

**Resilience in Youth: Evidence from a Forced  
Migration in China**

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# Resilience in Youth: Evidence from a Forced Migration in China

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## Abstract

This paper uses the send-down movement during the Chinese Cultural Revolution to study the impact of forced migration during youth on individuals' outcomes in later years. The massive send-down movement (1968-1978) forced more than 16 million urban youths to move to rural areas to carry out agricultural field work. I utilize a rich set of family background information when the youths were 18 years old, and compare the send-downs with their closest counterparts—non-send-downs. Multiple surveys provide consistent evidence that the send-downs are 7 percentage points more likely to have had re-schooling after their return to urban areas; children of the send-downs are 9 percentage points more likely to attend college and have 0.5 more years of education. Evidence also suggests that compared to the non-send-downs, the send-downs spend more on their children's education. This paper presents a unique outcome of resilience for youths after forced migration. (*JEL: O1, I2; Keywords: Education, Forced Migration, Adolescent Development, Resilience, Send-down Movement* )

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# 1 Introduction

In recent years, the number of individuals who have experienced forced migration has almost doubled, growing from 35 million in 2012 to 67 million in 2016.<sup>1</sup> The consequences of forced migration are most severe for children and youths who lose the opportunity for education. There is an increasing demand to know how those youths are affected by such adversity later in life, and how they can be helped to compensate for their lost human capital. Those questions were central in the 2014 Human Development Report, and related debates received an enormous amount of attention in the G20 summit in 2017. While studies on forced migration are rich (see Ruiz and Vargas-Silva (2013), Blattman and Miguel (2010) for reviews), little empirical evidence exists as to how youths can cope with difficulty and potentially regain their lost human capital. Policy makers are eager to know the potential outcomes and mechanisms of resilience among youths after forced migration.

This paper uses the send-down movement during the Chinese Cultural Revolution as a unique quasi-natural experiment to study the impact of forced migration during youth on individuals' outcomes in later years. The massive send-down movement (1968-1978) forced more than 16 million urban youths to move to rural areas to carry out agricultural field work. Most of those urban adolescents had never left their parents nor had they ever been in rural areas before being sent away.<sup>2</sup> On average, they were forced to stay in those rural areas for five to six years.

The massive send-down movement took place during the Chinese Cultural Revolution (1966-1977), with a whole generation of youths experiencing education interruption.<sup>3</sup> Youths who finished schooling at the middle or high school level during the Cultural Revolution were either assigned a normal urban job or were sent down to rural areas. After the Cultural Revolution ended, the education system returned to normal and the send-downs were allowed to return to urban areas. Virtually all the send-downs returned to urban areas (Pan, 2003). Many individuals whose education were interrupted by Cultural Revolution reinvested in their education to compensate for their lost opportunities. This paper investigates whether the send-down experience could have affected the individuals' schooling choice after schools reopened. I use re-schooling to denote the schooling decision after schools had reopened.

This paper finds that the send-downs are 7 percentage points more likely to have re-schooling. Furthermore, the effect on education is intergenerational: children of the send-downs are 9 percentage points more likely to enroll in college and have 0.5 more years of education compared to the children of the non-send-downs. The estimation results are supported by multiple surveys. Those are: the Chinese General Social Survey (CGSS), the Chinese Urban Labor Survey (CULS), and the

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<sup>1</sup>The numbers are reported by the United Nations High Commissioner for Refugees.

<sup>2</sup>Under the Hukou Registration system, urban-rural migration or inter-urban migration was strictly forbidden before the Send-down Movement.

<sup>3</sup>Universities and colleges were either forced to close or to stop recruiting students from high schools. Forced school closures at the high school level were also severe.

China Family Panel Study (CFPS).

Many studies suggest that conflict or forced migration leads to poor educational outcomes (Ichino and Winter-Ebmer, 2004; Akresh and Walque, 2008; Shemyakina, 2011; Leon, 2012; Chamarbagwala and Moran, 2011; Akbulut-Yuksel, 2014; Eder, 2014; Justino, 2011; Blattman and Miguel, 2010). This paper is one of few studies to find outcomes of resilience among youths in education following such a large-scale forced migration. It is important to note that the post send-down government in China invested substantial efforts to increase the availability of education systems. For example, adult education systems were introduced to afford people who had already entered the labor force the opportunity to study in the evenings or on weekends. The paper suggests that to encourage outcomes of resilience, it is essential to provide resources for specific demands.

Evidence reveals that the send-downs have a strong preference on their children's education. Both the CGSS 2003 and the CULS data suggest that compared to the non-send-downs, the send-downs spend more on their children's education. By contrast, there is no difference in other non-education related spending. That children of the send-downs have higher education is likely due to the fact that their parents are more devoted to education.

The main challenge in identifying the send-down effect is the selection of being send-down, which was closely related to the individuals' family backgrounds. This paper first restricts the sample that both send-downs and non-send-downs have similar characteristics: both urban youth, born between 1945 and 1965, and having been middle or high school graduates during the send-down period. I further directly control the source of selection of being sent down through detailed family background information when the youth was 18 years old, the age most likely to be sent down. The family background information includes both father's and mother's occupations, work place, job rank, as well as years of education and Communist Party membership.

The identification strategy relies on a strict assumption that the selection of send-down is based on observables. It is, in principle, possible that unobserved personal characteristics could confound the results. I cannot entirely rule out this possibility. However, five points lend credibility to the findings. (1) I use the method proposed by Altonji et al. (2005) and Oster (2014) to use selection on observables to assess the bias from unobservables. The results suggest that the unobservables have to be at least five times more important than the observables to make the send-down effect disappear, which is highly unlikely. (2) Following a widely used method in conflict study<sup>4</sup>, I exploit plausible exogenous variation in the intensity of the send-down movement. I use the city-year level send-down intensity to instrument individuals' send-down status. The IV is applied to the CULS data, where the send-down intensity data is available for three of the five cities covered in the CULS. (3) Given the detailed information on observables, I use propensity score matching to re-estimate all the results. (4) I re-estimate results by dropping individuals with special family

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<sup>4</sup>See Akresh and de Walque 2008; Shemyakina 2011; Chamarbagwala and Morán 2011 for examples.

characteristics, specifically, individuals with parents who (a) had college education, (b) worked at or owned a private firm, (c) held a government office, or (d) were high-ranking officers in the government or in state-owned firms since those families were likely to be treated differently during the send-down period. (5) In estimating the send-down effect on children, I further drop individuals with multiple children since children of the sent-down generation were mostly born after the One Child Policy (1979). The estimation results are all robust.

One possible reason for observing a positive effect on re-schooling is that the send-downs may have had a low opportunity cost for re-schooling when they returned to urban areas. Evidence, however, suggests this unlikely to be a main reason. First, the work history data in the CGSS suggests that most send-downs quickly found work after their return to the cities, potentially because of the resumed economic activity after the destruction during the revolution. Second, there are no statistically significant differences between the send-downs and the non-send-downs in the quality of employment found or in the wage index for the employment between 1978 and 1980. Third, data suggests that most send-downs and non-send-downs began their re-schooling in the 1980s; the estimation results remain robust when I drop individuals who had re-schooling before 1980.

Qualitative evidence suggests that being sent down may have increased individuals' ability to tolerate hard work. In rural areas, without parental support, youths were forced to assimilate to an entirely different environment. The process of overcoming difficulty and of surviving in a harsh environment at a young age proved to be an important life experience. Re-schooling was a challenging process. Most individuals had a day job and had families to look after while re-schooling. The increased educational resources and flexible education system offered by the new government also played a crucial role in such outcomes being observed.

Multiple surveys are used in this paper to ensure the results are robust and not survey specific. The CGSS 2003 and the CULS 2001 are used to analyze individuals' re-schooling decision.<sup>5</sup> When analyzing children's college enrollment and years of education, I use the CGSS 2006 and the CFPS 2008 and 2010 because in those surveys children of the send-down generation are in their twenties and are mostly past college-entering age. The CULS 2001 is used to analyze education expenditures on children, where children in the survey are younger and are more likely to stay in school. The CGSS 2003 further examines any past education expenditure (for children to attend better schools).

One may still have a concern over selection within the family. Li et al. (2010) suggest that parents were forced to select one of the twins to be sent away, and their estimation results reveal that parents were likely to select to send away the twin with the lower human capital.<sup>6</sup> Such selection within a family could potentially cause a downward bias and make the positive effect of the send-down experience (on re-schooling decision and education outcome of the next generation)

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<sup>5</sup>CGSS2003 and CULS2001 provide respondents' education history and job history information, which are required to identify re-schooling decision.

