



# Did send-down experience benefit youth? A reevaluation of the social consequences of forced urban–rural migration during China’s Cultural Revolution <sup>☆</sup>

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## Abstract

During China’s Cultural Revolution, a large proportion of urban youth were forced to go to the countryside as a result of the state’s “send-down” policy. Past research has been ambivalent about the long-term social consequences for the Chinese youth who experienced send-down. Some scholars have suggested that the send-down experience may have yielded beneficial effects. To test this claim, we analyze data from the Survey of Family Life in Urban China, which we conducted in three large cities in 1999. Questions available in this data set allow us to ascertain the send-down experience of both the respondent and a sibling and educational attainment at the times of send-down and return. Our analyses of the new data show that the send-down experience does not seem to have benefited the affected Chinese youth. Differences in social outcomes between those who experienced send-down and those who did not are either non-existent or spurious due to other social processes.

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## 1. Introduction

By most accounts, including those of the current Chinese government, the Cultural Revolution in China between 1966 and 1976 was a large-scale political turmoil with disastrous social and economic consequences. The traumatic impact of this period was evidenced by the disruption of social stability, the breakdown of social norms, economic stagnation, unnecessary deaths due to violence and persecution, physical and emotional suffering throughout certain segments of the Chinese population, and lost life opportunities for a whole generation of youth who grew up during the period (Chen, 1999; Chen and Cheng, 1999; Davis, 1992; Heng

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and Shapiro, 1986; Hung and Chiu, 2003; Pye, 1986; Walder and Su, 2003; Zhou et al., 1998). The impact of the Cultural Revolution on the later lives of individuals who endured it was highly variable. At one extreme, some lost their lives and thus never made it past the Cultural Revolution (Lan, 2004; Heng and Shapiro, 1986). At the other extreme, some individuals responded to and survived nightmarish circumstances by enthusiastically pursuing strategies of adaptation (Heng and Shapiro, 1986; Zang, 2000). Between these extremes, there were innumerable ordinary young persons who were confronted by difficult challenges and endured enormous hardship during the Cultural Revolution (Thurston, 1985).

There were three concrete reasons why the children of the Cultural Revolution paid huge prices for this unprecedented political turmoil (Hung and Chiu, 2003). First, students in colleges and high schools at the time were mobilized to be the vanguard of the Cultural Revolution (as “Red Guards”). Under Mao Zedong’s Three Directives, youth in the Red Guards spent most of their time participating in political activities, varied only by industrial and agricultural work. The regular curriculum was generally abandoned. Many subject areas, including the humanities and social sciences, were “chopped off” from study programs (Bernstein, 1977; Cheng and Manning, 2003). The generation thus lost opportunities for human-capital accumulation—that is, to receive proper education and acquire skills that enhance productivity (Deng and Treiman, 1997; Walder et al., 2000). Second, colleges and universities were virtually closed for admission of new students during the Cultural Revolution until 1972, when a small number of students began to be admitted on the basis of political loyalty and family background rather than academic credentials (Shirk, 1982). The college entrance examination was not resumed until 1977. Consequently, a large majority of youths were denied the opportunity of receiving higher education during the Cultural Revolution (Chen, 1999; Davis, 1992; Meng and Gregory, 2002). Third, a large proportion of urban youth was forced to go to the countryside as a result of the state’s “send-down” policy after the Cultural Revolution began (Singer, 1971; Unger, 1980; Zhou and Hou, 1999). The social consequences of the send-down experience are the subject of this study.

## 2. Background: China’s send-down policy

The “send-down” policy was to send urban youth, upon graduation from junior high school or senior high school, “up to the mountains and down to the countryside.” Multiple factors motivated this policy of the Chinese government at the time, including the desire to alleviate urban unemployment and underemployment, the desire to cultivate Marxist ideology and communist ethics in youth, and the need to develop China’s rural areas and frontiers (Pye, 1986; Rosen, 1981; Seybolt, 1977). The policy also helped reduce the need for teachers (Deng and Treiman, 1997), who were in short supply due to intellectuals being attacked as having “bad” class backgrounds during the Cultural Revolution (Bernstein, 1977; Heng and Shapiro, 1986; Lin and Xie, 1988; Sausmikat, 2003; Singer, 1971; Walder, 1989). Although the “up to the mountains and down to the countryside” movement was started on an experimental basis before the Cultural Revolution, it was during the Cultural Revolution that it became a nation-wide policy that forced millions of Chinese urban youths to live in the countryside (Bernstein, 1977; Unger, 1979; Zhou and Hou, 1999). There was ample evidence that, despite a few well-publicized volunteers, most youths being sent away at the time were reluctant to go and tried very hard to return after arriving at their destinations (Bernstein, 1977; Chen and Cheng, 1999; Gold, 1980; Lan, 2004; Rosen, 1981; Unger, 1979; Zhou and Hou, 1999).

The main reason that youths and their parents resisted the send-down policy and tried their best to return to cities was that city residents enjoyed many advantages relative to residents of rural areas. Net of family background and other demographic attributes, people living in the countryside had inferior life chances. For example, they had no direct access to quality schools, non-agricultural urban jobs, elderly support, modern health facilities, state-owned housing, or many other benefits that were enjoyed by urban dwellers (Bian, 2002; Liang, 2001; Liang and White, 1996; Wu and Treiman, 2004). The disadvantages of rural residence are attested to by the fact that there has been virtually no voluntary mobility from urban to rural areas in the post-1949 history of China (Wu and Treiman, 2004). In 1955, the government stipulated a household registration system (*hukou*), which basically classified the population into “rural” and “urban” residence status. Prior to the 1978 economic reform, Chinese people were restricted from moving at will to other places without government approval. The most common justifications for rural-to-urban migration included pursuit of post-secondary education in cities, military service, job recruitment in urban areas, marriage to persons with urban

residence status, and family reunion (Goldstein et al., 1991; Shixun and Xian, 1992; Walder, 1989; Walder et al., 2000; Wu and Treiman, 2004). Not only were the stated criteria hard to meet, but the approval process was also complicated, tedious, and sometimes arbitrary. As a result, family social and political networks played an important role in determining one's chances of moving from rural to urban areas (Gold, 1980; Gold, 1985; Gold, 1991; Pan, 1994; Seybolt, 1977; Shi, 1995; Singer, 1971; Unger, 1979).

