of the academic year in June.

[b] The variable of family asset is based on the summed value of a set of assets, including electric appliances, livestock, vehicles etc. The variable equals 1 if the family asset value is higher than the median value and it equals 0 if otherwise.

* significant at 10%; ** significant at 5%; *** significant at 1%. Robust standard errors are in brackets.

Table 5. OLS regression results showing the heterogeneous effects of dropout on Hui students in primary schools in Qinghai and Ningxia

Dependent variable: Dropout (1=yes, 0=no)				
	[1]	[2]	[3]	[4]
1.Hui (1=yes, 0=no)	0.23***	0.04***	0.02***	0.02***
	[0.04]	[0.01]	[0.00]	[0.00]
2.Hui*Student age	0.02***			
	[0.00]			
3.Hui*Student gender		-0.02***		
		[0.01]		
4.Hui*Family asset			-0.01**	
			[0.00]	
5.Hui*Student Score				-0.02***
				[0.01]
6.Salar (1=yes, 0=no)	0.03**	0.03**	0.03**	0.04**
	[0.01]	[0.01]	[0.01]	[0.01]
7.Zang (1=yes, 0=no)	-0.00	-0.00	-0.00	-0.00
	[0.00]	[0.00]	[0.00]	[0.00]
8.Tu (1=yes, 0=no)	0.00	0.00	0.00	0.00
	[0.00]	[0.00]	[0.00]	[0.00]
6.Student age (year)	0.01***	0.02***	0.02***	0.02***
	[0.00]	[0.00]	[0.00]	[0.00]
7.Student gender (1=boy, 0=girl)	-0.01***	-0.00**	-0.01***	-0.01***
	[0.00]	[0.00]	[0.00]	[0.00]
8.Baseline test score (SD) [a]	-0.01***	-0.01***	-0.01***	-0.00
	[0.00]	[0.00]	[0.00]	[0.00]
9.Family asset (1=higher than the median, 0=lower or	-0.00	-0.00	0.00	-0.00

equal to the median)[b]	[0.00]	[0.00]	[0.00]	[0.00]
10.Father has a migrant job (1=yes, 0=no)	-0.01***	-0.01***	-0.01***	-0.01***
	[0.00]	[0.00]	[0.00]	[0.00]
11.Mother has a migrant job (1=yes, 0=no)	0.00	0.00	0.00	0.00
	[0.00]	[0.00]	[0.00]	[0.00]
12. Father Completed Primary Schoo1 (1=yes，0=no)	-0.00	-0.00	-0.00	-0.00
	[0.00]	[0.00]	[0.00]	[0.00]
13. Mother Completed Primary Schoo1 (1=yes，0=no)	-0.00	-0.00	-0.00	-0.00
	[0.00]	[0.00]	[0.00]	[0.00]
14.School dummies	YES	YES	YES	YES
15.Constant	-0.04***	-0.15***	-0.15***	-0.15***
	[0.01]	[0.02]	[0.02]	[0.02]
16.Observations	14761	14761	14761	14761
17.R-squared	0.105	0.100	0.099	0.100

Source: Authors' survey.

[a] Baseline test score is the score of the standardized English test that was given to students in grades 4 and5 in Qinghai sample schools and the standardized Math test that was given to students in grade 4 in Ningxia sample schools at the beginning of the academic year in June.

[b] The variable of family asset is based on the summed value of a set of assets, including electric appliances, livestock, vehicles etc. The variable equals 1 if the family asset value is higher than the median value and it equals 0 if otherwise.

* significant at 10%; ** significant at 5%; *** significant at 1%.

Robust standard errors are in brackets.

Table 6. OLS Regression of the Heterogeneous Effects of Dropping Out of the Salar students in primary schools in Qinghai and Ningxia

Dependent variable: Dropout (1=yes, 0=no)				
	[1]	[2]	[3]	[4]
1.Salar (1=yes, 0=no)	0.17*	0.04**	0.03**	0.03**
	[0.08]	[0.02]	[0.01]	[0.01]
2.Salar*Student age	0.02***			
	[0.01]			
3.Salar*Student gender		-0.02		
		[0.02]		
4.Salar*Family asset			0.00	
			[0.01]	
5.Salar*Student Score				-0.00
				[0.01]
6.Hui (1=yes, 0=no)	0.02***	0.02***	0.02***	0.02***
	[0.00]	[0.00]	[0.00]	[0.00]
7.Zang (1=yes, 0=no)	-0.00	-0.00	-0.00	-0.00
	[0.00]	[0.00]	[0.00]	[0.00]
8.Tu (1=yes, 0=no)	0.00	0.00	0.00	0.00
	[0.00]	[0.00]	[0.00]	[0.00]
6.Student age (year)	0.01***	0.02***	0.02***	0.02***
	[0.00]	[0.00]	[0.00]	[0.00]
7.Student gender (1=boy, 0=girl)	-0.01***	-0.01***	-0.01***	-0.01***
	[0.00]	[0.00]	[0.00]	[0.00]
8.Baseline test score (SD) [a]	-0.01***	-0.01***	-0.01***	-0.01***
	[0.00]	[0.00]	[0.00]	[0.00]
9.Family asset (1=higher than the median, 0=lower or equal to the median) [b]	-0.00	-0.00	-0.00	-0.00
	[0.00]	[0.00]	[0.00]	[0.00]

10.Father has a migrant job (1=yes, 0=no)	-0.01***	-0.01***	-0.01***	-0.01***
	[0.00]	[0.00]	[0.00]	[0.00]
11.Mother has a migrant job (1=yes, 0=no)	0.00	0.00	0.00	0.00
	[0.00]	[0.00]	[0.00]	[0.00]
12. Father Completed Primary Schoo1 (1=yes，0=no)	-0.00	-0.00	-0.00	-0.00
	[0.00]	[0.00]	[0.00]	[0.00]
13.Mother Completed Primary Schoo1 (1=yes，0=no)	-0.00	-0.00	-0.00	-0.00
	[0.00]	[0.00]	[0.00]	[0.00]
14.School dummies	YES	YES	YES	YES
15.Constant	-0.14***	-0.15***	-0.15***	-0.15***
	[0.02]	[0.02]	[0.02]	[0.02]
16.Observations	14761	14761	14761	14761
17.R-squared	0.099	0.099	0.099	0.099

Source: Authors' survey.

[a] Baseline test score is the score of the standardized English test that was given to students in grades 4 and5 in Qinghai sample schools and the standardized Math test that was given to students in grade 4 in Ningxia sample schools at the beginning of the academic year in June.

[b] The variable of family asset is based on the summed value of a set of assets, including electric appliances, livestock, vehicles etc. The variable equals 1 if the family asset value is higher than the median value and it equals 0 if otherwise.

* significant at 10%; ** significant at 5%; *** significant at 1%.
Robust standard errors are in brackets.

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