<sup>6</sup>The reason is that parents prefer to keep the child who would be better able to support them when they grew old.

a lower bound. Nevertheless, I further control for a detailed set of sibling information, including up to four siblings' education, gender, and age gap with the respondent. The estimation results are essentially unchanged.

This paper contributes to several strands of literature. First, it offers unique evidence of outcomes of resilience following forced migration. In contrast to much evidence of the negative effect of forced migration or conflict on youths' education, this paper provides an important insight for ongoing policy debate regarding whether the lost human capital of displaced individuals can indeed be regained and how best to help those displaced individuals. Second, this paper adds a discussion to education economics regarding factors that could affect individuals' education decision. A positive environment could certainly encourage the growth of human capital (Cunha and Heckman, 2007; Heckman, 2000, 2006; Cunha et al., 2006); a negative environment, as in the example of the send-down movement, has proven to induce individuals to pursue further education, and most interestingly, the effect is intergenerational. Further empirical analyses are required to answer the question as to whether resilience represents an aspect common in human nature. Third, the paper adds to the existing literature on intergenerational linkage of parents' characteristics and children's education. Researchers such as Black, Devereux, and Salvanes (2005); Corak (2013); Kalil (2015); Huggett, Ventura, and Yaron (2011); Todd and Wolpin (2007); Heckman and Mosso (2014) have shown that education outcomes for children substantially depend on time and monetary support from the parents. This paper provides new evidence that parents' attitude towards their children's education could be affected by their own experience during adolescence. Finally, this paper contributes to the growing number of studies investigating the impact of the send-down movement (Li et al., 2010; Kinnan et al., 2015; Gong et al., 2015; Wang and Zhou, 2017; Zhou and Hou, 1999; Xie et al., 2008b; Fan, 2015).

The rest of the paper is organized as follows. Section 2 discusses the details of the send-down movement, education interruption during the Cultural Revolution, and the re-schooling movement after the revolution. Section 3 describes three data sets used in this paper and provides distribution of send-downs in each data set. Section 4 describes construction of samples, identification strategies, estimation results, and robustness checks. Section 5 explores the potential mechanism. Section 6 provides discussion of the results and concludes the paper.

## **2 Background**

### **2.1 The Send-down Movement**

The send-down movement is also known as the rustication movement. In Chinese, it is called 'Shang Shan Xia Xiang,' meaning going up to the mountains and down to the villages (Bernstein,

1977). The send-down program began in the early 1960s and ended around 1978. Before 1968, the targets of the send-down program were workers, employees, and jobless city dwellers. At this point, people were mostly persuaded—not forced—to go to rural areas. Voluntary send-down numbers dropped when urban people learned more about the realities of rural life; they were troubled by the hardship of manual labor and the inability to support themselves (Pan, 2002). Approximately one million individuals were sent down during this stage.

The forced mass send-down movement (1968-1978) was initiated in 1968 by Mao Zedong who deemed it “necessary for the educated youth to go to the countryside and be re-educated by the poor farmers.” This second stage of the send-down movement came to be regarded as a political command. It was primarily forced rather than voluntary (Li et al., 2010). The second stage of the send-down movement mostly targeted urban youths that had finished schooling at the middle or high school level. More than 16 million youths were sent down between 1968 and 1978. From economic administrators, to cadres, to students and their parents, anyone refusing to take part in the send-down program could be accused of opposing the great strategy of Chairman Mao.

The send-down movement was intensively carried out between 1968 and 1970. The movement slowed down when, in the 1970s, parents complained. One parent wrote directly to Mao, obtaining his sympathy. The letter and Mao’s reply to it were even published as government official documents.<sup>7</sup> The movement, however, escalated again after 1973 when the political fighting intensified; those pleading for a slowdown in the send-down policy were treated as opponents of Maoist ideology.

About a quarter of middle and high school graduates in urban areas were sent to the rural areas. The selection process was generally carried out with the central government each year assigning each local government a quota. If the local send-down quota was larger than the number of age-eligible youths (middle school /high school graduates), then all the youths needed to be sent down; if, on the other hand, the quota was smaller than the number of age-eligible youths, then the family could keep its current age-eligible child if that family already had a child sent away. Family background played an important role in the selection of send-downs at this stage. Youths whose parents had college-degree education, owned or even simply worked at a private business faced a higher possibility of being sent down.

After Chairman Mao’s death in 1976, most policies introduced during the revolution were either revised or abandoned. The massive send-down movement officially ended in 1978. The new government began to organize the send-downs back to the cities of their origin.<sup>8</sup> Because the living conditions and social welfare were much better in urban areas compared to rural areas, virtually all the send-downs returned to urban areas (Pan, 2003). All the send-downs in the CFPS data (which

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<sup>7</sup>The parent’s name is Lin Qinglin. The letters were published as a central government official document, 1973, Number 21.

<sup>8</sup>Note that cross-city migration was, in general, impossible under the Huko system in 1970s and 1980s.

covers both rural and urban areas) reported that they returned to urban areas.

By using the fact that parents were forced to choose one of their twins to send down, Li et al. (2010) identify the roles of altruism and favoritism in parents' behavior towards their children, and their feelings of guilt. Kinnan, Wang, and Wang (2015) suggest that the sent-down youths created long-lasting connections between rural and urban regions and that such connections affected household consumption and risk-related activities in rural areas. Gong et al. (2015) finds the send-down experience caused individuals' to have less external locus of control. Among sociologists, Zhou and Hou (1999) along with Chen and Cheng (1999) and Xie et al. (2008a) investigate the effects of the send-down experience on individuals' income. Zhou (2013) finds that the income difference between the send-downs and the non-send-downs are caused by the re-schooling process after the Cultural Revolution.

## **2.2 Education Interruption between 1966 and 1976, and Re-schooling after 1976**

In 1966, Chairman Mao initiated the Chinese Cultural Revolution. A whole generation of school-age youth experienced education interruption. During the first two years of the Cultural Revolution, schools at all levels were closed. Most colleges and universities remained closed throughout the revolution (1966-1976), with those open recruiting only students who were workers, peasants, or soldiers. Primary and middle schools were reopened in 1968 and 1969, but closures at the high school level were severe. Many high schools were closed between 1966 and 1971 and only began reopening in 1972. Those who had missed the opportunity of attending high school between 1966 and 1971 were not given the opportunity to apply to high school during the revolution.

The education turmoil ceased in 1976 when Chairman Mao died and the Cultural Revolution officially came to an end. Schools forced to close during the revolution were reopened, and academic-based entrance examinations were resumed. In the winter of 1977, China held its first university entrance examination since 1966. Deng Xiaopin became the paramount leader of China in 1978.

After the Cultural Revolution, there was high demand for reinvestment in education among individuals who had experienced education interruption caused by Cultural Revolution (Meng and Gregory, 2002; Han et al., 2011). For several years after the Cultural Revolution, admission to schools was very competitive given the limited education resources available in the country—a situation caused by the destruction during the revolution. University acceptance rates were less than 10 percent between 1977 and 1980.

In the 1980s, China gradually increased the number of institutions offering degree programs, at all levels. Adult education systems were also introduced to assist people in the labor force to return to school while maintaining a daytime job; courses were offered in the evenings or on weekends



to accommodate students' schedules.<sup>9</sup> The degree programs included senior high school degrees and 2-4 year college degrees. The number of adult education schools also increased dramatically, going from being virtually nonexistent at the end of the Cultural Revolution to numbering 1156 in 1995.<sup>10</sup>

Many individuals utilized those options to go back to school to compensate for their lost education opportunities. According to the CULS and the CGSS 2003 data, 15-20 percent of individuals in the affected cohort re-schooled after the Cultural Revolution, and more than 70 percent of them received their degree-level education through the adult education system.

### 3 Data

#### 3.1 Data Source: CGSS, CULS, and CFPS

The CGSS 2003 and 2006 were collected jointly by the Hong Kong University of Science and Technology Survey Research Center and the Sociology Department of the People's University of China. The 2003 wave and the 2006 wave are two independent, individual-level cross-sectional surveys. The 2003 wave covers only urban areas while the 2006 covers the rural areas as well. Both surveys were conducted based on a probabilistic sample and the stratification design, using the 2000 Population Census. They covered 24 provinces and 4 municipalities. Only 3 autonomous provinces were not included in the survey: Tibet, Qinghai, and Ninxia.<sup>1</sup>

The CULS 2001 was administered by the Institute for Population Studies at the Chinese Academy of Social Sciences, in collaboration with the local offices of the National Statistical Bureau. It is an individual-level survey that covers five large Chinese cities: Shanghai, Shenyang, Wuhan, Xian, and Fuzhou. The primary investigators of the CULS include researchers from Michigan State University and the University of Michigan. The survey used proportional population as the sampling method and the same 2000 Population Census used in the CGSS as a guideline for its stratification design.