Zhou and Hou's (1999) study well documents the extent to which the send-down policy affected youths in all families indiscriminately. Parental social status or political capital did not spare youths in certain privileged classes from being sent down to the countryside (Bernstein, 1977; Singer, 1971; Unger, 1979; Zhou and Hou, 1999). As Mao Zedong claimed it would, it appears that the Cultural Revolution indeed reduced social inequality (Chan, 1985; Pye, 1986; Singer, 1971). Persons from more privileged family backgrounds, such as intellectual or cadre families, were out of political favor. Their children were deprived of many opportunities, such as admission to higher educational institutions and assignment to professional and administrative positions. Meanwhile, children whose parents were peasants, workers, party members or former Red Army soldiers were given an edge in school admission, employment and promotion (Li and Walder, 2001; Liu, 1995; Seybolt, 1977; Walder, 1989; Walder et al., 2000; Zang, 2000). Gender inequality was also substantially reduced, as the gender gap in basic education narrowed during this period (Hannum and Xie, 1994). Likewise, the send-down policy served as a social leveler among youth during the Cultural Revolution, as youth from all backgrounds had an almost equal chance of being sent to the countryside.

However, as Zhou and Hou recognize, there was a great deal of heterogeneity in the duration of send-down, with some sent-down youth able to return to cities sooner than others. Therefore, social inequality in the execution of the send-down policy may have lain more in the duration of time spent in the countryside than in the probability of being sent down. Certain families may have been more successful than others at securing an early return for their children to the city (Gold, 1991). For example, families with good political and social networks may have been able to get their children priority in the process of being selected to return, perhaps after only one or two years' stay in rural areas (Gold, 1980; Rosen, 1981; Unger, 1979). Finally, in 1979 the government began to implement a nation-wide policy that allowed all sent-down youth to return to their cities of origin, except for those who were married to local residents or were employed in non-agricultural jobs in local areas (Zhou and Hou, 1999).

Zhou and Hou's (1999) study shows that sent-down youths clearly suffered in terms of delayed age of marriage and delayed age of child-bearing. However, their study remains ambivalent about the consequences of send-down on socioeconomic outcomes. While it finds either nil or negative effects of send-down on income and occupation, it also reports some benefits (Zhou and Hou, 1999, p. 32):

More interestingly, our findings also reveal some positive consequences of the send-down experience. For instance, when compared with urban youth, a noticeably higher proportion of the send-down youth attained a college education after 1977. Partly as a result of their educational attainment, these sent-down youth, especially those with shorter rural durations, were equally likely to enter favorable employment (type of occupation and work organizations) in the urban labor force, despite their relatively short *urban* labor force experience.

In their commentary that accompanied Zhou and Hou's article, Chen and Cheng (1999) applaud Zhou and Hou's finding of "some positive life effects from send-down experiences" (p.38) and speculate various reasons for this finding. Chen and Cheng suggest that the unusual hardship faced by sent-down youth forced them to be more adaptive and thus acquire skills to survive, which positioned them well in the later period of economic reform. Note that Zhou, Chen, and Cheng were all sent-down youth themselves. The notion that the seemingly miserable experience of being sent down might have yielded long-term beneficial effects fits well with the collective nostalgia of sent-down youth of that era (Yang, 2003; Zhao, 1994). As appealing as this notion may appear to some Chinese who grew up during the Cultural Revolution, however, we are not convinced that the empirical evidence supports it.

Let us for the moment entertain a commonly invoked working proposition that human beings are rational and base their preferences and behaviors on expected outcomes that affect them (Heckman, 2001). Thus, the strong resistance to being sent down among the affected youths would lead us to infer that the send-down experience could cause negative consequences for them, at least in expectation. Accepting the notion that

send-down could have benefited the very youths who resisted it is tantamount to asserting that these youths were so blinded by their short-term interests (i.e., material comfort and convenience) as to overlook the long-term benefits. Indeed, this is what Chen and Cheng suggest (“short-term negative with long-term positive consequences” (Chen and Cheng: p. 37)). Since human rationality is always limited by available information, it is plausible that the youths being sent down did not anticipate the benefits that the send-down experience would later bestow upon them, which Mao Zedong and other Chinese leaders had persistently promised (Gold, 1991; Seybolt, 1977; Singer, 1971). However, we are now more than 30 years past the Cultural Revolution. Persons who were sent down are now parents of children who have grown up. If send-down was indeed beneficial, this raises the question of why there has not been a widespread demand from parents who experienced send-down to resume this policy.

Clearly, like any social intervention or historical change, send-down has had different effects on different individuals (Elder, 1999; Heckman, 2001). Such heterogeneity of treatment effects makes it difficult to characterize the social consequences of the send-down experience. Given the impossibility of observing the counterfactual outcome of not being sent down for someone who was sent down, we cannot measure the treatment effect of the send-down experience at the individual level. Thus, the discussion of the social consequences of the send-down experience has to be at the aggregate level. It is possible that send-down had some positive effects for some members of the population but negative effects for other members of the population, yielding no discernable average differences between those who were sent down and those who stayed in cities. We know from previous research on massive social upheavals that although all members of a society may be affected, the effects vary across social groups. For example, experiences of the Great Depression are known to vary by age, sex, social class, rural versus urban residence, and life-course stage (Elder, 1977; Elder, 1999; Elder and Shanahan, 2006).