The CFPS study was conducted by Peking University. It has two independent panel surveys: the 2008 and 2009 panel, and the 2010 and 2012 panel. Only the 2008 and 2010 surveys are used here as respondents' send-down status and children's college enrollment remained unchanged for the same individuals within the panel. The 2008 and 2010 waves are two independent cross-sectional data. The 2008 wave is the pilot project of the CFPS. It surveyed China's three major

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<sup>9</sup>One education program, "Dian da," allows students to obtain a degree by following a curriculum provided through television then passing the related exams (similar to online courses in recent years). This program became more accessible in the 1990s as television itself became available to Chinese families only in the late 1980s. However, most of the send-down generation had already re-schooled by the 1990s (Table 1), rendering it unlikely that a substantial amount of the send-downs or non-send-downs would have obtained their degree through this type of system.

<sup>10</sup>Data source: China Statistical Year Book.

provinces/municipalities: Beijing, Shanghai, and Guangdong. The 2010 survey is a national survey launched in 25 provinces/municipalities/autonomous regions, excluding Hong Kong, Macao, Xinjiang, Qinghai, Inner Mongolia, Ningxia, and Hainan.

### **3.2 Distribution of the Send-downs**

Using the CGSS, the CULS, and the CFPS data, I report the distribution of the send-downs. Figure 1 reports the number of respondents who were sent to rural areas in each survey data. All three data sets suggest a large increase in the number of send-downs in 1968, with a large variation in the numbers existing after 1968. Those cross-year variations were largely driven by Mao's decisions in the 1960s and 1970s and by decisions taken in the years following his death in 1976 (See Section 2.1).

Figure 2 reports the age composition of the send-downs when they were sent to rural areas. Each bar of the figure is calculated as dividing the number of the send-downs at each age by the total number of send-downs. All three data sets consistently and strongly suggest that 18 was the age individuals were most likely to be sent down.

## **4 Estimation**

### **4.1 Construction of the Samples**

To limit confounding factors, I compare the outcomes of individuals with send-down experience to the outcomes of individuals who shared similar characteristics with them but were not sent down. I restrict the samples as follows. First, I only focus on the send-downs who were sent during the massive send-down period (1968-1978). Individuals who were sent away before 1968 are dropped because they were most likely persuaded to go down by the government or having lost their employment, themselves volunteered to go to rural areas. Second, individuals who were sent away after 1968 were mostly urban middle or high school students who had graduated between 1966 and 1978.<sup>11</sup> For this reason, I restrict the sample to urban residents who were born between 1945 and 1965 and who had finished middle or high school before 1978.<sup>12</sup> Note that individuals who only completed primary education before 1978 are not included in the sample. An 'urban resident' is defined as an individual who had an urban residency card (Huko) in the year of the survey and

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<sup>11</sup>Note that in 1968 and 1969, the starting years of the massive send-down movement, the policy targeted youths who had graduated from school between 1966 and 1969.

<sup>12</sup>The birth years of the send-downs are slightly different in the three data sets. The send-downs who were sent during the massive send-down period (1968-1978) were born between 1945 and 1963 in the CULS sample, between 1945 and 1965 in the CGSS sample, and between 1944 and 1966 in the CFPS sample. The estimation results are robust if I restrict the sample to urban residents born between 1945 and 1963 or between 1944 and 1966.

who had also obtained an urban residency card upon birth.<sup>13</sup> Defining urban residents in this way ensures exclusion of rural residents who migrated to urban areas in the 1990s and 2000s. The above sample restrictions help to compare send-downs with their closest non-send-down counterparts. In the analysis of children’s education outcomes, children under 15 years of age are further dropped out of the sample as they are likely receiving compulsory schooling.<sup>14</sup> The sample restrictions are applied to all analysis in this paper unless further restrictions are specified.

## 4.2 Identification

The main challenge in identifying the send-down effect is the selection of becoming a send-down, which is closely related to the individuals’ family backgrounds (See Section 2.1 for an outline of the selection process). Individuals’ parents’ characteristics were key in determining the send-down probability (Zhou and Hou, 1999; Pan, 2002; Li et al., 2010; Xie et al., 2008b). Literature suggests that Pparents holding a university degree or owning a private business were described as having capitalist tendencies; hence, their children were more likely to be sent away. On the other hand, parents with political connections might have been able to find a way to avoid having their children be sent away.

The CGSS 2003 and 2006 surveys provide very detailed information of parents’ characteristics when individuals were 18 years old, the age individuals were most likely to be sent down. The variables include both father’s and mother’s years of education, Communist Party membership, work-place dummies (working in government, private firm, or other), one-digit occupation dummies (working in management/skilled White-collar, unskilled White-collar, or Blue-collar), and a dummy variable indicating whether the parent was a high-ranking officer in the government or in state/collective-owned firms. The following equation is estimated.

$$Y_i = \alpha Senddown_i + X_i\gamma + \beta f(Z_i) + \varepsilon_i \quad (1)$$

$Y_i$  is the outcome variable.  $Senddown_i$  is a dummy variable that equals to 1 if  $i$  was sent down during the movement, and 0 otherwise.  $X_i$  is a set of individual characteristics that includes gender, age, a dummy variable indicating whether the individual was a middle school or a high school graduate by the end of 1978, and province dummies.  $f(Z_i)$  is a function of individuals’ family background, which controls for the source of selection of the send-down. All parents’ characteristics discussed above are used to approximate this function. The error term,  $\varepsilon_i$ , is clustered at the county level to control the potential correlation within the county.<sup>15</sup>

<sup>13</sup>One exception is the CULS data. It provides Huko information at age 16 instead of at birth. Therefore, in the CULS sample, ‘urban resident’ is defined as one having Huko in the survey year and being 16 years of age.

<sup>14</sup>China’s compulsory schooling is 9 years. Children begin their schooling at age 6 or 7.

<sup>15</sup>The estimation results are robust if the error terms are clustered at the province level.

One potential concern regarding the identification strategy is the selection within a given family, which is observed in families with twins (Li et al., 2010). Twins, however, are rare. For non-twins families, it is also unclear whether the local government would have allowed families to plan or choose which child to send away, given the large variation in the send-down quotas across the years.

$$Y_i = \alpha \text{Senddown}_i + X_i \gamma + \beta f(Z_i) + \lambda g(\text{Sib}_i) + \varepsilon_i \quad (2)$$

To address this concern, I control a detailed set of sibling characteristics by using the CFPS and the CULS data. Equation (2) is estimated.  $g(\text{Sib}_i)$  includes the number of siblings and each sibling's characteristics (up to four siblings)—those being female dummy, age gap with the respondent, and years of education. The available family background variables in the CFPS and the CULS are different to those in the CGSS. They include both father's and mother's years of education and dummy variables indicating family class during the Cultural Revolution (workers, businessmen, landholders or other). Businessmen and landholder classes were considered as the “bad” class or “enemy” class during the Cultural Revolution. Children of individuals within such classes were more likely to be sent down.

### 4.3 Definition of Outcome Variables and Descriptive Statistics

The key outcome variable, re-schooling, is an indicator variable that equals 1 if an individual who had already entered the labor force went back to school to obtain degree-level education, and 0 otherwise. Note that individuals could return to school full time or part time. Table 1 reports individuals' characteristics. Both the CGSS 2003 and the CULS 2001 data indicate that the re-schooling rate among the send-downs is about 7 percentage points higher than that of the non-send-downs: 0.24 VS 0.16 in CGSS, 0.19 VS 0.12 in CULS.<sup>16</sup> The length of re-schooling is similar for both the send-downs and the non-send-downs—approximately three years. Both groups began their re-schooling in the 1980s, but the send-downs tended to begin 1 or 2 years earlier than the non-send-downs. In the CGSS data, 61 percent of the send-downs held middle school degrees before 1978, while 67 percent of the non-send-downs held such a degree by that same year. However, this difference disappears in the CULS data, with 59 percent of both groups holding a middle school degree by 1978. (Note that only individuals who had a middle or high school degree before 1978 are included in the sample). Send-downs are about 1.5 years older than the non-send-downs. This is likely caused by the large concentration of send-downs when the send-down policy was first introduced (1968 and 1969).

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<sup>16</sup>On average, more individuals are reported to have had re-schooling in the CGSS than they are in the CULS. This could potentially be due to the difference in the sampling region in those two data sets. Note that the CGSS covers 24 provinces while the CULS covers only 5 cities.

Table 2 reports characteristics of the children of the send-down generation. College is an indicator variable that equals to 1 if a child has a college level degree or is currently enrolled in college. Children under 18 years old are treated as missing data in this variable. Both data report a higher rate of college enrollment among the children of the send-downs compared to the children of the non-send-downs. The difference is 7 percentage points among the two groups in the CGSS data (0.56 vs 0.49), where the children are in their early or mid-twenties. In the CFPS data, where the children are in their mid- or late twenties, the difference becomes even larger: 11 percentage points (0.67 vs 0.56). Consistently with the outcomes of college enrollment, the children of the send-downs also have more years of education compared to the children of the non-send-downs. Like their parents, children of the send-downs are about 1.7 years older than the children of the non-send-downs.

Statistics of family background of the send-down generation in the CGSS are reported in Table 3. Parents of the send-downs are more likely to have had higher education. They are also more likely to have been working in the government and to have been a Communist Party member. Those two variables are highly correlated with education. Such individuals were also more easily monitored by the government, potentially rendering their children more likely to be sent down. Family background and sibling characteristics in the CULS and the CFPS data are reported in Appendix Table 1 and Appendix Table 2.

#### **4.4 Estimation Results**

I report the effect of the send-down experience on individuals' re-schooling decision, their children's college enrollment and years of education in Table 4, Table 5, and Table 6 respectively. In Table 4, Panel A uses the CGSS 2003 data while Panel B uses the CULS data. In the first column of Table 4, only the send-down variables are included in the regression. The point estimate is 0.09 in the CGSS and 0.074 in the CULS data. From Column 2 to Column 4, family background information, individual basic characteristics, and sibling characteristics (Panel B only) are gradually added into the regressions. The estimation results using the two data sets are very consistent. The final column of each panel suggests that the send-down experience increased individuals' re-schooling decision by 7.2 percentage points in the CGSS and 6.4 percentage points in the CULS data. All estimation results in Table 4 are statistically significant at least at the 5 percentage level. Throughout the columns, the size of the send-down coefficient is very stable once the family background variables are controlled.

The estimations of children's educational outcomes in Table 5 and Table 6 repeat the same exercises as in Table 4. The coefficient of the send-down is positive and statistically significant at the 10 percent level in the CGSS 2006 data (Panel A), and significant at the 1 percent level in

the CFPS data (Panel B). The estimation results suggest that individuals' send-down experience increased their children's college enrollment by 6.5 to 9 percentage points (last column of Panels A and B in Table 5) and increased their children's education by 0.45-0.47 years (last column of Panel A and B in Table 6).

## 4.5 Robustness Check

### Propensity Score Matching

Given the observed detailed information on family background which is the main source of selection, I first use propensity score matching to re-estimate the results. The matching method is very useful when selection is based on observables. Both kernel and nearest five neighbors matching methods are used. The two types of estimators from the different matching methods are quite similar to each other and all statistically significant at the 1 percent level (Table 7 Panel A). The results confirm the findings in the OLS regressions.

### Assessing Omitted Variable Bias

The key assumption in the identification strategy is that the selection of send-down is based on observables. I further try to determine to what extent the unobservables could bias the results by using methods introduced by Altonji et al. (2005) and further developed by Oster (2014). Both papers suggest that observables in a model provide a guide to the amount of selection on the unobservables. Their methods rely on the assumption that the relationship between the observed covariates and the treatment is informative of the relationship between the unobserved covariates and the treatment. Oster (2014) proposes two related approaches. The first approach estimates the bound of the treatment effect where the one side of the bound assumes the unobservables are as important as the observables; the other side of the bound assumes that the unobservables are irrelevant and have no effect on the treatment effect. Table 7 Panel B reports the bound estimation results.<sup>17</sup> All the bounds reported in the table are very tight and consistent with previous findings. The second approach, which is based on the same theoretical framework as the first approach, calculates how important the unobservables need to be to produce a treatment effect of zero. The results suggest that for all the send-down effect estimated in the paper, the unobservables have to be at least 5 times more important than the observables in order to make the send-down effect zero. Given the detailed observables provided in the estimation, it is unlikely that the unobservables could be more influential than the observables. Thus, I conclude it unlikely that unobserved factors could bias the results substantially.

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<sup>17</sup>Following Oster's (2017) suggestion, I set  $\pi=1.3$  where  $R_{\max}=\pi R$ . The estimation results are robust to a wide range of  $\pi$ .

## **Instrumental Variable**

In order to limit any individual-level confounding factors, I further exploit variations in the intensity of the send-down movement. The send-down movement was operated under a centrally planned quota policy whereby the number of individuals to be sent down from each area was assigned by the central government. I use city-year level intensity of the send-down program when youths were 17 to 19 years of age to instrument individuals' send-down status. The city-year level send-down data is published in the City Gazetteers and is available for the three largest cities in the CULS: Shanghai, Shenyang, and Wuhan.<sup>18</sup> Based on the three-city CULS data, the IV estimate suggests that the send-down experience increased the probability of re-schooling by 7.5 percentage points (Panel C of Table 7). City-fixed effects, year-fixed effects, and a set of city-year level covariates are included in the regression. Appendix A provides detailed discussion of the IV used in the regression.

## **Other Robustness Checks**

I further check if the send-down effects depend on specific family characteristics. The send-down policy specifically punished individuals whose (a) parents had college education, or (b) worked at or owned a private firm. On the other hand, parents who (c) worked in the government or (d) were high-ranking officers in the government or in a state-owned firm (SOF) were potentially well-connected and may have been treated differently during the Cultural Revolution. I drop individuals with those special family backgrounds (a), (b), (c) and (d) respectively. The results reported from Panel D to Panel G are highly robust and consistent with the main findings.

The children of the send-down cohort are mostly born after the One Child Policy (1979). Ninety percent of the samples in the CGSS 2006 and 88 percent of the sample in the CFPS have only one child. The last panel of Table 7 focuses only on one-child families to rule out any bias related to the differences in the number of children. The results remain essentially unchanged.

## **5 Mechanisms**

This section analyzes both quantitative and qualitative evidence to explore several possible mechanisms for the main results.

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<sup>18</sup>Unfortunately, only a limited number of cities include send-down data in their City Gazetteers. For this reason, the IV could not be applied to other national wide samples, the CGSS, and the CFPS.

## 5.1 Mechanism for Re-schooling

### Low Opportunity Cost of Re-schooling

A potential reason for the send-downs to re-school is that they may have had a low opportunity cost of re-schooling. This may be the case if the send-downs were not able to find employment after their return to urban areas, or if they were able to find only low-quality work. However, evidence suggests this to be unlikely.

First, according to the CGSS job history data, most send-downs found work quickly after their return from rural areas: 83 percent of the send-downs found employment in the same year of their return or in the following year; the rest also eventually found work. The rate of becoming employed was high potentially because of the increasing labor demand as normal economic activity resumed after the Cultural Revolution. Policies introduced by the new government to assist send-downs in finding work in urban areas could also be another reason for such a phenomenon to be observed.<sup>19</sup>

Second, I further re-estimate the send-down effect by dropping all individuals who had re-schooling before 1980.<sup>20</sup> Table 8 suggests the results are still robust. In fact, until the early 1980s, going to school for the send-downs was more difficult than finding employment. Admissions were very competitive when schools just reopened. The university acceptance rate was only 4.8 percent in 1977, the year university entrance examinations were resumed.<sup>21</sup> It is unlikely that going to school would have been an easy alternative for those who had difficulty finding work.

Third, I find no statistically significant differences between the send-downs and the non-send-downs in the quality of employment or in the wage index for the employment found between 1978 and 1980. Based on the available work history information provided in the CGSS, I use the following four categories to evaluate the jobs: (1) were at managerial level, (2) had administrative rank, or (3) had professional title,<sup>22</sup> and (4) wage index. Table 9 reports the results and suggests that the differences are not statistically different from zero in all categories. In the absence of actual wage data, I compute a wage index by applying individual job information between 1978 and 1980 (from the CGSS) to a wage function estimated by another individual-level survey data—the

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<sup>19</sup>For example, the government allowed send-downs to work in their parents' company (replacing their parents) if their parents were about to retire.