Another explanation for the absence of negative effects of send-down is that the youth who stayed in cities also faced dire circumstances for socioeconomic advancement, as they were not given opportunities to pursue post-secondary education and could not find desirable jobs or migrate to other cities. Instead, they could only work in assigned positions, most of which were low-level manual and service jobs.

Furthermore, even in the face of extreme hardships, human beings can be incredibly adaptive and resilient. They often endure and indeed overcome various hardships and traumatic events imposed by natural disasters, illnesses, poverty, war, crimes, betrayals, imprisonment, economic losses, losses of loved ones, public humiliation, and many other sources of misery. In modern history, there is no shortage of instances in which persons in dire circumstances ended up achieving great successes against all odds. For example, some of the children of the Great Depression achieved remarkable success by midlife, even though they suffered greatly from economic hardship during adolescence (Elder, 1999). Thus, it is possible that many of the sent-down youth found ways to cope with and survive the hardships imposed by send-down, making it hard to discern negative effects of the policy. However, one should not equate humans’ ability to adapt to and overcome difficult circumstances with *benefits* of experiencing difficult circumstances. Even if youth were able to find ways to circumvent negative long-term social consequences of send-down, it would be a stretch from this to claim that they actually benefited from the policy.

With this background, let us now proceed to our analysis. In this study, we are interested in evaluating the claim that the send-down experience may have had beneficial effects. To test this claim, we analyze data from the survey of Family Life in Urban China that we conducted in three large cities in 1999. A battery of questions available in this survey allowed us to ascertain the send-down experience of both the respondent and a sibling and educational attainment at the times of send-down and return.

### 3. Data and research design

Zhou and Hou’s (1999) study is based on a cross-sectional survey of urban residents conducted in 1993 and 1994. There are two reasons why their findings may be questioned. First, some youth who were sent down may have stayed in the countryside or gone to other cities, making the comparison of those with send-down experience and those without send-down experience in selected cities problematic. Second, Zhou and Hou’s important findings about the differences associated with duration of rural residence render it necessary to pay closer attention to the selection process of early returns.

In order to address these two concerns, we capitalize on a unique feature of our data. The data came from a survey, “Study of Family Life in Urban China,” which we conducted in the summer of 1999 in three Chinese cities: Shanghai, Wuhan, and Xi’an. We also refer to the study as the “Three-City Survey.” In the Three-City Survey, we collected information about send-down experiences and socioeconomic attainment not only for the respondent but also for the sibling (if available) closest in age to the respondent. During the Cultural Revolution, local government policy typically dictated a formulaic assignment of send-down (such as keeping a family’s oldest, or youngest, child in the city) with no apparent rationality when a family had more than one child (Shi, 1995; Unger, 1979). Thus, the comparison of siblings who were sent down with those who were not constitutes an ideal research design that mimics a true experiment. This sibling comparison model allows us to reach a more definitive answer than Zhou and Hou as to the true influence of send-down experiences on life chances.

Furthermore, we collected detailed educational histories, including years spent in attaining each level of schooling and the dates of completing different levels of schooling (i.e., elementary, junior high school, senior high school, junior college, college, and graduate school).<sup>1</sup> With this time-varying information, we are able to ascertain the years and levels of education that were completed *before* a youth was sent down and *when* a youth was returning to a city. Thus, we are able to compare differences between the short-term sent-down youth and long-term sent-down youth in education completed both before and after the send-down experience.

At each of the research sites, the Three-City Study initially targeted a probability sample of 1000 households, with a two-stage probability sampling method. At the first stage, 50 neighborhood communities were randomly chosen in proportion to size. Within each selected neighborhood community, 20 households were randomly chosen. A Kish table was used to select an adult respondent (18 years or older) within each selected household. If the person being interviewed was younger than 60, we first interviewed the person with Questionnaire A. We then interviewed one of his/her parents with Questionnaire A+, which was specifically tailored to the elderly. If the person initially selected was 60 years or older, we interviewed the person with Questionnaire B, which is similar to Questionnaire A+ for elderly respondents. We then randomly selected one of his/her children for an interview with Questionnaire B+, which is very similar in content to Questionnaire A for adult respondents.

We pool all respondents who answered Questionnaire A and Questionnaire B+ across the three cities. For this study, we restrict the analysis to respondents who were between ages 37 and 48 with urban origin. They were born in the years between 1951 and 1962 and faced the risk of being sent down during the Cultural Revolution (Bernstein, 1977; Zhou and Hou, 1999). To control for average differences in socioeconomic outcomes across the cities, we include dummy variables for cities in regression analyses.

We examine a total of six socioeconomic indicators in this study. They are: (1) likelihood of attaining a college education, including junior college, (2) years of schooling attained, (3) annual salary in 1998 (RMB yuan), (4) total annual income in 1998 (RMB yuan), (5) likelihood of being a cadre, and (6) socioeconomic status measured by the International Socioeconomic Index (SEI). In addition to regular salary, total income includes bonuses, cash subsidies, and other sources of income. Both cadre status and SEI were based on self-reported detailed current occupation coded into a three-digit occupational classification system developed by the China State Statistical Bureau.

The statistical analyses proceed in four stages. In the first stage, we present differences in a variety of socioeconomic indicators between respondents who experienced send-down and those who did not experience send-down. We provide both simple descriptive (unadjusted) comparisons and group comparisons adjusted for differences in covariates through regression analyses. The covariates used in the regression analyses include age, sex, work experience, city of residence, father’s educational level, parents’ cadre status, and father’s socioeconomic status measured by the International Socioeconomic Index (SEI) of the occupation when respondents were 16 years old. In the second stage, we present results from a fixed-effects model capitalizing on the sibling structure in our data. In the third stage, we use logistic hazard models to investigate what factors

<sup>1</sup> Unfortunately, we did not collect the dates at which the respondents began each level of schooling. We impute the beginning dates from the date of completion and the duration at each level of schooling.

might have sped up youths' return to the cities. In the fourth and last stage, we examine educational attainment closely as a time-varying covariate and its endogenous role in affecting early returns of sent-down youth.