<sup>20</sup>Among individuals who had re-schooling before 1980, 24 were send-downs and 36 were non-send-downs in the CGSS sample, with 65 versus 69 in the CULS sample.

<sup>21</sup>The university acceptance rate reached over 10 percent only after 1980. Data Source: China Education Year Book. The low acceptance rate could potentially have been due to the loss in educational resources during the Cultural Revolution.

<sup>22</sup>Administrative rank and professional title were common measures to rank employee's jobs in China in the 1980s and 1990s; employee's wages and bonuses were based on those ranks. An individual's job could be ranked into eight administrative ranks and four professional titles. Since both the send-downs and the non-send-downs were at an early stage of their career, most of them had no job rank either in the administrative or the professional category. Therefore, I define an individual as having administrative/professional rank if this individual has any rank in the administrative/professional category, and vice versa.



Chinese Household Income Project (see Appendix B for details).

### **Ability to tolerate hard work**

Re-schooling may have been a very challenging process for those whose education was interrupted during the Cultural Revolution. On average, individuals began re-schooling in their late twenties. Such individuals often had families to look after; some also held day jobs. Note that conditional on re-schooling, more than 70 percent of individuals in the CGSS and the CULS data had gone through the adult education system, using their time after work or on weekends to attend classes. In addition, academic knowledge obtained in previous schooling could have faded after years of work; therefore, it is likely that those who chose to re-school spent considerable time and effort catching up on the curriculum.

A substantial number of documents in the send-down literature reports that the sent-down youths developed a tough working spirit through their hard manual-labor experience (Yang 1992; Liu 2012; Tang 2012; Wang 2006). Being sent down was a difficult experience for the affected youths; living in rural areas without parental support, they were forced to adapt to an entirely different environment. The process of overcoming difficulty and surviving in a harsh environment at a young age proved to be an important life experience. Wang (2006), for instance, reports as follows:

*Through the send-down experience in the rural areas, we learned the spirit of hard work from peasants. We learned that life is tough. The hard experience made us stronger and trained us to have the ability to encounter difficulties....*

Although the re-schooling process was challenging, the hard manual-labor experience helped the send-downs build a strong spirit of withstanding hard work and of overcoming difficulties in life. The send-down experience could have made individuals become better able to endure hardship in re-schooling.

## **5.2 Mechanism for Children's Education**

### **Sent-down Parents Are More Devoted to Their Children's Education**

A likely reason to explain the results is that send-downs care about their children's education more so than non-send-downs do. Analysis of education expenditure data in the CULS and the CGSS reveals that the send-downs spend more on their children's education than do their non-send-down counterparts.

In the CULS sample, the send-downs spend 8 percentage points more of their incomes on their children's education than the non-send-downs do (Panel A Table 10). The difference is statistically significant at the 1 percent level. However, the differences in other non-education related

expenses<sup>23</sup> are not statistically significant. The results of mean comparison are further confirmed by the regression analysis in the last column, where the estimated send-down effect on education spending is 8.6 percentage points, statistically significant at the 1 percent level.

I further use the CGSS data to estimate the send-down effect on education expenditure. The CGSS 2003 asked respondents the following: “Apart from tuition uniformly regulated by the state and the local government, did your family ever make sponsorship contributions, pay self-financing fees, or pay charges for choosing a school to attend?” If the response was positive, the respondents were asked to give the total amount paid in the years past. I call those fees referred to in the question as “additional fees.” Tuition at all schools in China is regulated by the state or the local government; however, public schools are allowed to ask those students who marginally disqualify for the entrance exam but still wish to enter school to pay additional fees. Private schools rely on those additional fees to operate. Twenty-two percent of the individuals in the sample answered that they had paid additional fees for their children at least once in the past.<sup>24</sup> The last column of Table 10 Panel B suggests that the send-downs paid 892RMB more for their children in the past.<sup>25</sup>

### **Education Spillover Effect**

One potential reason why the intergenerational effect can be observed is that education itself has a spillover effect, that is, children had more education because the send-down experience increased their parents’ education. While it is true that there usually exists a high correlation between parents’ and children’s education, evidence in the literature suggests that this correlation is *not* due to education spillovers (Black et al., 2005; Corak, 2013). In other words, exogenously increasing parents’ education would not lead to an increase in children’s education. I further control individuals’ education and that of their spouses’ in the regression and re-estimate the send-down effect on children’s education; the results remain unchanged (Appendix Table 3). Combining evidence in the literature and estimation results in the paper, I conclude it unlikely that send-downs’ children had more education merely because their parents’ education had been increased by the send-down experience.

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<sup>23</sup>Other non-education related expenses include all expenses queried in the CULS except education. Those expenses are food, clothing, transportation and communication, leisure, health care and medical services, household facilities, articles and services, and miscellaneous goods and services.

<sup>24</sup>The sponsorship fees became a major social issue in China. If a student wanted to attend a better school, the probability of the student having to pay sponsorship fees were higher. The government usually allowed top-level schools to collect more sponsorship fees. In 2005 for example, the HuBei provincial government introduced a policy dictating that the maximum percentage of enrolled students a high school could collect sponsorship fees from was to be 30 percent in the top provincial-level schools, 20 percent in the top city-level schools, and 10 percent in other schools (Ma 2007).

<sup>25</sup>Since the survey questions asked about total additional fees paid in the past, not in a specific year, it is impossible to calculate the precise equivalent value in USD. Note that the exchange rate went from 1USD to 4.78RMB in 1990 to 1USD to 8.27RMB in 2003.

## 6 Conclusion

This paper finds that among those whose education was interrupted by the Chinese Cultural Revolution, individuals with the forced send-down experience were significantly more likely to reinvest in their own education. They also spend more on their children's education, and as a result, their children have a higher education level.

Literature suggests that the negative effect of forced migration on youths' education is a result of the destruction of the infrastructure, differences in languages, in-safety of the environment, and shocks to educational access and income. This paper finds that when all those external causes are absent, as in the case of the post send-down environment, forced migration has a positive effect on education.

It is important to note that outcomes of resilience are possible after such adversities as forced migration or conflicts. There is no doubt that we need more empirical evidence to reach a conclusion in this literature.

## References

- Akbulut-Yuksel, M. (2014). Children of war, the long-run effects of large-scale physical destruction and warfare on children. *Journal of Human Resources* 49(3), 634–662.
- Akresh, R. and D. d. Walque (2008). Armed conflict and schooling: Evidence from the 1994 rwandan genocide. World Bank Policy Research Paper No.4606.
- Altonji, J. G., T. E. Elder, and C. R. Taber (2005). Selection on observed and unobserved variables: Assessing the effectiveness of catholic schools. *Journal of political economy* 113(1), 151–184.
- Bernstein, T. (1977). *Up to the Mountains and Down to the Villages: The Transfer of Youth from Urban to Rural China*. Yale University Press.
- Black, S. E., P. J. Devereux, and K. G. Salvanes (2005). Why the apple doesn't fall far: Understanding intergenerational transmission of human capital. *The American Economic Review* 95(1), 437.
- Blattman, C. and E. Miguel (2010). Civil war. *Journal of Economic literature*, 3–57.
- Chamarbagwala, R. and H. E. Moran (2011). The human capital consequences of civil war: Evidence from guatemala. *Journal of Development Economics* 94, 41–61.
- Chen, K. and X. Cheng (1999). Comment On Zhou & Hou: A Negative Life Event With Positive Consequences? *American Sociological Review* 64(1), 37–40.
- Corak, M. (2013). Income inequality, equality of opportunity, and intergenerational mobility. *The Journal of Economic Perspectives* 27(3), 79–102.
- Cunha, F. and J. Heckman (2007, May). The Technology of Skill Formation. *American Economic Review* 97(2), 31–47.
- Cunha, F., J. Heckman, L. Lochner, and D. V. Masterov (2006). Interpreting the Evidence on Life Cycle Skill Formation. *Handbook of the Economics of Education*.
- Eder, C. (2014). Displacement and education of the next generation: evidence from bosnia and herzegovina. *IZA Journal of Labor & Development* 3(1), 12.
- Fan, Y. (2015). Does adversity affect long-term consumption and financial behaviour? evidence from chinas rustication programme. Technical report, LSE working paper.
- Gong, J., Y. Lu, and H. Xie (2015). Adolescent environment and noncognitive skills.