#### 4. Unadjusted and adjusted comparisons

In Table 1, we compare descriptive differences in six major indicators of socioeconomic status between respondents with send-down experience and respondents without send-down experience, preceded by the comparisons of the two groups' key demographic characteristics (i.e., age and sex) in the first two rows. Our data include 650 respondents without send-down experience and 481 respondents with send-down experience. We compare the two groups in the first two columns. Following Zhou and Hou (1999), we further break down respondents who were sent down into those with shorter-duration (under six years) send-down experience and those with longer-duration (six or more years) send-down experience, presented in the last two columns.<sup>2</sup> Statistical significance refers to the test between the group of respondents with no send-down experience (the first column) and a group of respondents with send-down experience (the next three columns).

Respondents who experienced send-down were on average older than respondents who did not, and this difference is statistically significant. As we will discuss later in the paper, this may reflect policies that often required the send-down of older siblings (Shi, 1995). The sex composition appears to be more masculine among sent-down respondents than among non-sent-down respondents, although this difference is not statistically significant. For all of the six socioeconomic indicators, we do not find any significant difference between sent-down respondents and non-sent-down respondents. The uniformity of these results is surprising.

In the last two columns, when we break down the respondents with send-down experience by send-down duration, we find some significant differences. In particular, we are able to confirm Zhou and Hou's result that persons who were sent down for a shorter duration (under six years) seem to enjoy an educational advantage over persons who were not sent down. However, persons who were sent down for a longer duration appear worse off than persons who were not sent down. In our data, those who experienced short-term send-down have a 15.2% rate of attaining college education, compared to a 10.9% rate for respondents without send-down experience and a 3.0% rate for respondents who were sent down for six or more years. In terms of years of education attained, respondents with short-term send-down experience enjoyed a significant advantage at 11.3 years, compared to 11 years for those not sent down and 9.4 years for those with long-term send-down experience. Thus, the results give the appearance that short-term send-down has had beneficial effects on educational attainment.

In terms of earnings, we also see significant differences between the group without send-down experience and the two send-down groups with different durations. Those with a longer duration have higher salaries and total incomes (6083 and 10,542 RMB yuan respectively) compared to those without send-down experience. Those with shorter duration have lower salaries and total incomes (4567 and 7976 RMB yuan, respectively) than those without send-down experience. However, this discrepancy is artificial, since regional differences are not taken into account in this simple comparison. In fact, most respondents with long-duration send-down experience (75%) resided in Shanghai rather than in the other two cities. Economic development has been regionally uneven during China's economic reform (Xie and Hannum, 1996). The three research sites were chosen to represent different levels of economic development in urban China, with Shanghai leading the pack, Xi'an falling behind, and Wuhan in between. In our data, the average salary levels were 6089 in

<sup>2</sup> In Table 1, we replicated Zhou and Hou's results by breaking down the send-down group into two groups using six-year duration in rural areas as the cut point. Their rationale for this cut point is that 50% of respondents in their sample returned to the city within six years. Our sample, however, differs substantially from Zhou and Hou's in the average length of send-down. More than half of the people in our sample stayed in rural areas for three years or less. Therefore, we also used three years as a cut point for our analysis to see whether it would substantially affect the results. Most of the results (not shown, available upon request) are very similar to those in Table 1: the signs are in the same direction, the significance levels for most of the results remain about the same, and the magnitudes of the differences do not change substantially. Nevertheless, some differences between the group with longer duration and the group who was not sent down become statistically insignificant, including percent with college education, annual salary and total annual income. These results reveal that people who stayed in rural areas for three to six years are more similar to those who stayed for under three years than to those who stayed more than six. We thus stay with Zhou and Hou's classification.

Table 1  
Descriptive differences between respondents with send-down experience and respondents without send-down experience

	Not sent down	Sent down	Sent-down duration <6	Sent-down duration 6+
Age	41.4	43.8***	43.4***	44.9***
Sex (% female)	51.7	47.6	49.3	43.2*
College education (%)	10.9	11.9	15.2*	3.0***
Years of schooling	11.0	10.8	11.3**	9.4***
Annual salary (yuan)	5317	4983	4567***	6083***
Total annual income (yuan)	8470	8680	7976	10,542***
Cadre (%)	5.3	6.3	6.6	5.3
SEI	42.5	42.0	42.6	40.6
N	650	481	349	132

Notes: \*  $p < .1$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ , where  $p$  refers to  $p$ -values for statistical tests for the equality null hypothesis that there is no difference between the group without send-down experience (the first column) and a group with send-down experience (one of the next three columns).

Data Source: the main sample of 1999 Social Survey in Shanghai, Wuhan, and Xi'an. Analyses are restricted to respondents between ages 37 and 48 with urban origin.

Shanghai, 5384 in Wuhan, and 3256 in Xi'an. Once we control for region, there are no more statistical differences in either salary or total income (not reported here; see Table 2 for a related result).

The above example illustrates the need to control for relevant characteristics before we draw any conclusions by send-down status. In Table 2, we report results from regression analyses that control for relevant covariates. Since the inclusion of the predictors statistically adjusts for group differences in these dimensions, we call the results “adjusted comparisons,” in contrast to “unadjusted comparisons” based on descriptive statistics reported in Table 1. Again, we focus on the six socioeconomic outcomes.