- Han, J., W. Suen, and J. Zhang (2011). Picking up the Losses: The Impact of the Cultural Revolution on Human Capital Re-investment in Urban China. World Bank Policy Research Working Paper 4729.
- Heckman, J. (2000, March). Policies to Foster Human Capital. *Research in Economics* 54(1), 3–56.
- Heckman, J. J. (2006). Skill formation and the economics of investing in disadvantaged children. *Science* 312(5782), 1900–1902.
- Heckman, J. J. and S. Mosso (2014). The economics of human development and social mobility. *Annual Review of Economics* 6(1), 689–733.
- Huggett, M., G. Ventura, and A. Yaron (2011). Sources of lifetime inequality. *American Economic Review* 101(7), 2923–54.
- Ichino, A. and R. Winter-Ebmer (2004). The long-run educational cost of world war ii. *Journal of Labor Economics* 22(1), 57–86.
- Justino, P. (2011). Violent conflict and human capital accumulation. *IDS Working Papers* 2011(379), 1–17.
- Kalil, A. (2015). *Inequality Begins at Home: The Role of Parenting in the Diverging Destinies of Rich and Poor Children*. Springer.
- Kinnan, C., S.-Y. Wang, and Y. Wang (2015). Relaxing migration constraints for rural households. NBER Working Paper No.21314.
- Leon, G. (2012). Civil conflict and human capital accumulation: The long-term effects of political violence in perÃ°. *Journal of Human Resources* 47(4), 992–1022.
- Li, H., M. Rosenzweig, and J. Zhang (2010). Altruism, Favoritism, and Guilt in the Allocation of Family Resources: Sophie’s Choice in Mao’s Mass Send-Down Movement. *Journal of Political Economy* 118(1), 1–38.
- Liu, X. (2012). Shi Nian Zhi Qing Yi Sheng Cai Fu . *West China Development* (04).
- Meng, X. and R. G. Gregory (2002, July). The Impact of Interrupted Education on Subsequent Educational Attainment: A Cost of the Chinese Cultural Revolution. *Economic Development and Cultural Change* 50(4), 935–959.
- Oster, E. (2014). Unobservable selection and coefficient stability: Theory and evidence. *Journal of Business & Economic Statistics*.

- Pan, Y. (2002). An Examination of the Goals of the Rustication Program in the People's Republic of China. *Journal of Contemporary China* 11(31), 361–379.
- Pan, Y. (2003). *Tempered in the revolutionary furnace: China's youth in the rustication movement*. Lexington Books.
- Ruiz, I. and C. Vargas-Silva (2013). The economics of forced migration. *The Journal of Development Studies* 49(6), 772–784.
- Shemyakina, O. (2011). The effect of armed conflict on accumulation of schooling: Results from tajikistan. *Journal of Development Economics* 95(2), 186–200.
- Tang, Z. (2012). "Zhi Qing" Shi Bi Cai Fu . *Business Weekly* (12).
- Todd, P. and K. I. Wolpin (2007). The production of cognitive achievement in children: Home, school, and racial test score gaps. *Journal of Human Capital* 1(1), 91–136.
- Wang, H. (2006). Zhi Qing Jing Li Rang Wo Jian Reng Bu Ba . *China State Farms* (09).
- Wang, S. and W. Zhou (2017). The unintended long-term consequences of maos mass send-down movement: Marriage, social network, and happiness. *World Development* 90, 344–359.
- Xie, Y., Y. Jiang, and E. Greenman (2008a). Did Send-down Experience Benefit Youth? A Reevaluation of the Social Consequences of Forced Urban-rural Migration during China's Cultural Revolution. *Social Science Research* 37(2), 686–700.
- Xie, Y., Y. Jiang, and E. Greenman (2008b, June). Did send-down experience benefit youth? A reevaluation of the social consequences of forced urban-rural migration during China's Cultural Revolution. *Social Science Research* 37(2), 686–700.
- Yang, F. (1992). Hui Cheng Zhi Qing Sheng Cun Xian Zhuang Pou Xi . *China State Farms* (01).
- Zhou, W. (2013). How Does A Traumatic Experience During Youth Affect Later Life? The Long Term Impact of the Send-down Program during the Chinese Cultural Revolution. Working Paper.
- Zhou, X. and L. Hou (1999). Children of the Cultural Revolution: The State and the Life Course in the People's Republic of China. *American Sociological Review* 64(1), 12–36.

Figure 1: Number of Send-downs by Year

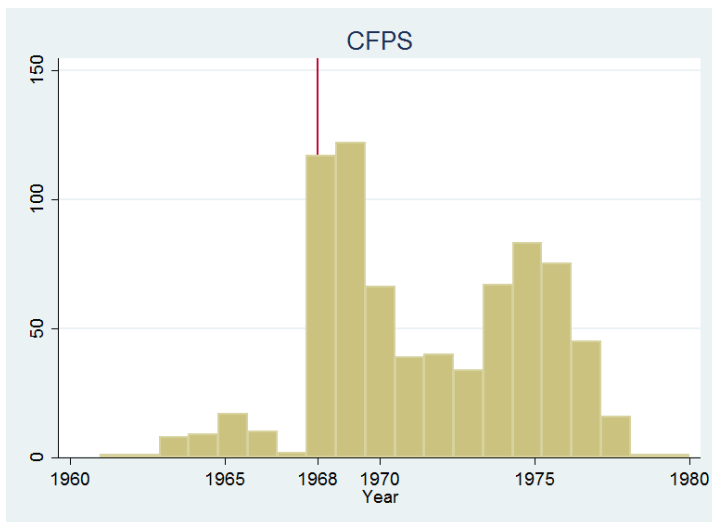
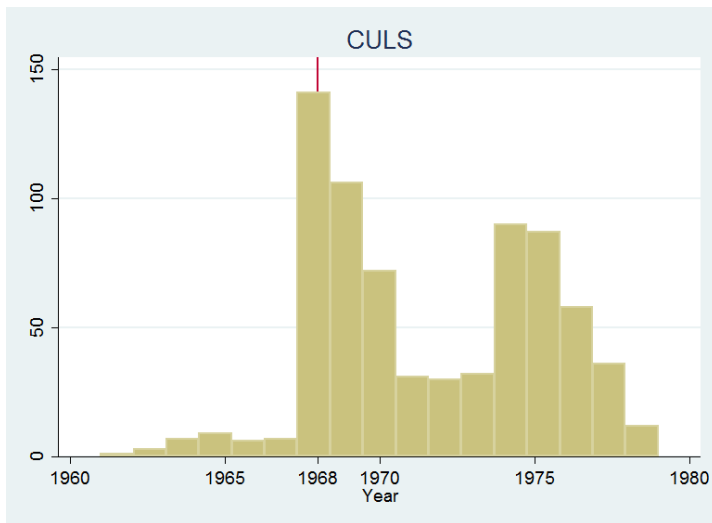
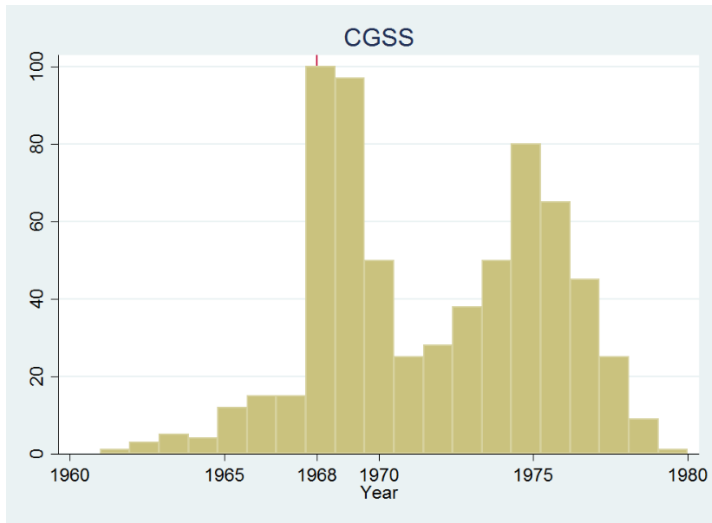