Depending on the nature of the outcome variables, we use two different scales for comparisons. For continuously measured outcome variables, we use the difference in mean:

$$E(Y_s) - E(Y_0), \quad (1)$$

where  $E(Y_0)$  represents the average value for the group without send-down experience, and  $E(Y_s)$  represents the average value for the  $s$ th group with send-down experience. In our study,  $s$  could refer to one of the three groups: (1) all those with send-down experience, (2) those with short-duration send-down experience, and (3) those with long-duration send-down experience. For dichotomous outcome variables, we use the logit scale that measures the log-odds-ratio:

$$\log(P_s/(1 - P_s)) - \log(P_0/(1 - P_0)), \quad (2)$$

where  $P_0$  represents the probability for the group without send-down experience, and  $P_s$  represents the probability of the  $s$ th group with send-down experience. In both scales, a positive number indicates an advantage of the send-down experience. Conversely, a negative number indicates a disadvantage.

We now adjust for a slightly different set of covariates for each of three pairs of outcomes, reflecting our understanding of which factors are most relevant for different socioeconomic outcomes. For college education and years of schooling, we include age, sex, city of residence, father's education, father's SEI, and parents' cadre status. For annual salary and total income, we include sex, city of residence, education and work experience. For cadre status and SEI, we include sex, age, city of residence, years of schooling, father's education, father's SEI, and parents' cadre status.

The unadjusted results (left panel) were earlier presented and discussed in Table 1, although they are now in different metrics for comparison. Let us focus on adjusted results in the right panel. For the first comparison between all sent-down respondents and non-sent-down respondents, the only statistically significant result is that of years of schooling. We observe that, after adjustment for city and family background, those who experienced send-down enjoy an advantage of having attained 0.31 more years of schooling. This result lends more credence to Zhou and Hou's suggestion that send-down may have a beneficial educational effect. The second and third comparisons show that this beneficial effect is highly dependent on send-down duration. While the respondents who experienced short-duration send-down (<6 years) enjoy a 0.64 year educational advantage

Table 2  
Unadjusted and adjusted differences in socioeconomic outcomes between respondents with send-down experience and respondents without send-down experience

	Scale	Unadjusted			Adjusted		
		Sent down vs. not sent down	Sent down <6 vs. not sent down	Sent down ≥ 6 vs. not sent down	Sent down vs. not sent down	Sent down <6 vs. not sent down	Sent down ≥ 6 vs. not sent down
College education	Log-Odds-Ratio	0.09	0.38*	−1.37**	0.04	0.30	−1.33**
Years of schooling	Difference	−0.18	0.34**	−1.54***	0.31**	0.64***	−0.53**
Log of annual salary (yuan)	Difference	−0.07	−0.16***	0.19***	−0.02	−0.03	0.02
Log of total annual income (yuan)	Difference	0.04	−0.03	0.23***	0.07	0.07	0.06
Cadre (%)	Log-Odds-Ratio	0.18	0.24	0.01	0.07	0.03	0.16
SEI	Difference	−0.48	0.05	−1.88	−0.86	−1.45	0.59

Notes: \*  $p < .1$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ , where  $p$  refers to  $p$ -values for statistical tests for the equality null hypothesis that there is no difference between the group “not sent down” and a group “sent down.”

Adjustment is through regression analysis controlling for the following variables.

College education and years of schooling: city, father’s education, father’s SEI, parents’ cadre status, sex, and age.

Annual salary and total income: city, education, sex, and work experience.

Cadre and SEI: city, years of schooling, father’s education, father’s SEI, parents’ cadre status, sex, and age.

Data source: the main sample of 1999 Social Survey in Shanghai, Wuhan, and Xi’an. Analyses are restricted to respondents between ages 37 and 48 with urban origin.

Table 3  
Results from fixed-effects analyses using sibling pairs

	Not sent down	Sent down	$\delta$
Age	41.9	43.2	-1.2***
Sex (% female)	50.9	39.0	11.9***
College education (%)	11.4	11.7	-0.3
Years of schooling	11.2	11.0	0.2
Cadre (%)	8.9	5.4	3.5
SEI	43.7	44.5	-0.7
N	344	344	

Notes: \*  $p < .1$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ , where  $p$  refers to  $p$ -values for statistical tests for the equality null hypothesis that there is no difference between respondents/sibs who were not sent down and respondents/sibs who were sent down.

Data source: the main sample of 1999 Social Survey in Shanghai, Wuhan, and Xi'an. Analyses are restricted to the respondent-sibling pairs meeting the following criteria: both were between ages 37 and 48, and one of them was sent down and the other was not.

over the respondents who did not experience send-down, those respondents who were sent down for 6 or more years have a clear disadvantage compared to those who were not sent down (with a log-odds-ratio of  $-1.33$  of attending college and  $0.53$  fewer years of schooling). After the adjustment, there are no longer differences in salary or income.<sup>3</sup>

## 5. Fixed-effects results from a sibling model

The previous results appear in agreement with those of Zhou and Hou (1999), suggesting that the send-down experience, particularly a short-duration send-down experience, may have a positive effect on educational attainment. An important question then arises: Is this observed association causal?

There are two reasons why our results reported in Tables 1 and 2 and those of Zhou and Hou's study may be biased. First, family background characteristics, some of which may be unobserved, may have been associated with the likelihood of being sent down and may have also later affected youths' educational attainment. To address this question, we replicated Zhou and Hou's analyses in examining how the likelihood of being sent down may be predicted by family background characteristics. Our results confirm Zhou and Hou's conclusion that observed background characteristics do not seem to hold much explanatory power in predicting who would be sent down.<sup>4</sup> Thus, we do not find evidence suggesting that the likelihood of being sent down was selective on observables. However, we do not know whether it is selective on unobservables.

Second, some youth who were sent down may have stayed in the countryside or gone to other cities, making the comparison between those with send-down experience and those without send-down experience in selected cities problematic. Without a nationally representative longitudinal sample, this problem potentially poses a serious threat to our results as well. Zhou and Hou defend their results by arguing that most sent-down youth eventually returned to cities. However, the small percentage of youth who did not could generate a bias. In addition, not all sent-down youth returned to their cities of origin. To the extent that education is correlated with returning destination, bias is possible. One of our Three-City survey sites is Shanghai. Because Shanghai is the largest Chinese city with many universities, it is possible that many sent-down youth came to Shanghai for higher education and later stayed there, thus causing an upward bias on our estimate of the educational benefit of the send-down experience.

To address both problems, we capitalize on sibling information in our survey. As shown in Table 3, a fixed-effects model using sibling pairs controls for unobserved family-level characteristics shared by siblings. Sibling data can also address the second problem of sample selection, since we use a proxy report for the sibling's

<sup>3</sup> We also compared the unadjusted and adjusted differences in socioeconomic outcomes between respondents with short and long-term send-down experience and respondents without by using 3 years of duration as the cut point. However, there is no statistically significant difference in any of the six socioeconomic outcomes between the no send-down group and the send-down group with 3 or more years duration. Once again, this suggests that people who stayed in rural areas for 3 to 6 years are quite different from people who stay there longer than 6 years.

<sup>4</sup> Results not shown—available from authors upon request.

characteristics regardless of the sibling's current location. For this part of the analysis, respondents who either did not have a sibling or did not report a sibling were dropped from the analyses. We further restrict sibling pairs so that both were between ages 37 and 48. There are a total of 785 sibling pairs. We first examine sibling pairs with respect to the send-down experience: (respondent = yes, sibling = yes), (respondent = yes, sibling = no), (respondent = no, sibling = yes), and (respondent = no, sibling = no). The numbers of cases for the four types are 158, 193, 151, and 283, respectively. Similar to results reported in Table 1, we found that respondents and siblings who were both not sent down had slightly lower average educational attainment than other sibling pairs.<sup>5</sup>

We now use a simple fixed-effects model with two siblings per family. The fixed effects model requires that we restrict the analyses to sibling pairs in which one, and only one, of the siblings was sent down. As discussed earlier, there are 344 such pairs. Let  $j$  ( $j = 1, \dots, n$ ) denote the  $j$ th family of origin. Let  $i$  ( $i = 0, 1$ ) denote the  $i$ th sibling within a family, with  $i = 0$  denoting the sibling who was not sent down, and  $i = 1$  denoting the other sibling who was sent down. We parameterize the (additive) influence of send-down experience with a parameter  $\delta$ . The fixed-effects model is powerful in allowing for unobserved fixed family-level factors, denoted by  $\alpha_j$ , which also encompasses all observed but fixed family-level characteristics. The sibling-specific models then are:

$$y_{0j} = \alpha_j + \varepsilon_{0j} \quad (3a)$$

$$y_{1j} = \alpha_j + \delta + \varepsilon_{1j} \quad (3b)$$

Taking the difference between Eqs. (3a) and (3b) eliminates the family-level unobserved factor and leads to the following simple equation:

$$y_{1j} - y_{0j} = \delta + (\varepsilon_{1j} - \varepsilon_{0j}) \quad (4)$$

If we take the expectation of Eq. (4), we have  $E[(y_1) - (y_0)] = \delta$ . This means that the difference in social outcomes between a sent-down sibling and the other sibling results from the send-down experience, controlling for all possible family-level fixed, unobserved heterogeneity. We apply the fixed-effects model to four outcome variables—college education, years of schooling, cadre status, and socioeconomic status index (SEI).<sup>6</sup> We did not collect information on siblings' income, as we deemed a third-party report to be unreliable. In addition, the duration of send-down for siblings is not available in the data, which makes comparison between siblings with different durations in rural areas impossible. The fixed-effects results are presented in Table 3.

Although demographic characteristics preceded rather than followed send-down, we still compare them in our sibling model by send-down status. In the first two rows of Table 3, we observe that the siblings who were sent down are on average significantly older (at 43.2) than the siblings who were not sent down (at 41.9). This confirms a similar result reported in Table 1, suggesting that earlier birth-order siblings faced a higher risk of being sent down than their younger siblings. The send-down policy allowed the family to keep one child in the city (Shi, 1995; Whyte and Parish, 1984), and it is plausible that some parents would prefer, or that some local policies might require, the youngest child to stay. Further, we also find that the sent-down siblings are significantly less likely to be female than the siblings who were not sent down (39.0% versus 50.9%). Given that sent-down youth endured hard living conditions in the countryside, often in remote regions of China's western frontier, parents may have preferred to send a son rather than a daughter.

However, aside from these two key demographic characteristics, which showed statistically significant differences between the two types of siblings, we do not find any other discernible average differences in any of the four measures of socioeconomic status. Thus, we infer from the fixed effects sibling analyses that the send-down experience did not seem to have a causal impact on socioeconomic status among the youth who were affected.<sup>7</sup>

<sup>5</sup> The respondents and siblings who were both not sent down had on average 10.91 and 10.70 years of education respectively, while all other sibling pairs have at least 10.95 years of education.

<sup>6</sup> In the presence of other covariates, the fixed-effects model for binary data can take the conditional logit specification (Powers and Xie, 2000, pp. 179–183).

<sup>7</sup> Because respondent's sex is related to send-down probability and also potentially to the socioeconomic outcomes we examined, we also experimented with our fixed-effects analyses for same-sex sibling pairs. There were still no statistically significant differences in socioeconomic outcomes by send-down status between either brothers or sisters.

## 6. Endogenous role of education for early returns

There remains a puzzle as to why persons who were sent down for a shorter duration have higher levels of education than either persons who were not sent down or persons who were sent down for a longer duration—an important finding of Zhou and Hou that is confirmed in our study (Tables 1 and 2). We do not think that this finding should be interpreted as causal, as the duration of send-down is an endogenous outcome that may be affected by past schooling and is closely tied to future college education. For example, it is possible, as Zhou and Hou's study suggests, that sent-down youth with more education returned to cities at faster rates than their counterparts with less education. Thus, we next focus on the issue of endogeneity of education with respect to the duration of the send-down experience.

In the Three-City survey, we collected enough information on educational history to construct time-varying measures of attained education and enrollment status. For respondents who were sent down, we also know the year of send-down and the year of return. From these sources, we can create a few new education variables: (1) high school graduation at the time of send-down, (2) years of schooling at the time of send-down, (3) years of schooling at the time of return, and (4) college enrollment status at the time of return. We then compare differences in these variables between respondents with short-duration send-down experience and those with long-duration send-down experience. We present the results in Table 4.<sup>8</sup>

As we expected, there are very large differences in pre-send-down educational attainment between the two groups. Compared to those who stayed in the countryside for 6 or more years, respondents who were sent down for less than 6 years were older (17.94 versus 17.60) and were more likely to be high school graduates (49.57% versus 11.36%). As a result, most of the educational advantage enjoyed by the short-duration group does not have anything to do with send-down, as it existed prior to send-down. We also infer from Table 4 that youth who experienced short-duration send-down were more likely to be enrolled in college the year they returned to the city. This is a potentially important result, but we will defer commenting on it until after our discussion of factors predicting an earlier return to cities.

As we mentioned earlier, most youth who were sent down had a strong desire to return to their cities (Chen and Cheng, 1999; Gold, 1985; Rosen, 1981; Singer, 1971; Zhou and Hou, 1999). However, actually returning at an earlier date was highly competitive (Gold, 1980; Shi, 1995; Unger, 1979). In Table 5, we first present a simple logit model predicting the likelihood of a relatively early return (within six years). We include a variety of background factors that were collected by the survey, including pre-send-down education, age at send-down, sex, city of residence, and father's socioeconomic status. In a simple logistic model, pre-send-down education, age at send-down, and city of residence significantly predicted return within six years.<sup>9</sup> Pre-send-down education was a particularly important predictor of an early return: For each additional year of education attained before send-down, the odds of an early return within six years increase by almost 36% ( $\exp(0.31) - 1$ ).

In Model 2, we use a discrete-time logistic hazard model to examine the factors that influence the likelihood of returning to cities. We include the same variables as in Model 1 and add two time-varying variables—duration since send-down and additional education received during send-down, both measured in years. Once again, pre-send-down education is an important predictor of returning to the cities in this model, with each additional year of pre-send-down education increasing the odds of return in a given year by about 9%. Additional education received during send-down, however, has no significant effect on the likelihood of return. This is not surprising given that very few sent-down youths, 28 in our survey, actually attained any additional education while in the countryside. Duration since send-down, living in Wuhan or Xi'an rather than Shanghai, and father's job prestige are also related to a significantly higher likelihood of returning to cities. A one unit increase in time since send-down is predicted to increase the odds of returning to the city by 12.75%, while a one unit increase in father's job prestige is predicted to increase the odds of return by 1%. The results seem to support Zhou and Hou's argument that paternal social status and youths' duration of stay in the countryside

<sup>8</sup> In their study, Zhou and Hou only examined the return events up to the year of 1977, when the National College Entrance Exam was resumed. In our data, this would eliminate 53.64% of the respondents who returned to cities after 1977.

<sup>9</sup> Note that city of residence refers to current city of residence, not pre-send-down city of residence, which we unfortunately do not know from the survey. We include city of residence as a proxy for pre-send-down city because the majority of sent-down youth did return to their original cities.

Table 4

Unadjusted differences between respondents with short-duration send-down experience and respondents with long-duration send-down experience

	Sent down duration <6 yrs	Sent down duration ≥ 6 yrs
Age at send-down	17.94	17.60***
HS graduate at send-down (%)	49.57	11.36***
Years of schooling at send-down	10.42	9.03***
Years of schooling at return	10.52	9.20***
School enrollment in year of return (%)	13.47	1.52***
College education (%)	15.19	3.03***
Truncated sample	11.59	2.31***
Current years of schooling	11.33	9.45***
Truncated sample	11.08	9.38***
<i>N</i>	349	132

Notes: \*  $p < .1$ , \*\*  $p < .05$ , \*\*\*  $p < .01$ , where  $p$  refers to  $p$ -values for statistical tests for the equality null hypothesis that there is no difference between respondents who were sent down for less than 6 years and respondents who were sent down for 6 years or more.

Data source: the main sample of 1999 Social Survey in Shanghai, Wuhan, and Xi'an. Analyses are restricted to respondents between ages 37 and 48 with urban origin, who were sent down between 1967 and 1978. "Truncated sample" refers to the remaining sample after we exclude 49 sent-down respondents who were enrolled in school in the year of leaving the countryside.

Table 5

Logistic model of early return on selected variables

Variables	Model 1 simple logit model of return within 6 years		Model 2 discrete-time logistic hazard model of return	
	Coefficient	Standard error	Coefficient	Standard error
Pre-send-down education	0.31***	(0.08)	0.09**	(0.04)
Education gained during send-down			-0.01	(0.10)
Age at send-down	0.32***	(0.11)	0.08	(0.05)
Duration			0.12***	(0.02)
Sex (female)	-0.12	(0.29)	0.09	(0.11)
City (Shanghai = reference)				
Wuhan	3.24***	(0.33)	1.46***	(0.14)
Xi'an	3.45***	(0.46)	1.40***	(0.17)
Father's education (Less than primary school = reference)				
Primary school	0.68*	(0.38)	0.27*	(0.15)
Junior high school	0.32	(0.51)	0.13	(0.19)
Senior high and above	-0.25	(0.49)	-0.03	(0.19)
Father's SEI	0.01	(0.01)	0.01**	(0.005)
Father's cadre status	-0.25	(0.41)	0.002	(0.15)
Constant	-10.0***	(2.20)	-5.49***	(0.95)
<i>N</i>	481		2202	

Notes: \*  $p < .1$ , \*\*  $p < .05$ , \*\*\*  $p < .01$   $N = 2202$ . Also included in regression models are dummy variables representing missing data for father's education, father's SEI, and father's cadre status.

Data source: respondents in the main sample of 1999 Social Survey in Shanghai, Wuhan, and Xi'an. Analyses are restricted to respondents between ages 37 and 48 with urban origin, who were sent down between 1967 and 1978.

are positively associated with the likelihood of returning to the cities, but they also provide evidence of an important factor that Zhou and Hou's analysis overlooked: having a greater amount of education *before* send-down may have facilitated youths' earlier return to the cities.

Furthermore, duration of send-down is confounded by educational attainment through another mechanism: many youths ended their send-down experience precisely through college education. This came about in two ways. First, a small number of sent-down youth were accepted to colleges through recommendations on the basis of political loyalty and family background rather than examinations between 1972 and 1977. Second, colleges became open to all potential students with an examination-based admission policy in 1977,

before the government began to allow all sent-down youth to return to cities in 1979 (Deng and Treiman, 1997; Meng and Gregory, 2002; Zhou and Hou, 1999). Thus, ending send-down experience through college education was a real possibility for some people. For them, the causal direction is not from short duration to college education. Rather, it was college education that caused a short duration of send-down.

Although, we did not collect explicit information on how respondents who were sent down left the countryside, we constructed a time-varying indicator of educational enrollment status by age. In our data, we find 49 respondents who were enrolled in college in the same year they ended their send-down experience. We assume that they left the countryside to attend school. In the fifth row of Table 4, we show that this occurrence is far more likely for those who were sent down with short duration than for those with long-duration send-down experience. If we exclude the 49 respondents who ended send-down and began college at the same time, we find that the college enrollment rate among respondents with short-duration send-down experiences drops sharply from 15.19% to 11.59%, which is no longer significantly different from 10.9% for those who were not sent down. Similarly, the years of education attained among those experiencing short-duration send-down declines from 11.33 to 11.08. Since our measure of time-varying enrollment is a crude approximation, it is plausible that we may still underestimate the extent of selection out of send-down due to college attendance.

Altogether, caution should be exercised before interpreting the higher educational attainment among youth who experienced short-duration send-down as caused by send-down *per se*. Instead, we suggest that this apparent educational advantage of send-down may be a statistical artifact due to the social processes that selected sent-down persons back to cities. As Zhou and Hou (1999) realize, there is not much selection in terms of who was sent down, but selection is strong in terms of who returned early once sent down. Our results show that there are two important ways that the endogenous role of education gives rise to the appearance that a short-duration send-down experience is beneficial. First, because educational attainment is a strong predictor of an early return, duration of send-down is associated negatively with education level attained *prior to* send-down. Second, because college attendance is one of the most desirable channels of early return, an association is observed between the two, even though the causal process is such that an opportunity to advance educational attainment was the cause, rather the effect, of an early return.

## 7. Conclusion

Did send-down experience benefit youth? Results reported in this study have led us to give a tentative answer—no. In this study, we analyzed unique information that we collected in a 1999 social survey in three large Chinese cities, which enabled us to pin down this question more precisely than before. We examined a total of six indicators of socioeconomic outcomes: likelihood of college education, years of schooling, salary, total income, likelihood of being a cadre, and occupational status. We implemented a number of different statistical models and methods using different research designs.

Our baseline results based on the main respondents from the survey showed that there are virtually no average differences between the respondents who experienced send-down and the respondents who did not, except that the former are somewhat older. When we disaggregated sent-down respondents according to the duration of their time in the countryside, some differences emerged. Respondents with short-duration send-down, using either six years or three years as the cut point, appear to have an advantage in educational attainment. However, our fixed-effects models based on sibling pairs, which control for unobserved family-level heterogeneity, showed no educational (or any other) advantage for sent-down youth over their non-sent-down siblings. Our results thus do not lend support to the notion that the send-down experience was beneficial.

We further explored the empirical finding that persons who were sent down for a shorter duration appear to enjoy educational advantages over those who were not sent down or those who were sent down for a longer duration. Through analyses of time-varying information, we found that the observed advantages are artifacts resulting from two related social processes. First, pre-send-down education strongly predicted an early ending of send-down. Second, college education enabled some to end their send-down experiences. Hence, our analyses of the new data show that the send-down experience *per se* did not benefit the youth who were affected. Differences in social outcomes between those who experienced send-down and those who did not are either non-existent or spurious due to other social processes.

While we found no benefit of send-down, we also found no evidence of negative consequences. Despite our different conclusions regarding education, most of our findings are thus consistent with Zhou and Hou's primary findings, which showed that the send-down experience did not appear to result in lasting negative socioeconomic consequences for the affected youth. This result is somewhat counterintuitive: how could such a widely resisted policy of forced migration not matter for the later outcomes of those affected? Part of the answer undoubtedly lies in the poor opportunities associated with the alternative to being sent down. High urban unemployment and underemployment and the closure of universities during the Cultural Revolution meant that youth who stayed in the cities also faced limited life chances and struggled under difficult conditions. Youth coming of age at this point in China's history were thus deprived of many opportunities, whether they were sent down or not. Finally, the lack of lasting negative effects of send-down can be interpreted as an example of human resiliency, in which people who suffer difficult or traumatic circumstances find ways to adapt and thus avoid lasting harm. Such an interpretation of resiliency is surely more plausible than the contention that the experience of send-down was actually beneficial to China's youth.

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