Figure 2: Age of Being Sent Down

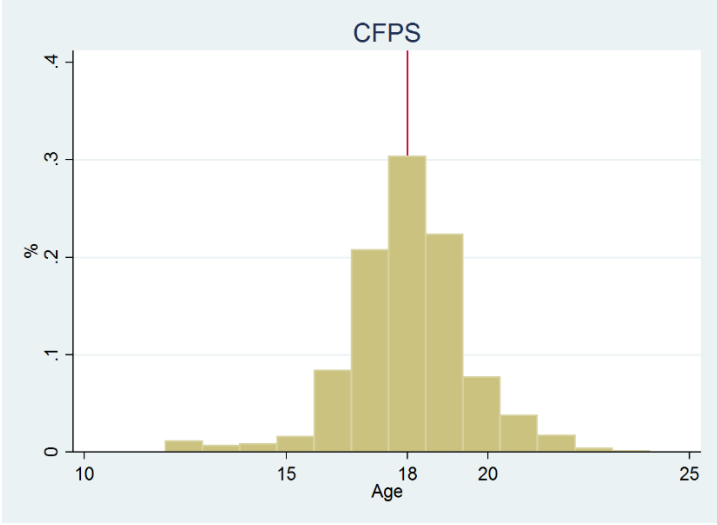
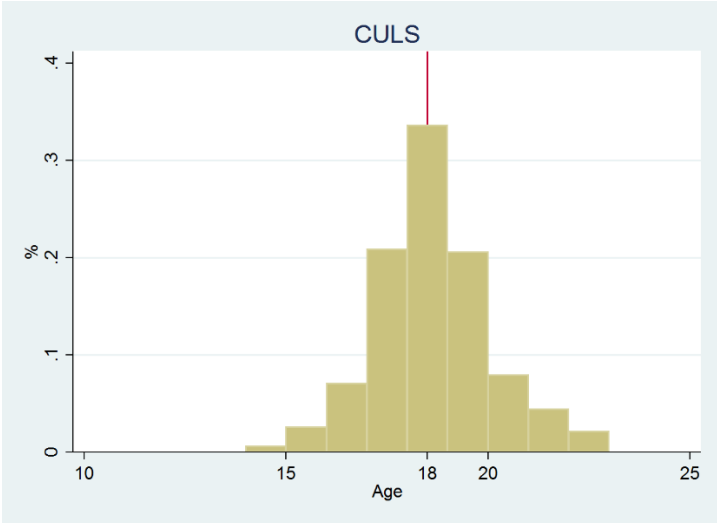
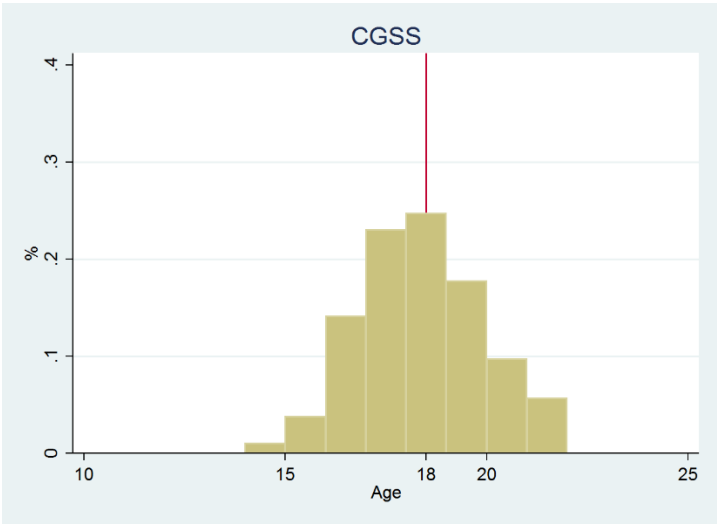




Table 1: Individuals' Re-schooling Decision and Their Basic Characteristics

	Send-downs		Non-send-downs	
	Mean	SD	Mean	SD
<b>CGSS2003</b>				
Re-schooling	0.24	0.43	0.16	0.37
Length of Re-schooling	2.68	0.96	2.67	1.04
Year Started Re-schooling	1983	5.83	1985	5.73
Middle School Degree before 1978	0.61	0.49	0.67	0.47
Female	0.56	0.50	0.51	0.50
Age	49.93	4.07	48.39	5.55
Obs.	347		1040	
<b>CULS</b>				
Re-schooling	0.19	0.39	0.12	0.32
Length of Re-schooling	2.91	0.76	2.84	0.77
Year Started Re-schooling	1982	6.59	1983	6.33
Middle School Degree before 1978	0.58	0.49	0.59	0.49
Female	0.51	0.50	0.50	0.50
Age	47.10	3.62	46.07	5.24
Obs.	850		1797	

Table 2: Children's Education Outcomes and Their Basic Characteristics

	Children of Send-downs		Children of Non-send-downs	
	Mean	SD	Mean	SD
<b>CGSS2006</b>				
College (Age≥18)	0.56	0.50	0.49	0.50
Obs.	236		745	
Years of Education	13.34	2.40	12.76	2.48
Age	25.13	4.62	23.35	5.66
Female	0.46	0.50	0.45	0.50
Obs.	248		881	
<b>CFPS</b>				
College (Age≥18)	0.67	0.47	0.56	0.50
Obs.	621		1268	
Years of Education	14.31	2.55	13.53	2.76
Age	28.47	4.40	26.67	5.71
Female	0.46	0.50	0.45	0.50
Obs.	623		1290	

Note: Sample is restricted to children aged 15 years or above. College enrollment is calculated among children aged 18 years or above.

Table 3: Individuals' Characteristics During the Cultural Revolution

	Send-down		Non-send-down	
	Mean	SD	Mean	SD
<i>Individuals' Family Backgrounds At Age 18</i>				
<i>Father:</i>				
Years of Education	6.24	4.54	5.44	4.29
High-ranking officer in government or state/collective-owned firms	0.05	0.22	0.03	0.17
Party Member	0.25	0.43	0.20	0.40
<i>Work Place:</i>				
Government	0.07	0.26	0.05	0.21
Private Firm	0.03	0.15	0.03	0.19
<i>Occupation:</i>				
Management or Skilled White-collar	0.13	0.34	0.10	0.30
Unskilled White-collar	0.25	0.43	0.22	0.42
Blue-collar	0.37	0.48	0.38	0.48
<i>Mother:</i>				
Years of Education	3.76	4.23	3.34	4.05
High-ranking officer in government or state/collective-owned firms	0.01	0.09	0.01	0.09
Party Member	0.07	0.25	0.04	0.20
<i>Work Place:</i>				
Government	0.02	0.14	0.01	0.11
Private Firm	0.01	0.12	0.02	0.12
<i>Occupation:</i>				
Management or Skilled White-collar	0.30	0.46	0.21	0.41
Unskilled White	0.12	0.32	0.09	0.29
Blue-collar	0.42	0.49	0.41	0.49
Obs.	595		1921	

Data source: CGSS 2003 and 2006.

Table 4: Estimated Effects of the Send-down Experience on Re-schooling Decision

	Dependent Variable : Re-schooling			
	(1)	(2)	(3)	(4)
<b>Panel A: CGSS2003</b>				
Senddown	0.090*** (0.032)	0.068** (0.029)	0.072** (0.030)	
Family Background		Yes	Yes	
Basic Characteristics			Yes	
Observations	1,387	1,387	1,387	
R-squared	0.042	0.066	0.121	
<b>Panel B: CULS</b>				
Senddown	0.074*** (0.018)	0.071*** (0.018)	0.067*** (0.017)	0.064*** (0.017)
Family Background		Yes	Yes	Yes
Sibling Characteristics			Yes	Yes
Basic Characteristics				Yes
Observations	2,762	2,655	2,655	2,655
R-squared	0.011	0.038	0.077	0.091

Note: Province dummies are included in all regressions. Basic Characteristics in both Panel A and B include gender, age and a dummy variable indicating whether the individual is a middle school graduate or a high school graduate by the end of 1978. Family background in Panel A includes both father and mother's years of education, Communist Party Membership, work place dummies (either work at government, private firm or others), one digit occupation dummies (either management skilled White-collar, unskilled White-collar, or Blue-collar) and a dummy variable indicating whether one was a high-ranking officer in the government or the state/collective-owned firms. Family background in Panel B includes both father and mother's years of education, and dummy variables indicating family class during the Cultural Revolution, i.e., either workers, businessmen, landholders or others. Sibling Characteristics include number of siblings and each siblings characteristics (up to four siblings): female dummy, age gap with the respondent and years of education. Standard errors are clustered at county level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 5: Estimated Intergenerational Effect of the Send-down Experience: College Enrollment

	Dependent Variable : College (Children, Age≥18)			
	(1)	(2)	(3)	(4)
<b>Panel A: CGSS2006</b>				
Senddown	0.068*	0.065*	0.065*	
	(0.037)	(0.036)	(0.035)	
Family Background		Yes	Yes	
Children's Basic Characteristics			Yes	
Observations	981	981	981	
R-squared	0.080	0.106	0.187	
<b>Panel B: CFPS</b>				
Senddown	0.109***	0.105***	0.109***	0.090***
	(0.030)	(0.030)	(0.031)	(0.031)
Family Background		Yes	Yes	Yes
Sibling Characteristics			Yes	Yes
Children's Basic Characteristics				Yes
Observations	1,889	1,889	1,858	1,858
R-squared	0.047	0.047	0.063	0.081

Note: Sample is restricted to children aged 18 years or above. Province dummies are included in all regressions. Children's Basic Characteristics in both Panel A and B include children's gender and age. Family background in Panel A includes both father and mother's years of education, Communist Party Membership, work place dummies (either work at government, private firm or others,) one digit occupation dummies (either management/skilled White-collar, unskilled White-collar, or Blue-collar) and a dummy variable indicating whether one was a high-ranking officer in the government or the state/collective-owned firms. Family background in Panel B includes both father and mother's years of education, and dummy variables indicating family class during the Cultural Revolution, i.e., either workers, businessmen, landholders or others. Sibling Characteristics include number of siblings and each siblings characteristics (up to four siblings): female dummy, age gap with the respondent and years of education. Standard errors are clustered at county level. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Table 6: Estimated Intergenerational Effect of the Send-down Experience: Years of Education

	Dependent Variable : Yeas of Education (Children)			
	(1)	(2)	(3)	(4)
<b>Panel A: CGSS2006</b>				
Senddown	0.566*** (0.172)	0.512*** (0.169)	0.449*** (0.160)	
Family Background		Yes	Yes	
Children' Basic Characteristics			Yes	
Observations	1,129	1,129	1,129	
R-squared	0.116	0.138	0.225	
<b>Panel B: CFPS</b>				
Senddown	0.585*** (0.167)	0.568*** (0.169)	0.589*** (0.178)	0.472*** (0.179)
Family Background		Yes	Yes	Yes
Sibling Characteristics			Yes	Yes
Children' Basic Characteristics				Yes
Observations	1,913	1,913	1,882	1,882
R-squared	0.052	0.054	0.069	0.087

Note: Province dummies are included in all regressions. Children's Basic Characteristics in both Panel A and B include children's gender and age. Family background in Panel A includes both father and mother's years of education, Communist Party Membership, work place dummies (either work at government, private firm or others,) one digit occupation dummies (either management/skilled White-collar, unskilled White-collar, or Blue-collar) and a dummy variable indicating whether one was a high-ranking officer in the government or the state/collective-owned firms. Family background in Panel B includes both father and mother's years of education, and dummy variables indicating family class during the Cultural Revolution, i.e., either workers, businessmen, landholders or others. Sibling Characteristics include number of siblings and each siblings characteristics (up to four siblings): female dummy, age gap with the respondent and years of education. Standard errors are clustered at county level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Table 7: Robustness Check

	Dependent Variable					
	Re-schooling		College (Children, Age≥18)		Years of Education (Children)	
	CGSS2003 (1)	CULS (2)	CGSS2006 (3)	CFPS (4)	CGSS2006 (5)	CFPS (6)
Panel A: Propensity Matching						
Kernel	0.075*** (0.027)	0.069*** (0.015)	0.066* (0.038)	0.079*** (0.025)	0.472*** (0.178)	0.503*** (0.176)
Nearest 5	0.076*** (0.027)	0.067*** (0.016)	0.065* (0.039)	0.079*** (0.025)	0.432*** (0.182)	0.457*** (0.178)
Obs.	1,387	2,655	981	1,858	1,129	1,882
Panel B:						
Bound Estimates	[0.067, 0.071]	[0.063, 0.066]	[0.061, 0.065]	[0.081, 0.09]	[0.404, 0.45]	[0.428, 0.472]
Obs.	1,387	2,655	981	1,858	1,129	1,882
Panel C:						
Using Intensity of the Send-down Program as IV		0.075** (0.010)				
Kleibergen-Paap F-statistic		14.645				
Obs.		1,462				
Panel D:						
Parents Had College Education Dropped	0.055* (0.030)	0.060*** (0.016)	0.075** (0.037)	0.093*** (0.031)	0.435** (0.172)	0.454** -0.181
Obs.	1,306	2,466	946	1,812	1,088	1,833
Panel E:						
Parents Worked in Private Firms or Owned Private Firms Dropped	0.071** (0.031)	0.060*** (0.017)	0.069* (0.035)	0.091*** (0.029)	0.482*** (0.166)	0.438** -0.172
Obs.	1,343	2,505	929	1,705	1,074	1,727
Panel F:						
Parents Worked at Government Dropped	0.054* (0.030)		0.066* (0.037)		0.455*** (0.167)	
Obs.	1,286		941		1,085	

Table 7 (continued)

	Dependent Variable					
	Re-schooling		College (Children, Age≥18)		Years of Education (Children)	
	CGSS2003 (1)	CULS (2)	CGSS2006 (3)	CFPS (4)	CGSS2006 (5)	CFPS (6)
Panel G:						
Parents Were High Rank Officers in Government or SOFs Dropped	0.070** (0.030)		0.067* (0.037)		0.411** (0.166)	
Obs.	1,331		941		1,082	
Panel H:						
One Child Family Only			0.066* (0.038)	0.072** (0.031)	0.375** (0.172)	0.389** (0.174)
Obs.			868	1,630	1,013	1,653

Note: All regressions use full specifications: Column 1 controls for family background and basic characteristics; column 2 controls for family background, sibling characteristics and basic characteristics; column 3 and 5 controls for family background and children basic characteristics; column 4 and 6 controls for family background, sibling characteristics and children basic characteristics. Panel C further controls for a set of city-year level macro characteristics in 1960s and 1970s. Except Panel C, standard errors are clustered at county level. Standard errors in Panel C is clustered at city level. The p-values of Wild-t are calculated using the wild bootstrap-t procedure in Panel C. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.



Table 8: The Send-down Effect on Re-schooling, Excluding Individuals Who Had Re-schooling before 1980

	Dependent Variable: Re-schooling	
	CGSS2003	CULS
Senddown	0.047* (0.027)	0.039*** (0.014)
Observations	1,327	2,513
R-squared	0.1	0.062

Note: All columns exclude individuals who had re-schooling before 1980. Column 1 uses CGSS2003 data; the regression includes family background and basic characteristics. Column 2 uses CULS data; the regression includes family background, basic characteristics and sibling characteristics. Standard errors are clustered at county level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

Table 9: Job Characteristics of the Send-downs and the Non-send-downs during 1978-1980

	Send-down	Non-send-down	Difference
Manager	0.041	0.058	-0.017 (0.015)
Administrative Rank	0.954	0.935	0.018 (0.042)
Profession Title	0.168	0.163	0.006 (0.024)
Wage Index	184	186	-2.360 (3.710)
Obs.	290	803	1,093

Notes: China General Social Survey 2003 data is used. Only individuals who have a job during 1978-1980 are included in the sample. Standard errors are reported in parentheses.

Table 10: Education Expenditure

	Send-downs	Non-send-downs	Difference	Regression
Panel A: CULS				
Education	0.328	0.242	0.087*** (0.024)	0.086*** (0.028)
Non-education	0.438	0.413	0.025 (0.052)	0.03 (0.058)
Obs.	707	1498	2205	2205
Panel B: CGSS 2003				
Additional Fees Paid to Schools in the past (1000RMB)	2.286	1.569	0.717* (0.379)	0.892* (0.491)
Obs.	251	760	1,011	1,011

Note: Panel A reports percentage of income spend on education, non-education related expense in CULS Data. Additional Fees Paid to Schools are calculated based on the CGSS2003 question "Apart from tuition uniformly regulated by the state and the local government, did your family ever make sponsorship contributions, pay self-financing fees, or pay charges for choosing a school to attend?" and the total amount paid in the past if the answer is yes. All regressions in the last column use full specifications: regressions Panel A controls for family background, sibling characteristics and basic characteristics; Panel B controls for family background and basic characteristics. Standard errors are clustered at county level. \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .