

The Quiet Revolution: Send-Down Movement and Female Empowerment in China*

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Abstract

What promotes female empowerment and gender equality? We investigate how internal population mobility and social interaction foster the advancement of female empowerment and gender equality across diverse subpopulations. Leveraging the Send-down Movement, a massive mandated urban-to-rural youth resettlement program in China, as a quasi-experimental setting, we find that rural females more exposed to urban youths achieved higher levels of education, increased labor participation, greater financial independence, enhanced autonomy in marriage and fertility decisions, heightened self-confidence, reduced risk aversion, a stronger embrace of gender-equal social values, and increased political participation. Later in life, these rural women enjoyed higher mental well-being and life satisfaction. Our findings underscore that population mobility may facilitate the transmission of progressive gender-equal ideologies and practices through both human capital formation and social interactions, resulting in significant and enduring impacts on female empowerment in traditional societies.

Keywords: Female empowerment; Gender equality; Migration; Population mobility.

JEL Codes: J12; J13; J16; O15

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1 Introduction

Female empowerment is widely recognized as a catalyst for societal development. It fosters economic development (Doepke and Tertilt, 2019; Diebolt and Perrin, 2013), uplifts democratization (Holland and Rammohan, 2019), facilitates labor and financial decision-making (Ashraf et al., 2010), and improves home environments and child development (Holland and Rammohan, 2019). However, females worldwide still face discrimination and gender biases on multiple fronts, such as limited access to education and healthcare, economic and political under-representation, and prevalent gender-based violence, often perpetuated by cultural norms and poor legal support (Sen, 1999; Goldin, 2021). These gender biases and barriers often entrap women in poverty and underdevelopment, hindering a significant portion of the world’s population from realizing their full potential and contributing to societal progress.

Gender inequality stands as a pivotal topic in international policy debates and has been studied by a multitude of academic disciplines. Existing literature, predominantly centered on Western societies, portrays the progress of gender equality and female emancipation as incremental processes spurred by pivotal societal shifts like the Industrial Revolution, technological advancements, and global conflicts (Goldin, 1991; Goldin and Schultz, 1995; Greenwood et al., 2005; Goldin, 2006; Fernandez, 2007; Duflo, 2012; Alesina et al., 2013). Yet, in developing countries with entrenched traditional norms such as China, the mechanisms by which local populations adopt and disseminate female empowerment remain less understood.

We investigate the impact of internal population mobility on gender inequality and female empowerment in regions historically characterized by entrenched gender biases and inequality. Utilizing the quasi-experimental context of China’s Send-down Movement, a government-mandated urban-to-rural relocation program spanning the 1970s, we explore the impact of this large-scale, temporary migration on advancing the empowerment of rural females and fostering gender equality within traditional rural communities. This decade-long program offers us a distinctive opportunity to uncover the underlying driving factors of female empowerment and emancipation in the world’s largest female population.

China stands out as a unique and compelling case in the backdrop of intense policy debates and academic research on gender inequality. Over the second half of the twentieth century, China transitioned from a traditional society marked by severe social discrimination and humiliation against women to one that embraced gender equality and “women hold up half the sky” during Mao’s era. It has witnessed a remarkable advance in women’s rights and opportunities during this period. For instance, the gender ratio in middle school

completion rate has risen from 50% to 90% over this period. Female labor participation rates for 25-year-olds also climbed to about 90% of males for the population born in 1980, approaching the levels in the US and UK for the same cohort.¹ This underscores a significant stride in gender equality in China.

The progress, however, was uneven between urban and rural areas. Urban females experienced early advances in equal rights and opportunities, while rural females remained constrained by entrenched gender biases and social norms (Brydon, 1989; Watson and Ebrey, 1991; Ebrey, 2003; Bossen et al., 2002). As depicted in Figure 1, in urban regions, notable gains in gender equality emerged for cohorts born in the 1940s. The female-to-male ratio in middle school completion rates rose from 75% to 95% between cohorts born in the late 1940s and 1960 and approached unity for later cohorts. In contrast, in rural areas, this ratio staggered below 60% for females of the same cohorts. The disparity between urban and rural areas was even more pronounced in the labor market. For urban cohorts born in 1960, the female-to-male ratio in (unconditional) weekly working hours in non-agricultural employment had reached 80%. In contrast, the rural population saw this ratio remain below 50% until cohorts born in the late 1960s.

A surprising turning point came for rural females born in the late 1950s. By their middle school age (late 1960s), they demonstrated a marked and persistent increase in middle school completion rates than previous cohorts, rising from below 40% to approximately 75% relative to rural males over the next fifteen years. This striking progress in female empowerment in rural China is particularly intriguing given the lack of typical precursors such as feminist movements, demographic shifts, or major technological advancements, which are commonly observed before the advancement of women’s rights and opportunities in Western societies (Goldin, 2006, 1991, 1990; Goldin et al., 2005).

We propose that a pivotal driving factor for this transformation in rural China was the Send-down Movement, a massive urban-to-rural population relocation program in the late 1960s and 1970s (hereafter referred to as *the movement*). The movement was a political maneuver by Mao’s government to address urban youth unemployment and quell social unrest caused by the Red Guard Movement (Chen et al., 2020; Li et al., 2010). During the movement, over 16 million urban youths- the sent-down youth (SDY)- were mandatorily relocated to rural counties, representing a significant proportion of the urban population.

1. Both measures are calculated based on the Population Census. See the national trend in Appendix Figure A1. In particular, we obtained labor participation rates for individuals born in 1980 in the 2005 Census and calculated the female-to-male ratio of labor participation for the 25-year-old in 2005. In comparison, this female-to-male ratio of labor participation for ages 15-25 was 92% in the United States in 2000 and 89% for the United Kingdom in the same year. Data for the US and UK are obtained from the World Bank Gender Data Portal, retrieved from <https://genderdata.worldbank.org/> in Jan 2024.

This massive population relocation program lasted for a decade and ended after Mao’s death, marking the largest mandated migration in China’s modern history and one of the largest population migrations in modern human history.

The movement represents a unique episode of quasi-experiment. As highly educated urban youths were relocated to rural areas for reasons beyond their personal choice or the needs of the recipient communities, they brought their progressive urban ideals to meet entrenched rural norms (Hershatter, 2018; Gu, 2009). It presents a rare opportunity to study how a temporary episode of massive population mobility may effectively introduce progressive social values and catalyze the development of gender-equal ideologies and female empowerment in a previously underdeveloped, secluded section of society. It also offers broader insights into how migration shapes social values and leads to lasting societal impacts.

We employ a cohort difference-in-differences (DID) approach similar to Chen et al. (2020) and categorize cohorts into treatment and control groups based on whether an individual’s primary schooling years overlapped with the movement. More than 88% of rural females in the control group had completed primary school, but only 20% proceeded to middle school. Primary school was thus the main setting where rural female children had frequent, almost daily interactions with SDYs as their teachers. Outside the primary school environment, rural females still interacted with SDYs in work and social settings (Honig, 2000, 2003), but such interactions were much less frequent, as SDYs accounted for an average of 2% of the local population. Therefore, in line with Chen et al. (2020), we classify cohorts at primary school age during the movement as the treatment group and older cohorts as the control group. Additionally, we use the local population share of SDYs to measure the intensity of SDY exposure for local rural females in the DID specification. We compile a comprehensive database encompassing local county gazetteer records on SDYs, population censuses, and various household surveys focused on rural populations exposed to SDYs during the 1970s.

We examine the impact of SDY exposure on rural females’ educational achievements, labor supply, marriage, fertility, and political participation. Additionally, we leverage unique survey data on individuals’ beliefs, self-perceptions, and views on a wide range of social, familial, personal, and gender-specific issues. These outcomes collectively offer a holistic view of whether and how SDYs, with their progressive ideologies of gender equality from their urban background, influenced the human capital, self-perceptions, aspirations, and life choices of rural females. We further explore how these changes in rural females translated into their later-life well-being.

Main findings We have three main findings. First, SDY inflow significantly increased female achievements in education and formal employment. A two percentage point (pp) increase in SDY population share raised female middle school completion rates by 0.868 pp (4% of the control group mean), high school completion rates by 1.29 pp (28% of the mean), and university completion rates by 0.254 pp (42.3% of the mean). In addition, these effects were more pronounced than those of males, significantly reducing the gender education gap measured by the female-minus-male difference and the female-to-male ratio, respectively. These improvements in human capital manifested in the labor market. SDY inflow significantly increased female labor supply in formal employment and reduced the employment gender gaps, both during the prime working age (by the 2000 Census) and near retirement age (by the 2010 Census). Analyses based on household surveys reveal that SDY exposure shifted rural females from traditional agricultural roles to formal employment, particularly in the private sector. Consequently, rural females experienced notable improvements in financial independence, relying more on their own work rather than family support as their main income source.

Second, SDY inflow substantially enhanced female autonomy in marriage and fertility decisions, as reflected in later marriages, fewer children, and a higher likelihood of filing for divorce. This starkly contrasts the longstanding norm of rural women as being arranged into early marriage and submissive in spousal relationships (Zhang, 1990; Guo et al., 2018; Hershatter, 2018). SDY exposure also led to more active female political involvement, evidenced by higher rates of Party membership and more positive views on citizen’s involvement in political and civic activities. These findings affirm the broad and long-lasting impact of SDYs on various aspects of female empowerment. In contrast to outcomes driven by knowledge and skills, like school completion and labor market success, the pursuit of autonomy in fertility, divorce, and political representation extended well beyond the scope of the rural primary school curriculum in the 1970s. These observed shifts in female later-life choices transcended mere human capital accumulation through basic schooling, representing a deep-seated empowerment in rural females’ ideologies, perceptions, and aspirations.

Third, we confirm that rural females with greater SDY exposure strongly preferred gender-equal ideologies, perceptions, and aspirations. For example, these females reported a greater inclination towards formal employment, stronger beliefs in financial independence and the ability to overcome life challenges independently, higher self-confidence, a greater willingness to take risks, and a lower desired number of children. They placed more value on equal and independent spousal relationships. These shifts in ideologies and aspirations, in stark contrast to traditional rural norms, likely form the internal driving

factor supporting rural females' pursuit of greater empowerment in the labor market, marriage, fertility, and other socioeconomic settings.

Channels and discussions How did urban SDYs differ from local rural teachers, and why did their interactions with rural pupils promote rural female empowerment? Firstly, SDYs were more knowledgeable and potentially more efficient educators due to their urban schooling, as highlighted by [Chen et al. \(2020\)](#). Secondly, they held more progressive gender-equal ideologies. Thus, we propose human capital accumulation and the transmission of gender-equal values and ideologies as dual channels through which rural females benefit from their primary school education with SDYs.

We propose to distinguish these two channels by leveraging their differences in the impact timing. Human capital accumulation is gradual and may experience increasing returns, such as due to dynamic complementarity ([Cunha and Heckman, 2007](#)), while the transmission of ideologies and aspirations occurs more swiftly, especially for young children ([Flanders, 1965](#); [Reeve and Jang, 2006](#); [Ames and Ames, 1984](#); [Gini et al., 2024](#)). Empirical results support this timing difference. Among treatment cohorts, those spending more years in primary school with SDYs achieved higher educational attainments and better labor market outcomes, reflecting the significant human-capital impact of additional SDY interactions. However, this group showed little advantage in empowerment-related ideologies and aspirations relative to females with positive but fewer years of primary school with SDYs, suggesting the transmission of these ideologies was achieved swiftly and did not require prolonged exposure. Overall, primary-school interactions with SDYs augmented rural females' human capital accumulation and fostered their adoption of empowerment ideologies and aspirations.

Moreover, we find that social interactions outside school significantly influenced female empowerment and gender equality. Focusing on rural females who had passed middle school at SDYs' arrival and were unlikely to benefit from human capital effects, we observe that they also developed progressive gender-equal beliefs and aspirations after SDY exposure. Notably, younger rural females (15-25 years old) showed no change in educational attainment than an older group (25-30 years old) due to SDY exposure but worked more in the formal labor market, married later, had fewer children, and displayed more progressive gender-equal beliefs, including a stronger preference for formal employment, financial independence, the ability to overcome challenges independently, higher self-confidence, willingness to take risks, viewing marriage as an equal partnership, and desiring fewer children. This substantiates that gender-equal values and ideologies can be efficiently transmitted both within schools and in out-of-school social settings, and the

transmission of these ideologies through the latter channel can effectively empower females in their labor supply, marriage, and fertility decisions beyond the human capital effect. This novel finding highlights the importance of social interactions as a key pathway for female empowerment, benefiting a broad segment of the rural female population.

Finally, we explore the effects of welfare on rural females. Beyond economic benefits such as higher labor participation and financial independence, we also document a higher level of mental fitness and subjective well-being. Rural females with greater exposure to SDYs, in comparison to males from the same county and cohort, exhibited higher levels of mental health, a lower probability of distress and depression, and a higher level of self-reported life satisfaction. This shows that the inspiration and pursuit of female empowerment did not subject rural women to greater psychological distress; instead, it contributed positively to their subjective well-being. The overall welfare gains are substantial.

Our study provides a novel perspective on China’s transformation from a society with deep-rooted gender discrimination to one that promoted gender equality and embraced “women hold up half the sky” during Mao’s era. We posit that the arrival of SDYs played a pivotal role in advancing women’s rights and opportunities in rural China. The existing literature has documented various factors contributing to the evolution of women’s rights under Mao, including wartime mobilization of women, land reform in the early 1950s, the Marriage Law of 1950, anti-prostitution campaigns, the advent of scientific midwifery, labor collectivization, and the Cultural Revolution (Goodman, 2000; Huang, 2005; Walstedt, 1978; Diamant, 2000; Hershatter, 2011; Deng and Treiman, 1997; Johnson, 2009; Gil and Anderson, 1998; Qian, 2008). However, these events primarily affected urban areas or occurred before the rise of rural gender equality in the 1970s, leaving the factors contributing to rural female empowerment underexplored. Furthermore, much of the existing discussion relies on individual memoirs, interviews, or small-sample surveys and can be supplemented by further empirical assessments. Our research addresses this gap, showing the send-down movement’s significant positive impact on rural gender equality through human capital development and the propagation of gender-equal ideologies. We highlight the crucial role of send-down youths in enhancing rural women’s capacity and aspirations for gender equality in education, family, and the labor market.

Our study is directly inspired by and builds upon the groundbreaking research of Chen et al. (2020), which demonstrates that increased exposure to SDYs substantially boosted the educational attainment of rural children. This exposure led to enduring benefits such as obtaining higher-skilled jobs, marrying later, and having smaller families. Our research is especially inspired by a notable finding that the impact of SDY on human capital was

stronger for rural females compared to males, suggesting a marked enhancement in gender equality in human capital development.

Our study offers distinct and complementary insights to [Chen et al. \(2020\)](#) in three key aspects. Firstly, we focus on the SDY's influence on rural gender inequality, emphasizing their role in fostering rural female's pursuit of empowerment and independence in an environment where both genders benefit from SDY exposure. Secondly, while [Chen et al. \(2020\)](#) emphasizes the impacts of the movement on enhancing the human capital of the rural labor force and its contribution to China's subsequent economic growth, our study investigates its social impact, particularly how it advanced female empowerment and gender equality. This provides a fresh perspective on the movement's broader societal and welfare implications in China.² Thirdly, we highlight the rapid adoption of gender-equal ideologies and aspirations among rural females as a critical factor for their pursuit of independence and empowerment, facilitated through interactions with SDYs. This ideological shift occurred more swiftly than human capital effects, as emphasized by [Chen et al. \(2020\)](#), with the potential to benefit a larger segment of the female population. Our findings suggest that initiatives focusing on women's self-perceptions and aspirations can significantly enhance efforts to expand women's rights and access to resources, which is vital for policy designs aimed at female empowerment in developing countries.

In this regard, our study adds to understanding the causes and fundamentals of female empowerment in developing countries. Existing studies on this topic mostly focus on how female empowerment contributes to regional and societal development ([Doepke and Tertilt, 2019](#); [Diebolt and Perrin, 2013](#); [Wyndow et al., 2013](#); [Ashraf et al., 2010](#)). Some studies, such as [Goldin \(2006\)](#) and [Labonne et al. \(2019\)](#), have explored how economic development and political movements promote gender equality in labor markets and politics. However, the setting is predominantly Western societies, discussions on female empowerment in developing countries are scarce,³ and the underlying drivers of the evolving ideology of gender equality and female empowerment are yet fully understood. Our

2. Our study adds to the literature on the social and economic consequences of the send-down movement. While existing research has extensively covered the movement's impact on urban SDYs and their urban families, including aspects such as marriage ([Song and Zheng, 2016](#)), human capital ([Xie et al., 2008](#)), subjective well-being ([Wang and Zhou, 2017](#)), political attitudes ([Harmel and Yeh, 2016](#)), and financial decisions ([Fan, 2008](#)), there is a gap in empirical analysis regarding the movement's social impact on rural recipient counties and rural populations. Our study contributes to understanding the movement's influence on rural gender inequality and gender roles.

3. The existing literature on female empowerment in developing countries often faces several challenges. Data limitations on the measurement of female empowerment present a longstanding barrier ([Goldin and Schultz, 1995](#); [Duflo, 2012](#)), and the endogenous nature of gender norms in developing countries complicates causal analysis ([Fernandez, 2007](#); [Alesina et al., 2013](#)). Furthermore, the deep-seated undervaluation of gender issues in developing countries has led to a delayed academic focus on female empowerment, only gaining attention recently ([Sen, 1999](#)).

study enriches the growing literature on female empowerment in developing countries and demonstrates that human capital development and the transmission of gender-equal ideologies can be two distinct but complementary pathways to empower women and improve gender equality in societies entrenched in gender-biased norms.

Lastly, we present new evidence on social interactions as a key means of transmitting progressive ideologies and social values. Complementing existing studies that focus on the endogenous, generational transmission of social norms (Albanese et al., 2016; Bisin and Verdier, 2000; Björklund et al., 2006; Tabellini, 2008), our work provides empirical evidence that such transmission can occur swiftly in much broader social contexts. In this regard, our findings are consistent with recent studies on the transmission of political views among voters through civic education (Finkel and Smith, 2011), social integration among immigrants (Bisin and Tura, 2019), and the shifts of racial views among the native white following the inflow of Black Americans (Fouka et al., 2022). Our study is among the first in a developing country context to examine how temporary episodes of social interactions between urban and rural residents can promote the dissemination of gender-equal ideologies and effectively inspire the pursuit of female empowerment in the latter group, with enduring effects on later-life decision-making and social welfare long after the initial encounters.

The rest of this paper is organized as follows. Section 2 reviews the institutional background of the movement. Section 3 introduces the data source and variables and Section 4 discusses our empirical methodology. Sections 5 and 6 present the main results on how the movement promoted female empowerment in rural China. Section 7 discusses the key channels. Section 8 discusses welfare, and Section 9 concludes.

2 Institutional Background

2.1 The Evolution of Women’s Status in Communist China

In early 20th-century rural China, women’s status was markedly limited by a patriarchal society entrenched in male-biased norms. Education for sons was prioritized over daughters, leading to low education attainment, economic dependence, and societal subordination for women (Watson and Ebrey, 1991). Women’s roles were confined to domestic spheres, and practices, like arranged marriages and foot binding, symbolized the familial and spousal control over their autonomy (Ebrey, 2003; Bossen et al., 2002). Despite contributing significantly to agriculture and household economies, women’s efforts were undervalued (Jacka, 1997). This period was characterized by rigid gender biases, with

women’s identities and opportunities constrained by deep-rooted patriarchal norms.

The series of wars and the decline of the feudal society in the mid-20th century marked a new era for women’s rights and opportunities. Leveraging three decades of experience in women’s mobilization,⁴ the newly founded central government actively engaged women in the post-war reconstruction and socialist development, leading to several transformative pro-women policies. For instance, in 1950, the government implemented the Marriage Law as part of land reform, signaling an end to feudal marital practices and traditional male superiority (Hershatter, 2018). Initiatives such as the campaign for scientific midwifery were launched to spread scientific knowledge in rural areas, improving women’s and children’s health (Qian, 2008). Additionally, the urban anti-prostitution movement addressed the exploitation of impoverished women in traditional society (Gil and Anderson, 1998).

The 1950s saw significant advancements in women’s emancipation and empowerment. However, most of these advancements were restricted to urban areas. Historical records indicate that, during 1950s and 1960s, rural women still faced stronger traditional constraints compared to urban women (Brydon, 1989). Deep-seated traditional gender norms in rural China continued to favor sons over daughters (Qian, 2008). The rigid household registration system, modeled after the Soviet system to segregate urban and rural populations for different production needs, further limited the spillover of the advancements of urban women to rural regions (Guan et al., 2015).

The send-down movement in the 1960s and 1970s marked the first and most significant episode of population migration in modern China since the establishment of the People’s Republic of China. This movement offers a unique opportunity for us to explore the impact of internal population mobility on integrating distinctive social values and practices between urban and rural communities.

2.2 The Send-down Movement

The movement started in 1968. It was designed as a political maneuver by Mao’s government to tackle urban youth unemployment and suppress the social unrest stirred by the Red Guard in urban areas (Chen et al., 2020; Li et al., 2010). In the 1960s, during the early phase of the Cultural Revolution, high unemployment rates among urban youths fueled the rise of the Red Guards, a student-led paramilitary movement, sparking widespread disruption in urban life and industrial production (Pepper, 2000; Deng, 1993; Unger, 1982; Zhou and Hou, 1999). In response, the government initiated the Send-down Movement, relocating a substantial number of urban youths to rural areas. Over ten

4. See details on how women were mobilized during the Second World War and Chinese Civil War in Ferlanti (2023), Johnson (2009), and Li (2010).

years, more than 16 million urban youths were sent to rural regions for “re-education,” with annual and regional variations. Appendix Table B1 shows the total number of sent and received SDYs in each province, sourced from Gu (2009).

Figure 2 illustrates the distribution of SDYs across recipient counties in China, showing an even spread without apparent clustering. Appendix Figure A2 details the annual figures of SDYs, with two significant peaks in the late 1960s and mid-1970s and a notable decrease post-1978. The movement wound down towards the end of the Cultural Revolution, particularly after Mao’s death. Protests against the movement sporadically began in 1978. By 1979, following Mao’s passing and under new leadership, the policy was reversed, allowing the SDYs to return home rapidly.

2.3 The Influence of SDYs on Rural Females

Before delving into formal statistical analysis, we present anecdotal evidence on two pivotal roles that SDYs played in shaping human capital, social values, and self-perceptions among rural females. First, SDYs substantially bolstered the understaffed rural teaching workforce, particularly for primary schools. Second, SDYs disseminated progressive urban values and ideologies to rural women.

SDYs as teachers Urban SDYs, most of them freshly graduated from high schools and colleges, quickly noticed the stark disparities in education and living standards between urban and rural areas. Many of them assumed roles such as accountants or primary school teachers.⁵ rather than engaging in labor-intensive farm work or agricultural production. As a result, the SDY inflow inadvertently reinforced the teaching workforce in the under-resourced rural education system (Chang, 1975).

In addition, SDYs also enhanced the quality of the local teaching workforce. Figure 1 demonstrates that urban youths aged 18-25, the age range of SDYs, had much higher average educational qualifications compared to their rural peers in the same age cohort. This suggests that SDYs may have been more effective in teaching roles than local teachers, thereby improving the instruction of the school curriculum and boosting the accumulation of knowledge-based human capital among rural students.

SDYs as “preachers” of gender-equal ideologies SDYs also actively disseminated their progressive urban ideologies and social values to local females, particularly gender-

5. During the 1960s, secondary school education was notably underdeveloped in rural China, and only a limited number of rural children advanced to secondary school after completing their primary education. This lack of educational infrastructure in rural areas largely determined that urban SDYs mostly assumed the role of primary school teachers.

equal views on women’s roles within the family and society. This transmission of gender-equal ideologies is likely to occur not only in primary schools but also in work and social environments.

In school settings, SDYs were expected to provide a more gender-balanced teaching approach than local teachers. This is because urban areas had achieved substantial progress in gender equality in education well before rural regions (Figure 1). Consequently, urban SDYs, who were educated in more gender-equal environments, were poised to offer a more gender-balanced educational experience to rural students. Moreover, the urban experiences and perspectives of SDYs likely enhanced their teaching, incorporating diverse ideas beyond the traditional curriculum. This approach facilitated a more dynamic and open intellectual environment, one that embraced concepts advocating for female empowerment.

In work and social settings, SDYs actively shared their urban progressive gender-equal ideologies with their rural coworkers and host families. The gender-equal ideologies were widely propagated in urban China since the early 1950s. The central government had been championing the stories of urban “iron girls,” whose narratives of resilience and equality profoundly influenced urban females’ self-perceptions and aspirations regarding their roles in both the family and the workforce (Hershatter, 2018). See a typical SDY-era poster in Appendix Figure A3, which showcases females actively participating in various roles such as agriculture, industrial production, and professions like doctors and scientists. It vividly displays the popular slogan “Women can hold up half the sky” at the bottom.

Many female SDYs embraced the principle of gender equality and were inspired by popular stories of urban iron girls (Honig, 2000, 2003). These SDYs took on traditionally male-dominated roles in their rural assignments, believing their actions would inspire rural women. The combination of their exemplary actions and the active promotion of urban gender-equal slogans contributed to fostering a sense of equality and empowerment among rural women (Hershatter, 2018).⁶ This mirrors findings in Western higher education, where high-performing female students enhance the performance of their female peers in male-dominated fields such as math and science (Mouganie and Wang, 2020; Bostwick and Weinberg, 2022).

6. Hershatter (2018) includes a recollection of SDY experience from a rural woman: “*Most of us did not feel inferior to men in any way at all. Whatever job they could do, we could do too. In fact, we always did it better. At first, the men tried to compete with us. After a while, they gave up the attempt and pretended that they did not care. Nobody could beat Old Feng, a student from Shanghai. The men nicknamed her ‘rubber back’ , because she never stopped to stretch her back no matter how long the work was. Her willpower was incredible! After her, there were Huar [a local young woman] and several other formidable iron girls.*”

3 Data and Variables

We have constructed a comprehensive database to investigate the movement’s long-term impact on rural females’ preferences, choices, and life outcomes. Our primary data source for examining female education and labor market participation is the Population Census 2000, which covers about 1% of the Chinese population. We choose the 2000 Census over the 1990 and 2010 versions to ensure that all sampled individuals are at their prime working age and have completed their schooling.

To capture a comprehensive picture of later-life outcomes, we leverage data from the Population Census 2010, the Chinese Household Income Project Survey (CHIP), the China Family Panel Survey (CFPS), and the Chinese Social Survey (CSS). Our analysis extends to individuals’ social preferences, self-perceptions, risk attitudes, mental health, and life satisfaction. We also integrate county-level data from statistical yearbooks, government websites, news archives, and local gazetteers. Collectively, these diverse datasets provide a holistic perspective on the transformative effects of the movement on rural females, encompassing their preferences, beliefs, life choices, and overall welfare.

3.1 Measures of SDY Exposure

We assess a rural female’s exposure to SDYs through two primary dimensions: their age during the movement and the local share of SDYs received. Specifically, we identify the treatment cohort as those born between 1956 and 1969 who had at least one year of interaction with SDYs while in primary school. Conversely, the control cohort comprises individuals born between 1946 and 1955 who completed primary school before the SDYs’ initial arrival. For a detailed timeline of the movement and the differentiation between treatment and control cohorts, refer to Appendix Figure A4.

We define the local population share of received SDYs as the ratio of the cumulative number of SDYs received by a county during the movement (1968-1977) to the county’s population in 1964, before the movement’s onset. The data on the number of SDYs received by each county are sourced from [Chen et al. \(2020\)](#), which meticulously compiled this information from over 3,000 local county gazetteers.⁷

Following the methodology established by [Chen et al. \(2020\)](#), we focus on counties that received SDYs and exclude 52 major urban centers, including Beijing, Tianjin, and

7. These gazetteers, as administrative records, chronicled the annual total of SDYs received as a significant local event. However, they did not record detailed demographic information about the SDYs. As a result, it is a limitation that we cannot determine the gender composition of the SDYs, their places of origin, or the specific roles they assumed during their rural stay.

Shanghai, as well as 430 city-governed districts (*shi xia qu*), as these were the origins of SDYs, not the recipients. Our analytical sample thus comprises a total of 1,631 counties that were recipients of SDYs.

Figure 2 illustrates the geographical distribution of Sent-Down Youths (SDYs) across China, as measured by the local population share of received SDYs per county. The map indicates a generally even distribution, with a significant decline in concentration around major urban centers like Beijing and Shanghai. Notably, counties along the borders tend to have a higher SDY population share, likely due to their smaller local populations. Appendix Figure A2 presents a histogram of these local SDY population shares, with an average county-level share of 2%, equating to 20 SDYs per 1,000 locals. The 25th and 75th percentile values are 0.711% and 2.76%, respectively. This geographic variation in SDY allocation forms the foundation of our empirical analysis of their impact.

3.2 Measures of Female Empowerment

We examine female empowerment through a multidimensional lens, utilizing frameworks by Ibrahim and Alkire (2007) and Sen (1999). We investigate educational achievements, labor market participation, financial independence, political participation, autonomy in personal choices regarding marriage and fertility, and self-perceptions of worth and aspirations. These indicators reflect the “enabling factors” that overcome various barriers to women’s progress in traditional societies, as highlighted by (Sen, 1999).

Education attainment We assess female educational attainment using data from the Population Census 2000, focusing primarily on middle school, high school, and university or equivalent completion rates, respectively, as our key indicators. We do not use the indicator of literacy or primary school completion because over 88% of the rural females in our sample had completed primary education before SDYs arrived.⁸

Labor supply and financial independence We assess female labor supply based on the Population Census 2000 and 2010 and the CHIP 2013. The Census data indicate female participation in the formal labor market and indicators of financial independence, which informs whether a woman’s main income source is her own work or is reliant on family

8. A caveat with using total years of schooling is that the duration for primary, middle, and high school levels was not uniform across regions or over time in China, potentially leading to measurement errors when converting the highest educational attainment into total years. Additionally, since education’s content and marginal returns vary by stage, assessing the nonlinear impact of educational attainment is more appropriate than the linear effect of schooling years. Thus, we primarily focus on the completion indicators at each level of education as our main measures of educational attainment.

support. Meanwhile, the CHIP survey offers detailed employment information, including indicators for non-agricultural work, formal wage-based employment (paid work), and the number of months worked per year in paid employment, which is crucial for capturing the seasonal nature of some rural jobs.

Autonomy in marriage and fertility decisions Traditional societies often pressure women to adhere to norms like early marriage and higher fertility rates (Chiappori and Oreffice, 2008). Accordingly, we define three measures to indicate female autonomy in marriage and fertility decisions based on Census 2010: (1) age at first marriage, (2) indicators of being never married and ever divorced, respectively, and (3) the number of children born to women, and the number of sons and daughters, respectively.

Political participation Political representation is widely recognized as a cornerstone of female empowerment (Beaman et al., 2009, 2012; Kalsi, 2017). To measure female political participation, we utilize data from the CFPS to construct an indicator of Communist Party membership, which is typically seen as the first step of political advancement in China’s political hierarchy. Furthermore, we draw upon CSS to obtain a range of self-assessed variables regarding perceptions of social and political participation.

Self-perceptions and social values We also evaluate individuals’ beliefs, self-perceptions, and perspectives on various social, familial, and personal issues. The CHIP 2008 prompts respondents to rate the importance of five key subjects—(1) formal employment, (2) financial independence, (3) overcoming challenges independently, (4) self-confidence—on a scale from 1 (“not important at all”) to 4 (“extremely important”), and (5) willingness to take risks on a scale from 1 (“unwilling”) to 10 (“extremely willing”). Additionally, we derive four more variables on self-perception from the CFPS 2018, which inquires whether individuals (6) believe in their capacity for self-accomplishment, (7) consider themselves reserved and conservative, (8) value an independent spousal relationship within marriage, and (9) state their desired number of children. The first three questions are rated on a scale from 1 (“I do not agree at all”) to 5 (“I agree wholeheartedly”), while the response to the desired number of children is capped at 10. Observations with missing values are excluded. These measures offer a comprehensive view of individuals’ self-perceptions across different life domains. We normalize all these variables of self-assessment, except the desired number of children, to a scale ranging from 0 to 1, where a higher value indicates greater agreement with the associated statement.

3.3 Analytical Sample and Summary Statistics

Our baseline sample consists of rural females born between 1946 and 1969. Rural females in this cohort range experienced the movement either in primary school or in early adulthood (the oldest cohort was 22 years old in the first year of SDY arrival).

Primary school as the key avenue of interaction with SDYs As shown in Appendix Figure A4, we categorize cohorts into treatment and control groups based on the overlap of an individual’s primary schooling years with the movement. Following [Chen et al. \(2020\)](#), the treatment group consists of individuals born between 1956 and 1969, while the control group includes those born between 1946 and 1955. The 1956 cohort marks the first to be affected, as they were in their final year of primary school when the first wave of SDYs arrived in 1968. The 1969 cohort represents the last affected group, having spent their first year of primary school with SDYs just before SDYs returned to their urban homes in 1976. The year 1956 is considered the cutoff year, as cohorts born before this year had completed primary school by the time the first SDYs arrived, resulting in minimal in-classroom interaction with them.

Primary school was crucial in determining the intensity of interactions between local females and SDYs. More than 88% of rural females in our focal cohorts have completed primary school. Rural girls in primary school experienced the most frequent interactions, often daily, with SDYs as their teachers. Primary education is a critical phase in shaping children’s worldviews, personalities, inspirations, and preferences ([Cunha and Heckman, 2007, 2008, 2009](#); [García et al., 2020](#)). Exposure to new social values and life inspirations shared by SDYs at this formative stage, such as perspectives on gender equality and female independence, is likely to have a more substantial and enduring effect on women’s outcomes later in life.

In contrast, women over primary school age in 1968 experienced significantly fewer interactions with SDYs during the movement. This is because relatively few rural females in our sample pursued education beyond primary school. Outside of primary school, their exposure to and interactions with SDYs was limited to work or agricultural assignments. Since SDYs constituted only a small percentage of the local population (2% on average), these women had considerably fewer interactions with SDYs than the treatment cohort.

Summary Statistics Table 1 presents summary statistics for basic demographics, educational attainment, labor market outcomes, marital status, and fertility, drawing data from the Population Census 2000 and 2010.

Columns 1 and 2 present the means and standard deviations, respectively, for 1,264,842 rural females born between 1946 and 1969. The average years of schooling is 6.852 years. In this group, 88.1% completed primary school, 41.0% finished middle school, 9.3% finished high school, and 1.4% graduated from university or its equivalent. A significant portion, 86.4%, were working in 2000 (at the time of the Census 2000), and 78.6% were working in 2010. The average weekly working hours, regardless of the employment status, were 30.8 hours in 2010. Regarding the main source of income in 2010, 78.0% relied on their own work, and 19.3% relied on family support. The average age at first marriage was 21.8 years among those ever married; 0.3% had never married, and 3.6% had ever divorced by 2000. Each rural female had an average of 2.29 children. The local SDY population share averaged 2.0%. About 56% were categorized as the treatment group, i.e., born between 1956 and 1969. Most rural females, 92.8%, belonged to the Han majority.

Columns 3 and 4 present summary statistics for rural males of the same age cohort, revealing notable differences. Rural males in these cohorts have more years of schooling and higher educational attainment, with 96.7% completing primary school, 62.6% finishing middle school, and 16.7% finishing high school. They also tend to marry later, on average at 23.8 years for those ever married, and are more likely to have never married (4.9%). Additionally, a higher percentage of males were working in both 2000 (96.5%) and 2010 (92.6%), often for longer hours per week (40.2 hours).

Appendix Table B2 presents summary statistics on various measures of individuals' ideologies, self-perceptions, and social values from the CHIP 2008 and CFPS 2018. All variables are normalized to be between 0 and 1, representing the share of rural females agreeing with a given question on self-perception and social values. About 77.4% of rural females regarded financial independence as very important, 82.2% valued overcoming challenges independently, 82.3% valued self-confidence, and 19.9% valued the willingness to take risks. About 66.0% considered themselves reserved and conservative, and 82.8% valued an independent spousal relationship in the family. The corresponding shares for males are slightly higher in all these dimensions, except for a smaller share of rural males considering themselves reserved and conservative. The average SDY shares and the composition of treatment versus control groups in the CHIP and CFPS samples are almost identical to those in the Census.

We also obtain comprehensive measures on an individual's mental health and subjective well-being from the CHIP and CFPS datasets. These include the K6 scale of distress and mental illnesses, indicators of depression, and assessments of self-rated life satisfaction. Summary statistics on these measures are detailed in Appendix Table B3 and discussed when we estimate the long-lasting impacts of SDY exposure on rural female's later-life

mental and social well-being.

4 Empirical Methodology

4.1 Baseline specification

We employ a cohort difference-in-differences (DID) identification strategy that leverages two distinct sources of variation. Firstly, counties received different numbers of SDYs during the movement. Secondly, within each county, females from different birth cohorts had varying frequency of interactions with SDYs depending on their primary education status during the movement. We estimate the following specification at the county-by-cohort level:

$$Y_{gcp} = \beta_0 + \beta_1 \cdot SDY_{cp} \cdot Treat_g + X'_{gcp} \beta_2 + \lambda_c + \mu_{gp} + \delta_c \times f(g) + \epsilon_{gcp} \quad (1)$$

where Y_{gcp} denotes the measures of female empowerment for birth cohort g in county c , province p . We explore five domains of empowerment: educational attainment, labor market participation, financial independence, marital and fertility choices, and political engagement. Additionally, we assess the gender gap at the county-by-cohort level, where Y_{gcp} is defined as the female-to-male ratio or the female-minus-male difference in one of the aforementioned dimensions of empowerment measures. We also measure the dependent variable at the individual level by investigating variables of self-reported beliefs, perceptions, and social values using household survey data.

The variable SDY_{cp} represents the population share of SDYs received by county c during the movement. $Treat_g$ is a dummy variable designating the treatment group, consisting of individuals born between 1956 and 1969 who were of primary school age during the movement. The control group comprises those born between 1946 and 1955 who had passed their primary school age before the movement. See discussion of the treatment and control cohorts in Section 3.3. Birth cohorts before 1945 and after 1970 are considered in robustness checks. The coefficient of $SDY_{cp} \times Treat_g$, β_1 , is our coefficient of interest and captures the impact of the SDYs on measures of female empowerment.

X_{gcp} includes a set of individual-level controls averaged at the county level, such as ethnicity, the number of siblings, and parental background (specific measures vary across datasets). λ_c and μ_{gp} represent county fixed effects and denote province-by-cohort fixed effects, respectively, which control for unobservable time-invariant county characteristics and province-specific cohort trends in gender norms and socioeconomic development. Robust standard errors are clustered at the county level. In addition, we use cohort-county

population size as weights across regressions.

Our robustness analyses include county-specific cohort trends, denoted as $\delta_c \times f(g)$, to account for differing pre-movement cohort trends across counties. Our analysis incorporates interactions between various predetermined county characteristics and cohort-fixed effects. These characteristics include (1) time-invariant local attributes that could influence the intensity of market-oriented reforms and opening-up policies, such as land ruggedness and distance to coastline; (2) Cultural Revolution intensity, gauged by the population share of death counts at the county level; (3) pre-Movement economic development, indicated by per capita agricultural production in the 1950s; and (4) factors that shaped gender labor division and gender norms before the movement, such as indicators of revolutionary bases (*ge ming gen ju di*), which actively mobilized women in wartime economies, and the pre-existing influence of Confucian culture, measured by the density of local Confucian academies.

4.2 Identification Assumption

Our cohort-based difference-in-differences (DID) analysis relies on an assumption of parallel trends across cohorts, akin to [Duflo \(2001\)](#). This identification strategy does not require the number of SDYs received in each county to be exogenous or randomly assigned. It posits that, in the absence of SDYs, the cohort trends in education and labor market outcomes should not be related to the treatment intensity (the population share of received SDYs). Therefore, control cohorts should demonstrate similar cohort trends across counties with different inflows of SDYs. A threat to this assumption is the potential correlation between the inflow of SDYs and counties' pre-existing cohort trends. We address this concern by examining historical evidence and conducting statistical tests.

Anecdotal Evidence Extensive historical research has consistently shown that the primary drivers of the movement were to alleviate urban youth unemployment and suppress social unrest, especially following the Red Guards crisis during the Cultural Revolution ([Deng, 1993](#); [Zhou and Hou, 1999](#); [Bernstein, 1977](#)). These insights indicate that the movement was not designed for rural development; its objectives were to address broader sociopolitical challenges in urban centers. This suggests that the distribution of SDYs was unlikely to be determined by rural recipient counties' pre-existing trends in gender equality or female outcomes.

Another hypothesis suggests that SDYs were deliberately sent to areas with more challenging living conditions as part of the “rustication” process. This implies that coun-

ties with greater environmental adversity, such as poor agricultural conditions or extreme weather, might have received a higher influx of SDYs and potentially had more entrenched gender disparities before the movement. However, this hypothesis does not explain the observed changes in female empowerment of the treatment cohort following exposure to SDYs, given that geographic and environmental factors determining local harshness and gender biases remained constant for all cohorts during the movement. Furthermore, our baseline specification, including county fixed effects, controls for unobserved time-invariant factors that could correlate with local gender norms and SDY inflows.

Statistical Tests To validate our identification assumption, we conduct three sets of statistical tests examining the relationship between pre-movement county characteristics, particularly those concerning gender disparities, and the population share of SDYs.

First, we examine the correlation between the share of SDYs received by counties and various pre-existing county characteristics. We find no statistically significant correlation with factors like the educational attainment of working-age females, their labor force participation, pre-movement marital status, fertility rates, or proxies of within-household bargaining power. This lack of correlation indicates that SDY distribution was not systematically influenced by pre-existing county characteristics, especially those related to gender norms, suggesting a quasi-random dispatch of SDYs to counties with different observable characteristics before the movement.

Second, we include a comprehensive set of pre-existing county characteristics that interacted with cohort trends. As detailed in Section 4.1, we interact with various pre-movement county characteristics that may determine the cohort trends, such as factors that influenced pre-movement economic development and gender norms, with cohort fixed effects. This essentially allows counties with these diverse pre-existing characteristics to have distinct trends over birth cohorts.

Third, we test the parallel pre-trends between counties with varying local shares of SDYs by estimating the following event-study specification at the county-by-cohort level:

$$Y_{gcp} = \beta_0 + \sum_{\gamma=1946, \gamma \neq 1954/1955}^{1979} \beta_\gamma \cdot SDY_{cp} \cdot I(g = \gamma) + \beta_2 \cdot X_{gcp} + \lambda_c + \mu_{gp} + \epsilon_{gcp} \quad (2)$$

where $I(g = \gamma)$ is the indicator for the birth cohort. Other regression specification is the same as in Equation 1. The cohort coefficients, β_γ , capture the evolution of female empowerment across different cohorts between counties with high and low shares of SDYs, relative to the reference cohort (those born in 1954-1955).

5 Female Empowerment in Education, Employment, and Financial Independence

We start with three classical measures of female empowerment: education attainment, formal employment, and financial independence. We first present raw data plots to illustrate the empirical relationship without covariate adjustment, then detail estimation results based on the baseline specification (Equation 1). Additionally, we test the identification assumption, elucidate the rationale behind our baseline finding, perform robustness checks, and rule out alternative explanations beyond the influence of SDYs to validate our results.

5.1 Graphical Evidence

Before presenting estimation results, we present raw data patterns on the correlation between SDY inflows and female empowerment without any adjustments for covariates.

Figure 3 shows the correlation between average female educational attainment and SDY inflow. The treatment cohorts, who were of primary school age during the movement, are depicted in the left panel, while the control cohorts, who were past primary school age, are in the right. We plot the average completion rates at each education level (for example, middle school completion in Panel A) against the population share of SDYs. Notably, strong positive correlations exist across all educational levels between educational attainment and SDY shares for the treatment cohorts, in contrast to weaker correlations for the control cohorts.

5.2 Estimation Results

We now present the formal estimation results. We start the analysis at the individual level for females and males separately, then investigate the gender (in)equality at the county-by-cohort level in subsequent analyses. Table 2 details the impact of SDY exposure on individual’s educational attainment for rural females and males in Columns 1 and 2, respectively, and shows that SDY exposure had a more pronounced and statistically significant effect on females. Specifically, Column (1) shows that a two percentage points (pp) increase in SDY population share (the national average) resulted in a 0.868 pp rise in female middle school completion rates—4% of the female control group mean.⁹ Columns

9. We also present estimation results of a parsimonious version of Equation 1 with the only province by cohort fixed effects, then incrementally add the county fixed effects and individual-level covariates. The coefficient of interest remains stable and statistically significant, suggesting the absence of unobserved confounders that correlate with the observed covariates and fixed effects (Oster, 2019).

3 and 4 confirm that this gender difference in treatment effects is statistically significant at the 1% level, highlighting a substantially greater impact of SDY exposure on female educational attainment. More notable increases are observed for female high school and university completion rates. Appendix Table B4 shows that a two-pp rise in SDY share increased female high school and university completion rates by 1.294 and 0.254 pp, respectively (28% and 42.3% of their respective control group means). These results are consistent with and complement to the finding of [Chen et al. \(2020\)](#).

Next and more importantly, the SDY inflow significantly reduced the rural gender gap in educational attainment. We measure the gender gap using two metrics: the female-to-male ratio (female divided by male) in the outcome of interest and the corresponding difference in outcome between females and males (female minus male). We adopt the former as our primary measure of gender gap.

Table 3, Columns 1 and 2 show that an increase in SDY inflow led to a significant narrowing of the rural gender gap in both middle school completion and high school completion. In the control cohort (those who had surpassed primary school age prior to the movement), the female completion rates for middle and high school were only 29.7% and 17.5% of those for males, respectively. An increase of two pp in the SDY population share would raise these ratios by 1.29% and 4.84%, respectively, resulting in a significant narrowing of the educational gender gap post-movement.

We further explore the county-level gender gaps in labor market participation and financial independence. Table 3, Columns 3 and 4, demonstrate that cohorts with greater exposure to SDYs during their primary school years experienced significant reductions in the gender gap in labor force participation by the years 2000 and 2010, respectively. Column 5 indicates that SDY exposure also significantly narrowed the gender gap in weekly working hours in 2010 (we calculate average weekly working hours across all individuals, regardless of their employment status). Additionally, Columns 6 and 7 show a notable reduction in the gender gap of financial independence, defined by whether the main source of income is one’s own work rather than relying on family support.¹⁰ These findings collectively highlight the substantial role of SDYs in mitigating gender disparities in the labor market and enhancing female financial autonomy.

We further elaborate on SDY’s positive impact on women’s labor market empowerment

10. We also investigate female financial independence at the individual level. Appendix Table B5 shows that a two-pp increase in SDY share corresponds to a 1.3 pp increase in this financial independence indicator for local rural women, and the effect for males is smaller (0.42 pp). In addition, SDY-exposed females are less likely to rely primarily on family support as the main source of income (-0.868 pp); the effect is smaller and statistically insignificant for rural males (-0.208 pp).

using more detailed employment information in CHIP 2013.¹¹ Appendix Table B6 shows that women with greater exposure to SDYs were more likely to engage in formal, non-agricultural work, especially paid employment. Specifically, for each two-pp increase in the SDY population share, the annual working months in paid employment for females increased by approximately 0.31 months, equating to a 48.3% rise from the control group’s mean. Among those in formal employment, SDY exposure led to an increased participation in the private sector and a decrease in the public sector. This suggests that rural women were encouraged to challenge the traditional gender norms of women working for stability and seek more economic rewards and entrepreneurial opportunities in the private sector. Building upon this impact on females’ seeking for independence in the labor market, we present further supporting evidence on the effect of SDY inflow on rural girls’ risk attitudes, self-confidence, and life inspirations in later analyses.

5.3 Event Study

We conduct event-study analyses to examine the parallel pre-trend assumption inherent in our cohort DID design. This identification assumption posits that, in the absence of the SDY inflow, local rural gender disparity for cohorts who were of primary school age during the movement (treatment cohorts) would have similar cohort trends as those who were older than primary school age at the SDYs’ arrival (control cohorts). We estimate the event-study specification (Equation 2) on the gender gap in three dimensions—middle school completion, labor market participation, and financial independence—each measured in female-to-male ratio and female-minus-male difference, respectively.

Figure 4 displays event-study plots and validates the parallel pre-trends in gender gaps across various dimensions. Specifically, event-study coefficients for the control cohorts are small and statistically insignificant, indicating that the SDY inflow did not affect the gender inequality for cohorts who had already passed the primary school age prior to the arrival of SDYs. In contrast, the coefficients for the treatment cohorts are positive and statistically significant and exhibit a clear pattern of improvements in gender equality.

We also present the event study plots for various outcomes at the individual level for rural females and rural males separately. These include the event study for individuals’ educational attainments (Appendix Figure A5), labor market participation and working

11. We analyze detailed employment outcomes from CHIP 2013 at the individual level rather than county-by-cohort level. This is because CHIP offers a rich set of labor market outcomes but only contains a limited number of counties—approximately 80, and the number varies across survey waves—compared to the Population Census, which covers over 1600 counties. In addition, the number of survey respondents for a given birth cohort in each county is small, leading to measurement errors when we compute the female-to-male ratio at the county-by-cohort level.

hours (Appendix Figure A6), and indicators of financial independence (Appendix Figure A7). These event study plots support the parallel pre-trend assumption for the cohort DID specification and collaborate with our baseline findings on SDY’s positive effects on promoting gender empowerment in education, employment, and financial independence.

5.4 Alternative Explanations and Robustness Checks

We conduct a set of analytical tests to rule out alternative explanations and further validate the robustness of the baseline results.

Ruling out alternative explanations During our sample period, numerous social and economic events occurred that could potentially confound the estimated effects of SDYs on rural female empowerment. These include the Chinese Great Famine (1959-1961), the Cultural Revolution (1966-1976), the initiation of Family Planning policies in the 1970s, the market-oriented reforms post-1980s, and the wave of rural-to-urban internal migration post mid-1990s.

To ensure the robustness of our findings, we have conducted analyses that demonstrate the baseline results are unaffected by these events. This includes adjustments for market-oriented reforms (Appendix Table B7), the Cultural Revolution (Appendix Table B8), the Great Famine (Appendix Table B9), Family Planning policies (Appendix Table B10), regional developmental policies like the “Construction of the Third Front” (Appendix Table B11), pre-movement regional development (Appendix Table B12), and other historical events that may have enduring impacts on local gender norms and practices (Appendix Table B13). Due to space constraints, the rationale for each analysis and detailed estimation results are provided in Appendix Section A.

Finally, the SDY inflow share is uncorrelated with the recipient counties’ in-migration or out-migration rates in the mid-1990s (Appendix Figure A8). Our baseline results remain robust after excluding counties with high out-migration rates (top 10% in out-migration rate), counties with large net migration rates (top and bottom 5% in net migration rate), or when including both out-migration-quartile-cohort fixed effects (FEs) and in-migration-quartile-cohort FEs (Appendix Table B14). These results suggest that migration dynamics during the 1990s are unlikely to be the primary channel underlying the effect of SDY inflow on rural empowerment.

Additional robustness tests We also conduct additional analyses to ensure the robustness of our baseline findings. Firstly, we find no correlation between SDY inflow and pre-movement county characteristics, such as local female educational attainment and

labor market participation (Appendix Figure A9) or marriage and fertility decisions (Appendix Figure A10). This aligns with historical evidence that the SDY assignment was not designed to cater to rural county’s needs. Secondly, we find that gender composition of SDYs was balanced overall (female share at 48.8%, Appendix Table B15) and among most of receiving counties (Appendix Figure A11),¹² and the gender ratio of SDYs was minimally correlated with pre-existing characteristics of receiving counties (Appendix Figures A12 and A13). Thirdly, we observe no SDY impact on urban gender equality, suggesting that improvements in rural female empowerment were likely due to direct impacts of SDY inflows rather than spillovers from urban areas (Appendix Figure A14). Fourthly, we conduct a permutation test with 500 iterations, randomly assigning SDY inflow intensity across counties, and find insignificant permutation-based coefficients (Appendix Figure A15). Lastly, our results remain robust with alternative definitions of the treatment cohort, accounting for variations across counties in primary school starting and ending ages (Appendix Table B16).

6 Female Empowerment in Marriage, Fertility, Political Participation, and Ideologies

In this section, we delve deeper into the multifaceted nature of female empowerment, extending our analysis to female autonomy in marriage and fertility decisions, political participation, and gender-equal ideologies.

6.1 Marriage and Fertility

Marriage and fertility are crucial aspects of rural women’s social lives in rural China. Traditionally, rural females married early, with their marriages often arranged by parents; their fertility decisions were largely influenced by parental expectations, and divorce was often considered taboo, with the female often being blamed for the marriage failure (Guo et al., 2018; Zhang, 1990). We therefore focus on three indicators of female autonomy in marriage and fertility: delayed marriage, reduced childbearing, and initiating divorce.

Table 4, Panel (A) examines the effect of SDYs on rural women’s marital decisions based on the 2000 Census. The results show that women with more SDY exposure tend to

12. We calculate the provincial SDY gender ratio using survey respondents’ recollections of their early send-down experiences from the CFPS 2010. The CFPS 2010 questionnaire inquires whether each respondent was ever sent down during the movement and the province they were sent to. We identify a total of 822 SDYs who were sent to 29 provinces according to the CFPS 2010 data. Our data source for nationwide SDY flows, local gazetteers, recorded only the total count of received SDYs without demographic details.

marry later (Column 1), with a delay of 0.072 years for each two-pp increase in SDY share. This effect is almost non-existent for rural men (Column 2), indicating a gender-specific impact. Furthermore, SDY exposure led to an increased likelihood of rural women ever filing for divorce (Column 3) and never being married (Column 5). A two-pp increase in SDY share corresponds to a 0.14 pp increase in the divorce rate and a 0.036 pp increase in the never-married rate, equivalent to 35% and 36% increase from the control group mean, respectively. This signifies a significant departure from traditional norms and pursuit of marital autonomy for rural females (Chiappori et al., 2002).

Regarding fertility choices, we analyze data from the 2010 Census on female fertility history, including the number of births (including zero birth) for boys or girls and how many have survived.¹³ Table 4, Panel (B) shows that SDY exposure leads to a significant decrease in overall fertility (Column 7), averaging a reduction of 0.036 children per two-pp increase in SDY shares. The decline is more pronounced in male births (Column 8), suggesting a shift away from traditional son preference as women gain more control over their fertility. This implies that empowered women are less driven to bear sons and are less likely to participate in gender-selective practices during pregnancy. These patterns hold when considering the number of surviving children (Columns 10-12), reinforcing the impact of SDYs on women’s autonomy in reproductive decisions.

6.2 Political participation

Expanding our focus, we now examine the political empowerment of rural women, a critical aspect of female empowerment. We assess rural female political participation through multiple dimensions: an indicator of membership in the Chinese Communist Party (CCP), often considered the initial step towards political advancement in China, and a set of self-assessed questions that gauge an individual’s views on political and civic participation and their understanding of the government’s role in social life.

Our primary measure of rural female political participation is Party membership, derived from CFPS 2018 data. As shown in Table 5, Column (1), women who had greater exposure to SDYs during their primary school years were significantly more likely to join the Chinese Communist Party (CCP) than their male counterparts. For every 2-pp increase in the SDY population share, there was a corresponding 5.07-pp increase in female CCP membership, equivalent to a 68.5% increase compared to the average membership rate of the control group. This suggests a notable enhancement in rural female’s active political participation.

13. We have included all females of relevant ages, including those with no children.

We further analyze a set of self-assessed questions on females' views on political participation and government's role in social life, sourced from CSS 2011-2021. Table 5, Columns 2 to 6 show that rural females with increased exposure to SDYs during their primary education held more favorable views on citizen participation in political and civic affairs and displayed a deeper comprehension of the government's role in societal functioning.

6.3 Gender-equal Ideologies

In-school interactions with SDYs offered rural girls more than just human capital and cognitive development; they played a key role in shaping their social values, gender equality ideologies, self-perceptions, and aspirations. This section provides evidence of how SDYs facilitated the dissemination of progressive social values and aspirations to rural girls through these interactions.

Table 6, Columns 1 to 5, using data from the CHIP 2008, indicate that women with more exposure to SDYs exhibited a greater inclination towards formal employment (Column 1), a stronger belief in having independent income sources (Column 2), increased confidence in overcoming challenges (Column 3), and higher self-confidence (Column 4), compared to local men of the same cohort. Notably, Column (5) shows these women became less risk-averse, explaining their shift from traditional agricultural or domestic roles to the entrepreneurial private sector, as observed in our baseline findings.

Further analysis using the CFPS 2018 database supports these results. Table 6, Columns (6)-(7), reveals that women with more SDY exposure held stronger beliefs in self-accomplishment and were less inclined to traditional social norms. Particularly, Column (8) highlights a shift in their perception of marriage, seeing it more as an equal partnership rather than a means of subsistence. Additionally, rural females with more SDY exposure desired fewer children compared to their male counterparts (Column 9), departing from the traditional preference for larger families in rural areas. These findings collectively demonstrate a significant shift in rural women's social values and beliefs, moving away from conservative gender norms and highlighting the influence of SDYs in reshaping rural women's aspirations and decisions regarding employment and marriage.

7 Channel of Empowerment

This section explores how SDYs may have fostered female empowerment in rural recipient counties. We highlight that rural females not only benefited from more schooling with SDYs, as observed by [Chen et al. \(2020\)](#) and in our previous results, but also adopted

gender-equal ideologies, perceptions, and aspirations through both in-school and out-of-school interactions with SDYs.

7.1 In-school Interactions

In-school interactions with SDYs could positively influence rural female pupils through two channels: knowledge accumulation and ideology transmission. Firstly, SDYs, being higher-educated than local teachers,¹⁴ could be better at teaching the school curriculum and thereby enhance the process of knowledge-based human capital accumulation among rural students. Secondly, SDYs may impart gender-equal ideologies, social values, and aspirations to their rural pupils through their daily interactions.

We propose to (tentatively) distinguish these two channels by leveraging their differences in the timing of the impact. Knowledge-based human capital accumulation is expected to be gradual and may experience increasing returns due to dynamic complementarity (Cunha and Heckman, 2007). In contrast, the transmission of gender-equal ideologies and aspirations can occur swiftly, with prolonged interactions yielding decreasing marginal returns.¹⁵ If this hypothesis holds, rural pupils who spent the whole duration of primary school with SDYs would have accumulated significantly more knowledge-based human capital than those who spent only one to two years in primary school with SDYs, but their difference in the assimilation of gender-equal ideologies would be less pronounced.

To test this, we divide the treatment group into two subgroups based on the number of primary school years spent with SDYs. As depicted in Appendix Figure A16, we define a high-intensity treatment group as those who had spent 5 or 6 years of primary school with SDYs ($High=1$) and a low-intensity treatment group as those who spent 1-4 years with SDYs ($High=0$).¹⁶ The control group remains unchanged. We then introduce a triple interaction term, $SDY \times Treat \times High$, in our baseline model.

Two notable findings emerge. Firstly, the high-intensity group demonstrated greater improvements in educational attainment and labor market outcomes than the low-intensity group. Appendix Table B17 shows that, for the range of educational and labor market outcomes, the estimated coefficients for $SDY \times Treat \times High$ are of the same sign, statistically significant, and comparable in magnitude to the coefficient of $SDY \times Treat$.

14. Appendix Figure 1 shows that urban SDYs, who were aged 20-30, had much higher educational attainments than their rural counterparts, suggesting that they may have been more effective as educators than local teachers.

15. It is well established in psychology and sociology that the transmission of ideologies, attitudes, and social preferences from teachers to pupils can indeed be rapid and efficient through daily interactions in the classroom setting. See, for example, Flanders (1965); Reeve and Jang (2006); Ames and Ames (1984); Gini et al. (2024).

16. This ensures that the sample size is balanced between those with $High=1$ and $High=0$.

This finding supports the notion that extended in-school interaction with SDYs effectively contributed to knowledge-based human capital accumulation and improved labor market outcomes of rural females.

Secondly, in contrast to the educational and labor market outcomes, the high-intensity group did not exhibit additional gains in adopting gender-equal ideologies compared to the low-intensity group. Appendix Table B18 shows that across various indicators of gender-equal ideologies, the coefficients for $SDY \times Treat \times High$ are statistically insignificant and markedly smaller in size than the coefficient of $SDY \times Treat$. This indicates that gender-equal ideologies and preferences can be rapidly adopted. Extended in-school exposure to SDYs beyond the first few years may yield minimal additional gains in assimilating these ideologies and preferences.

Overall, we find that in-school interactions with SDYs can positively impact rural female pupils in two significant ways: first, by augmenting their knowledge-based human capital, and second, by fostering the adoption of ideologies and perceptions that advance female empowerment. We next explore whether the second effect transcends the classroom setting and has broader implications for rural females.

7.2 Out-of-school Social Interactions

We test the effect of out-of-school social interactions with SDYs by focusing on rural females who had passed the primary school age during the movement but were similar in age to the SDYs. Unlike primary-school children, this group of young rural females had little in-school interactions with SDYs but worked alongside them on farms and agricultural assignments. SDYs may easily impart their gender-equal ideologies and practice of “women hold up half the sky” to their rural female coworkers. The promotion of “iron girl” may also make some SDY females role models for rural females of their age, akin to the influence of high-performing female peers on female students in male-dominated fields (Mouganie and Wang, 2020; Bostwick and Weinberg, 2022). Therefore, we hypothesize that social interactions with SDYs as coworkers can positively influence the self-perceptions and aspirations of young rural females (Hershatter, 2018).

To test our hypothesis, we categorize rural females aged 15-25 (just passed the middle school graduation age) at the movement’s outset as the new treatment group ($young=1$) and those aged 25-30 as the control group ($young=0$). We then re-estimate our baseline model. The younger cohort, being similar in age with the SDYs, likely engaged more frequently with them in work and social settings than the older cohort. In addition, the younger cohort may also be more receptive to the SDYs’ perspectives and ideologies

compared to the older cohort (Steinberg and Monahan, 2007).

Table 7 presents consistent results. Panel (A) estimates the effects of social interactions with SDYs on rural female’s labor, marital, and fertility outcomes. Although interactions with SDYs beyond middle school age minimally influenced educational attainment, these interactions positively affected non-educational outcomes of female empowerment, including increased formal labor participation (Column 1), delayed marriage (Column 2), increased likelihood of being never married (Column 3) and ever divorced (Column 4), and fewer children (Column 5). These findings imply that out-of-school social interactions with SDYs also promoted the adoption of gender-equal roles in rural female’s labor market, marital, and fertility decision-making. Panel (B) presents results on self-perceptions and beliefs, showing these females held more progressive and gender-equal beliefs, including a greater inclination towards formal employment (Column 6), a stronger preference for financial independence, and overcoming challenges independently (Columns 7 and 8), increased self-confidence (Column 9), and higher willingness to take risks (Column 10). These findings collectively indicate that beyond the classroom settings and without direct human capital effects, SDYs’ progressive values and ideologies also significantly positively influenced young rural females in their ideologies and practices of empowerment.

We provide further evidence by exploiting different intensities of social interactions between female SDYs and local rural females in different types of agricultural production. Qian (2008) notes that tea cultivation requires a higher proportion of female labor compared to other agricultural activities in rural China. Consequently, in areas where tea cultivation was the predominant agricultural activity, female SDYs and local rural females were more likely to be assigned together to tea-related tasks, which mainly demands female labor. This would result in increased interactions between female SDYs and their local female coworkers in collective agricultural assignments, as opposed to regions with more diversified agricultural products. Therefore, we expect that in regions with a higher concentration of tea cultivation, the transmission of gender-equal ideologies to local females would be more effective even with the same level of overall SDY inflow.

Appendix Table B19, Panel (A) validates that in regions with a higher share of tea cultivation, the impact of SDY exposure on indicators of female empowerment, such as delayed marriage, filing for divorce, and formal labor participation, was more pronounced among rural females. In addition, we also follow the practice of Qian (2008) and conduct a placebo test based on orchard cultivation, which generally requires male labor. Appendix Table B19, panel (B) shows that there is no additional improvement in female empowerment in regions with a higher share of orchard cultivation. Collectively, these results suggest that the transmission of gender-equal ideologies is more effective in settings with

more frequent social interaction between rural females and female SDYs.

Caveats A few points regarding the work and social interactions between SDYs and local females are worth noting. Firstly, considering that SDYs, on average, accounted for only 2% of the local population, their social interactions with local females would not have been very frequent. Despite the brief interactions, SDYs effectively imparted their progressive ideologies and social values to rural females of a similar age. This substantiates that the transmission of gender-equal ideologies and aspirations can be achieved swiftly in work and social settings.

Secondly, the inflow of SDYs was unlikely to significantly influence the local labor division for three main reasons: (1) the SDY population share was low; (2) the SDY gender ratio was balanced and showed no correlation with local county characteristics (Appendix Table B15 and Figures A12 and A13); and (3) the central government set and strictly regulated local market prices, wages, job assignments, and labor division rules in the local labor collectivization (Lin, 1990). Consequently, the arrival of SDYs was unlikely to alter the rural collective work structure or the job assignments for rural females. This is consistent with evidence from individual memoirs and interviews that rural females did not report any changes in their job assignments due to the arrival of SDYs (Honig, 2003; Honig and Zhao, 2015; Hershatter, 2011).

Thirdly, because rural females who had passed their primary school age serve as the control group in our baseline analysis (Equation 1), our baseline estimated impacts of SDY on rural pupils would serve as a lower bound for the profound overall impact of SDY inflow on rural female empowerment.

Lastly, comparing the treatment effects of in-school interactions versus out-of-school social interactions for a range of later-life outcomes, the magnitudes are comparable: for example, 3.59 versus 3.34 for marrying later and -1.80 versus -1.06 for having fewer children (see Tables 4 and 7). Nevertheless, while the first effect is restricted to pupils in primary schools, the latter effect may benefit a much larger female population in broader work and social settings. The societal implications are substantial for social interactions as an important pathway for female empowerment in developing countries.

8 Female’s Later-life Welfare

Following its documented effects on female empowerment, we further explore the impact of early-life SDY exposure on rural females’ subjective well-being and welfare in later life. We utilize data from two survey databases, CFPS 2016-2018 and CHIP 2008,

which provide self-reported assessments of subjective well-being, mental health, and life satisfaction at various stages of women’s lives.

We assess individuals’ mental health post-retirement age (sampled females were 50-70 years) using the K6 scale in CFPS 2016-2018. Also known as the Kessler Psychological Distress Scale, K6 is a psychological screening tool developed by [Kessler et al. \(2002\)](#). It comprises six items that assess the frequency of specific psychological symptoms over the past 30 days, including feelings of nervousness, hopelessness, restlessness, depression, and worthlessness, and that everything requires great effort. Respondents rate each item from 0 (not at all) to 4 (all of the time), with higher scores indicating greater psychological distress. The scale ranges from 0 to 24, and a cutoff of $K6 \geq 13$ is often used to detect severe mental illness ([Kessler et al., 2002, 2003](#)). This scale has been validated in the Chinese population ([Lee et al., 2012; Kessler et al., 2010](#)).

Estimation results show that exposure to SDYs during school years positively influenced women’s late-life mental health and life satisfaction. Appendix Table [B20](#) confirms that SDY exposure substantially improved rural females’ later-life mental health across all six dimensions of the K6 scale. Appendix Table [B21](#) shows that each 2-pp increase in SDY inflow share reduces the K6 scale by 0.576 points, or 5.75% of the control group mean. It also reduced the likelihood of moderate depression ($K6 \geq 8$) by 7.90 pp (11.3% of the control mean) and severe depression ($K6 \geq 13$) by 3.16 pp (15.1% of the control mean). SDY exposure also increased rural females’ self-rated happiness and life satisfaction (Table [B20](#), Columns 7 and 8), revealing substantial improvements in mental well-being and life satisfaction among rural females in their late 50s to 70s.

Additionally, the CHIP 2008 provides self-assessed emotional states and mental health before retirement (sampled females were 40-60 years old). Appendix Table [B22](#) shows that rural females with SDY exposure exhibit substantially higher levels of positive emotions and attitudes toward life challenges than rural males. Overall, these results collectively affirm the significant positive impact of female empowerment, facilitated by the SDY experience, on the well-being and welfare of rural women.

9 Conclusion

In this study, we illuminate a pivotal aspect of societal development: the effective transmission of social values and ideas across diverse subpopulations facilitated by population mobility and social interactions. We focus on the impact of the send-down movement, a large-scale population relocation program in China during the 1960s and 1970s, which serves as a unique lens to understand the rapid dissemination and adoption of female

empowerment ideologies in a traditionally conservative society.

Our primary contribution is demonstrating that the interaction between urban migrants and rural populations during this period significantly accelerated the spread of practices of female empowerment among the rural female population. Using the cohort DID method. We reveal that rural women with greater exposure to the urban youths attained higher education levels, moved away from traditional agricultural roles, participated more actively in the labor market, and developed more gender-equal beliefs and views that empowered their later life decisions in marriage, fertility, and other domains. These shifts signify increased economic participation and reflect enhanced decision-making autonomy in personal, familial, and political spheres.

Our research on China's send-down movement reveals how social interactions between different segments of society can serve as a catalyst for disseminating empowering social ideas, particularly in developing countries. This insight is invaluable for policymakers and social planners striving for gender equality in societies with entrenched traditional norms. Although the specific context of China's movement is unique and not readily replicable, it offers a valuable quasi-experimental framework for assessing the causal impacts of social integration and interaction on the adoption of gender-empowering values in rural settings. Our findings highlight the significant, yet often overlooked, role of population mobility and social interactions in transmitting social values and ideologies and bridging the divide between subpopulations. This has profound policy implications for developing countries globally.

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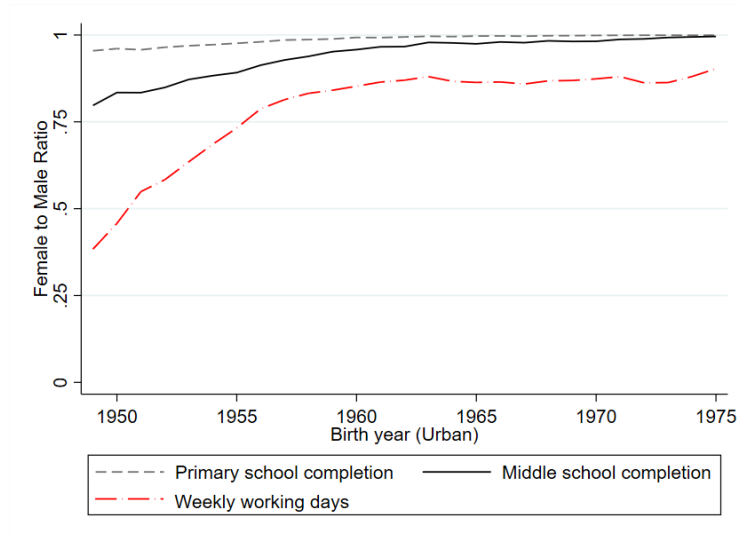
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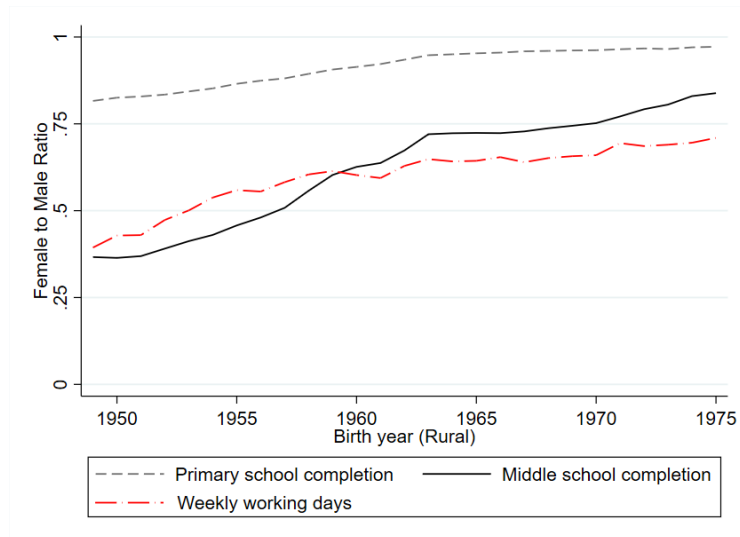
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10 Figures



(A) Gender Gap in Urban Population



(B) Gender Gap in Rural Population

FIGURE 1

Gender Gap in Education and Labor Market in Urban versus Rural China

Notes: This figure presents the gender gap measured as the female-to-male ratio in primary school completion rates, middle school completion rates, and the (unconditional) weekly working hours in non-agricultural work across different cohorts in China's population. All calculations are based on the Population Census 2000. Panels (A) and (B) present the gender gap for urban and rural populations, respectively.

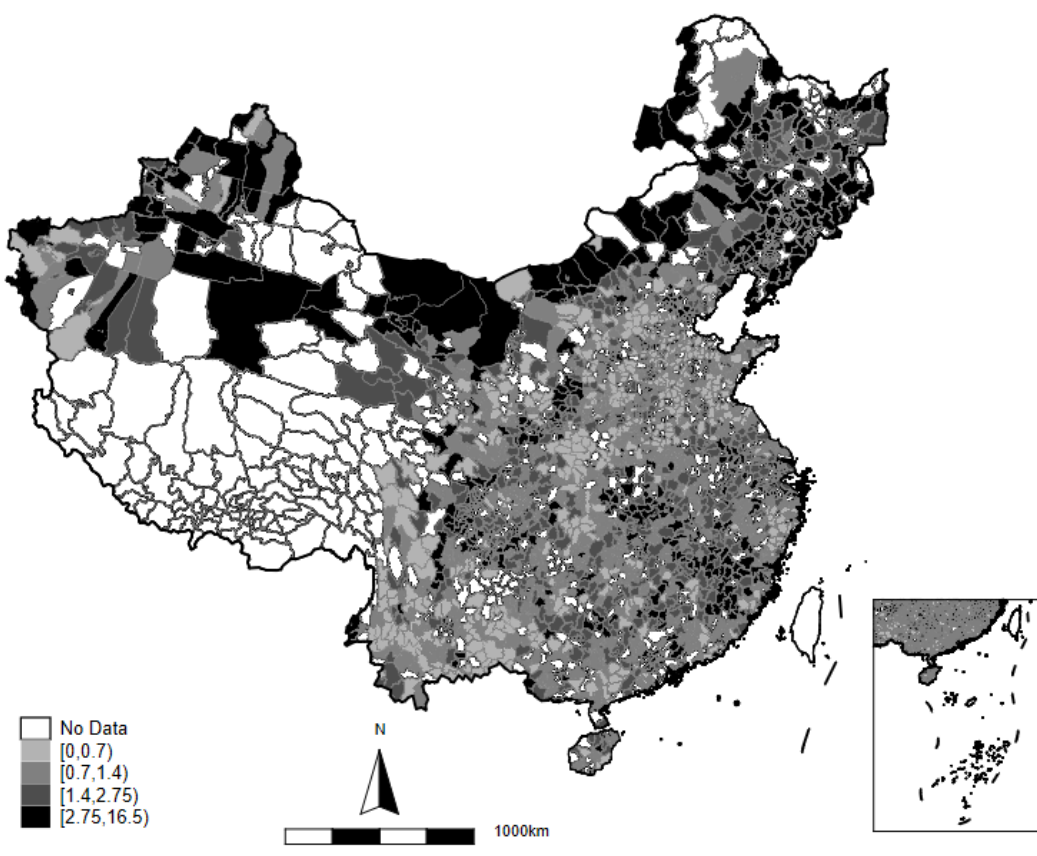


FIGURE 2
Population Share of SDY Inflows across Counties (1968-1977)

Notes: This figure illustrates the population share of Send-Down Youths (SDYs) received by each rural county during the Send-Down Movement. This population share is calculated as the total number of SDYs received from 1968 to 1977, divided by the local county population in 1964, and multiplied by 100 for better readability. Data for the number of SDYs received and the county population size are both sourced from [Chen et al. \(2020\)](#).

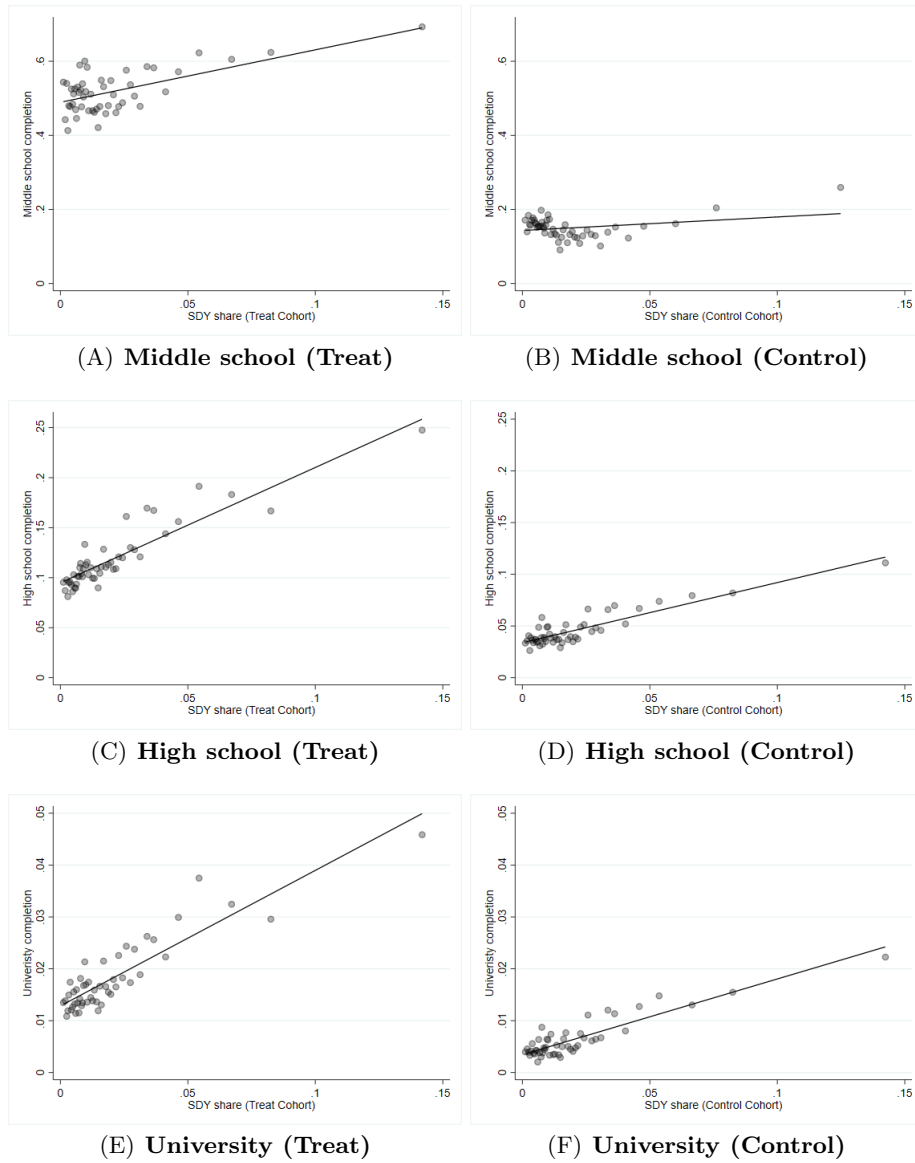


FIGURE 3 The Relationship between SDY in Different Cohort Groups and the Female Educational Attainments

Notes: The figure illustrates the relationship between Send-Down Youth (SDY) intensity and female education for two cohorts. The y-axis shows three measures of female educational attainment: middle school completion (Panels A-B), high school completion (C-D), and the completion of university or equivalent (Panels E-F). The x-axis represents the local SDY share. The left panels are for the treatment cohorts (primary school age during SDY), and the right panels are for the control cohorts (past primary school age during SDY). Data are based on the Population Census 2000.

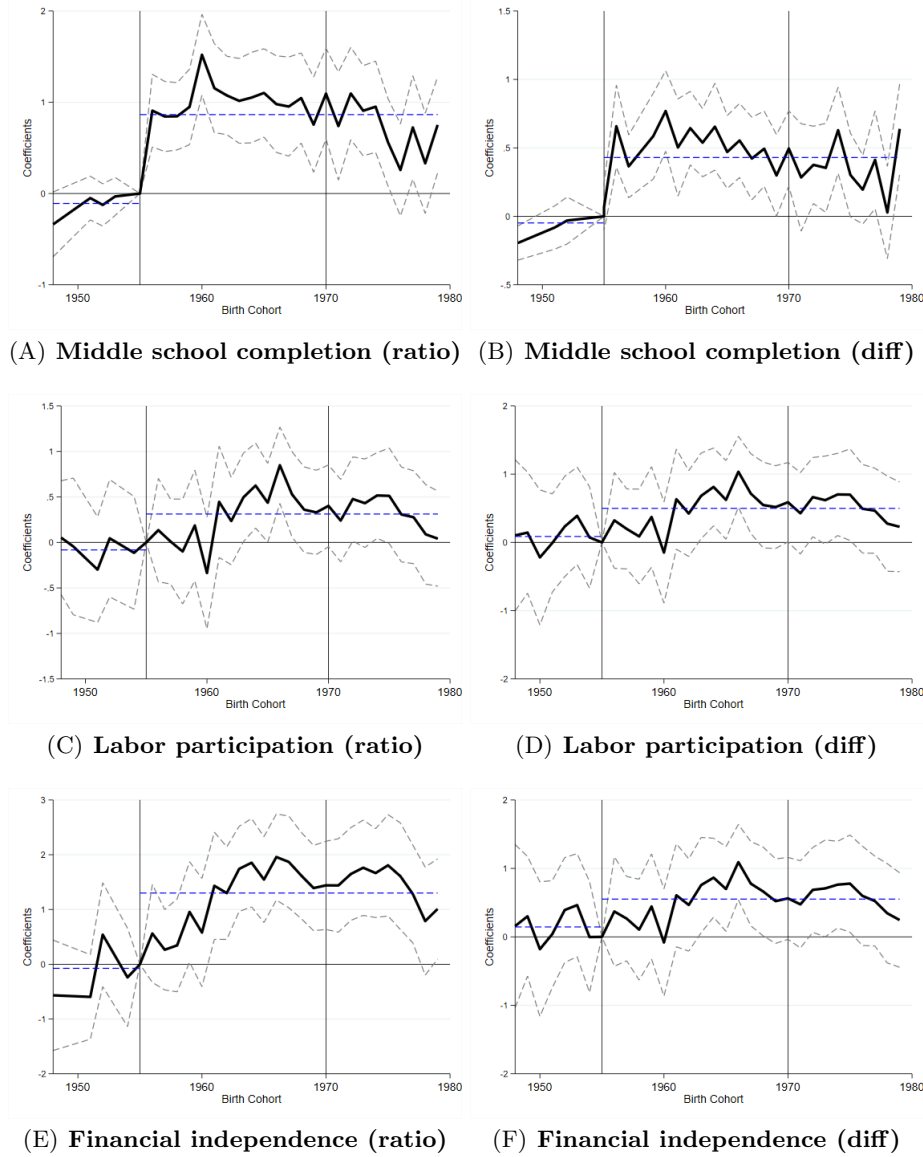


FIGURE 4
Event Study Analysis on SDY's Effect on Gender Gap in Education, Labor Market Participation, and Financial Independence

Notes: This figure plots the event study coefficients to analyze SDY's impact on female educational attainments. The unit of observation is at the cohort-by-county level. Data are based on the Population Census 2000 and 2010. The sample includes all cohorts born between 1946 and 1969. The dependent variable is the gender ratio (female divided by male) and gender difference (female minus male) of middle school completion in panels A and B, respectively; the gender ratio and gender difference in labor market participation in panels C and D; and those for financial independence (relying on one's own work as a primary source of living) in panels E and F. Regression details are specified in Equation 2.

11 Tables

TABLE 1 Summary Statistics

Variable	(1)	(2)	(3)	(4)
	Females		Males	
	Mean	Std.Dev.	Mean	Std.Dev.
Demographics and treatment status				
SDY population share ^a	0.020	0.025	0.020	0.025
Treatment group ^b	0.561	0.496	0.552	0.497
Han ethnicity	0.928	0.259	0.928	0.259
Education				
Years of schooling	6.852	3.262	8.311	2.842
Primary school completion	0.881	0.323	0.967	0.178
Middle school completion	0.410	0.492	0.626	0.484
High school completion	0.093	0.290	0.167	0.373
University completion	0.014	0.117	0.033	0.177
Labor supply				
Currently working in 2000	0.864	0.342	0.965	0.185
Currently working in 2010	0.786	0.410	0.926	0.261
Weekly working hours in 2010 ^c	30.849	21.609	40.219	18.853
Main source of income				
Own work ^c	0.780	0.414	0.925	0.263
Family support ^c	0.193	0.394	0.044	0.205
Marriage and fertility				
First marriage age if ever married	21.80	2.801	23.75	3.255
Ever divorced	0.036	0.185	0.036	0.186
Never married	0.003	0.052	0.049	0.215
Number of children	2.294	1.000		
Observations in Census 2000	1,264,842		1,284,398	
Observations in Census 2010	374,853		364,487	

Notes: Table 1 provides descriptive statistics for key variables of rural individuals born between 1946 and 1969, utilizing data from the Population Census 2000.

^a: SDY population share is defined as the number of received SDYs during 1968-1977 divided by pre-Movement local population in 1964. ^b: The treatment group is defined as cohorts born between 1956 and 1969 (at primary school during the Send-down Movement); the control group is defined as cohorts born between 1946 and 1955. See Appendix Figure A4 for a timeline illustration of the movement and how it defines the treatment and control cohorts. ^c: Four labor market outcomes are sourced from the Census 2010, including the indicator of currently working in 2010, weekly working hours, an indicator for whether the main source of income is derived from one's own work, and an indicator for when the main source of income is family support.

TABLE 2 Effect of SDY on Individual’s Educational Attainment

Dependent Variable	(1)	(2)	(3)	(4)
	Middle School Completion			
Sample	Female	Male	Full sample	Full sample
$SDY \times Treat$	0.434*** (0.131)	0.072 (0.089)	0.009 (0.090)	
$SDY \times Treat \times Female$			0.494*** (0.085)	0.500*** (0.085)
Observations	1,264,842	1,284,398	2,549,240	2,549,240
R-squared	0.209	0.164	0.214	0.230
Control group mean	0.215	0.453	0.336	0.336
Individual Control	✓	✓	✓	✓
County FE	✓	✓	✓	
Province-cohort FE	✓	✓	✓	
County-cohort FE				✓

Notes: This table reports results on SDY’s impact on female educational attainments. The unit of observation is at the individual level. Data are based on the Population Census 2000. The sample includes all cohorts born between 1946 and 1969. The dependent variable is an indicator of middle school completion. *SDY* is the county-level SDY population share, defined as the number of received SDYs during 1968-1977 divided by pre-Movement local population in 1964. *Treat* is a dummy variable indicating whether the individual was born between 1956 and 1969. Other regression details are specified in Equation 1 and discussed in Section 4. Robust standard errors clustered at the county level are presented in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE 3 Effect of SDY on Gender Gap in Education, Employment, and Financial Independence

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Education Attainment		Labor Participation			Main Source of Income	
	Middle school completion	High school completion	Working in 2000	Working in 2010	Weekly working hours	Own work	Family support
Panel A: Gender ratio (female divided by male)							
<i>SDY</i> × <i>Treat</i>	0.647*** (0.193)	2.422*** (0.242)	0.770*** (0.083)	0.661*** (0.158)	0.780*** (0.175)	1.676*** (0.255)	-7.364** (3.074)
Observations	38,935	38,935	38,935	36,937	36,743	38,354	37,242
R-squared	0.873	0.654	0.775	0.361	0.277	0.631	0.586
Control-group mean	0.297	0.175	0.865	0.744	0.686	0.948	4.782
Panel B: Gender difference (female minus male)							
<i>SDY</i> × <i>Treat</i>	0.370*** (0.085)	0.149*** (0.049)	0.475*** (0.058)	0.406*** (0.118)	22.383*** (6.079)	0.428*** (0.116)	-0.292** (0.115)
Observations	38,790	38,790	38,790	37,299	37,299	37,299	37,299
R-squared	0.480	0.257	0.671	0.361	0.293	0.367	0.406
Control-group mean	-0.228	-0.069	-0.160	-0.221	-12.051	-0.226	0.234
County FE	✓	✓	✓	✓	✓	✓	✓
Province-cohort FE	✓	✓	✓	✓	✓	✓	✓

Notes: This table reports results on SDY's impact on the county-level gender gap in educational attainments, labor market outcomes, and financial independence. The unit of observation is at the county by cohort level. Data are based on Population Census 2000 in Columns 1 to 3 and Population Census 2010 in Columns 4 to 7. The sample includes all cohorts born between 1946 and 1969. The dependent variable is the county-by-cohort gender ratio (female divided by male) in Panel A and the gender difference (female minus male) in Panel B. *SDY* is the county-level SDY population share, defined as the number of received SDYs during 1968-1977 divided by pre-Movement local population in 1964. *Treat* is a dummy variable indicating whether the individual was born between 1956 and 1969. All regressions are weighted by county-cohort population size. Robust standard errors clustered at the county level are presented in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE 4 Effect of SDY on Female Marriage and Fertility

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)
Marriage Decisions	First marry age if ever married		Ever divorced		Never married	
	Female	Male	Female	Male	Female	Male
<i>SDY</i> × <i>Treat</i>	3.587*** (0.691)	0.096 (0.526)	0.070*** (0.020)	0.049** (0.023)	0.018*** (0.006)	0.047** (0.020)
Observations	1,261,433	1,222,035	1,264,842	1,284,398	1,264,842	1,284,398
R-squared	0.130	0.111	0.025	0.029	0.014	0.018
Control-group mean	21.616	24.185	0.004	0.013	0.001	0.046
Dependent variable	(7)	(8)	(9)	(10)	(11)	(12)
Fertility Decisions	Give birth to # of			Having # of surviving children		
	Children	Boy	Gril	Children	Boys	Girls
<i>SDY</i> × <i>Treat</i>	-1.801*** (0.303)	-1.025*** (0.198)	-0.776*** (0.230)	-1.707*** (0.300)	-0.941*** (0.195)	-0.766*** (0.231)
Observations	311,688	311,688	311,688	311,688	311,688	311,688
R-squared	0.331	0.176	0.087	0.320	0.170	0.084
Control-group mean	2.658	1.423	1.235	2.599	1.388	1.211
Control	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
Province-cohort FE	✓	✓	✓	✓	✓	✓

Notes: This table reports results testing for the impact of SDYs on female marriage outcomes. The unit of observation is at the individual level. Panel A utilizes data from the Census 2000, while Panel B is from the Census 2010. The sample includes rural individuals born between 1946 and 1969. Dependent variables in Panel (A) columns 1 to 2 are the age at first marriage if ever married, an indicator if the person had ever divorced in columns 3 and 4, and an indicator of having never married in columns 5 and 6. Dependent variables in Panel (B) columns 1 to 3 are the number of children, boys, and girls born, respectively, and the number of children, boys, and girls currently alive, respectively, in columns 4 to 6. *SDY* is the county-level SDY population share, defined as the number of received SDYs during 1968-1977 divided by pre-Movement local population in 1964. *Treat* is a dummy variable indicating whether the individual was born between 1956 and 1969. Other regression specifications are the same as in Equation 1. See Section 4.1 for more details. Robust standard errors clustered at the county level are presented in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE 5 Effect of SDY on Female Political Empowerment

Dependent variable	(1)	(2) Political participation via			(5)	(6)
	Party member	Civic Activities	Petitioning	Strikes and Boycotts	Social Security	Law and Order
$SDY \times Treat \times Female$	2.534*** (0.745)	7.589*** (1.860)	1.832** (0.800)	-2.469* (1.252)	5.307** (2.472)	4.799* (2.525)
Control	✓	✓	✓	✓	✓	✓
County-cohort FE	✓	✓	✓	✓	✓	✓
Survey wave FE		✓	✓	✓	✓	✓
Observations	4,905	3,311	2,209	1,362	3,036	3,198
R-squared	0.284	0.377	0.556	0.445	0.396	0.377
Control-group mean	0.074	2.450	0.199	0.181	3.291	3.175

Notes: This table reports results testing for the impact of SDYs on female political empowerment. The unit of observation is at the individual level. Data are based on CFPS 2018 in Column 1 and CSS 2011-2021 in Columns 2 to 6. The sample includes all cohorts born between 1946 and 1969. The dependent variables in Column 1 is an indicator showing whether the individual was a member of the Chinese Communist Party. The dependent variables in Column 2 are individual's attitudes towards political participation through active civic activities on a scale from 1 (strongly disagree) to 4 (strongly agree). The dependent variables in Columns 3-4 are dummies, indicating whether they are willing to participate in petitioning, strikes, and boycotts, respectively. The dependent variables in Columns 5 and 6 are individual's belief in the government's responsibility for providing social security and maintaining law and order, rated on a scale from 1 (do not agree) to 5 (strongly agree).

The sample size varies across columns 2 to 6 because the availability of the corresponding dependent variables varies across CSS survey waves: dependent variable in column 2 is available in CSS 2015, 2019, and 2021, column 3 in CSS 2013, 2015, and 2019, column 4 in CSS 2013 and 2019, column 5 in CSS 2011, 2013, 2015, 2019, and 2021, and column 6 in CSS 2015, 2019, and 2021.

SDY is the county-level SDY population share, defined as the number of received SDYs during 1968-1977 divided by pre-Movement local population in 1964. *Treat* is a dummy variable indicating whether the individual was born between 1956 and 1969. *Female* is a dummy variable indicating whether the individual is female. Robust standard errors clustered at the county level are presented in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE 6 Effect of SDY on Female Preference, Perception, and Social Values

Dependent variable	(1) Value formal employment	(2) Value financial in- dependence	(3) Overcoming challenges indep.	(4) Self- confidence	(5) Willingness to take risk
<i>SDY × Treat × Female</i>	2.909*** (0.467)	2.955*** (0.565)	2.185*** (0.575)	1.200*** (0.328)	1.406** (0.686)
Observations	7,400	7,397	7,402	7,399	7,375
R-squared	0.276	0.290	0.269	0.283	0.359
Control-group mean	0.773	0.813	0.843	0.834	0.215
Dependent variable	(6) Believe in self accom- plishment	(7) Reserved and conservative	(8) Value indep. spousal relation	(9) Desired number of children	
<i>SDY × Treat × Female</i>	0.921** (0.452)	-1.245*** (0.443)	0.697* (0.404)	-0.182*** (0.048)	
Observations	4,842	4,853	4,879	4,879	
R-squared	0.291	0.302	0.296	0.478	
Control-group mean	0.789	0.624	0.845	2.330	
Control	✓	✓	✓	✓	✓
County-cohort FE	✓	✓	✓	✓	✓

Notes: This table reports results testing for the impact of SDYs on female political participation, self-perception, and social values. Data are sourced from CHIP 2008 for Columns 1 to 5 and CFPS 2018 for Columns 6 to 9. The sample includes all cohorts born between 1946 and 1969. Dependent variables are self-rated importance of formal employment (Column 1), financial independence (Column 2), overcoming challenges independently (Column 3), self-confidence (Column 4), and willingness to take risks (Column 5), self-rated response to whether believing in self-accomplishment (Column 6), whether considering oneself reserved and conservative (Column 7), whether valuing an independent spousal relationship within marriage (Column 8), the number the desired children (Column 9), respectively. Responses for Columns 1 to 8 are initially ranked on different scales and have been normalized to a range of 0 to 1, where a higher value signifies greater agreement with the statement. *SDY* is the county-level SDY population share, defined as the number of received SDYs during 1968-1977 divided by pre-Movement local population in 1964. *Treat* is a dummy variable indicating whether the individual was born between 1956 and 1969. Robust standard errors clustered at the county level are presented in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE 7 Effect of SDY on the Transmission of Gender-equal Ideologies through Social Interactions

Panel A: Education, labor market, marriage, and fertility decisions					
Dependent variable	(1) Currently working	(2) First marry age	(3) Never married	(4) Ever divorced	(5) # of children
<i>SDY</i> × <i>Young</i>	0.972*** (0.132)	5.339*** (0.668)	0.018*** (0.006)	0.013 (0.030)	-2.882*** (0.846)
Observations	944,664	943,616	944,664	944,664	562,453
R-squared	0.199	0.159	0.008	0.026	0.161
Control-group mean	0.531	20.485	0.001	0.002	1.254
Control	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓
Province-cohort FE	✓	✓	✓	✓	✓
Panel B: Self-perceptions, confidence, and risk attitude					
Dependent variable	(6) Value formal employment	(7) Value financial independence	(8) Overcoming challenges indep.	(9) Self-confidence	(10) Willingness to take risk
<i>SDY</i> × <i>Young</i> × <i>Female</i>	3.567** (1.599)	5.500*** (1.512)	2.911** (1.348)	1.858* (0.963)	1.209 (1.611)
Observations	3,115	3,113	3,111	3,113	3,101
R-squared	0.360	0.359	0.331	0.325	0.411
Control-group mean	0.696	0.758	0.778	0.792	0.204
Control	✓	✓	✓	✓	✓
County-cohort FE	✓	✓	✓	✓	✓

Notes: This table reports results testing for the impact of social interactions with SDYs on young rural females. The data source is the Population Census 2000 for Panel (A) and CHIP 2008 for Panel (B). All included individuals were aged 15-30 during the movement (1968-1976). Panel (A) includes only females and Panel (B) includes both genders. Dependent variables in Panel (B) are initially self-rated on different scales and have been normalized to a range of 0 to 1, where a higher value signifies greater agreement with the corresponding statement. The younger group (*Young*=1) is defined as those aged 15-25 during the movement, and the older group (*Young*=0) is defined as those aged 26-30 during the movement. *SDY* is the county-level SDY population share, defined as the number of received SDYs during 1968-1977 divided by pre-Movement local population in 1964. Robust standard errors clustered at the county level are presented in parentheses. The sample size in Column 5 is smaller because the Census 2000 only surveyed fertility-age females regarding their number of children, and some females in the older group (*Young*=0) had surpassed their fertility age in 2000. ****p* < 0.01, ***p* < 0.05, **p* < 0.1.

Online Appendix for
“The Quiet Revolution: The Send-Down
Movement and Female Empowerment in China”

(For Online Publication Only)

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Appendix A Ruling out Alternative Explanations

This section addresses alternative explanations that might confound our baseline results. These factors include market-oriented reforms, the Cultural Revolution, the family planning policy, and the women’s movement spearheaded by the Chinese Communist Party. It is important to consider these factors as they might have been concurrent with the Send-down Movement or could have affected different cohorts of rural females differently.

A.1 Market-oriented Reforms

Some may argue that the observed increase in female labor market participation, particularly in the private sector, could be attributed to market-oriented reforms post-1980s rather than the influence of SDYs. We address this concern by introducing the interaction terms between pre-determined factors influencing reform, opening-up, and birth cohorts’ fixed effects. Specifically, According to [Nunn and Puga \(2012\)](#), terrain ruggedness can have a profoundly lasting effect on long-term economic development either through its direct impact or through its interaction with key historical events. Moreover, taking into account that the reform and opening-up first took place in coastal regions where areas closer to the coastline were more likely to be influenced by the reform and opening-up wave, we include terrain-cohort and coastline distance-cohort fixed effects in column (2) of Appendix Table [B7](#). The terrain ruggedness index is constructed by calculating the difference in elevation between adjacent cell grids using data provided by the United States Geographic Service (USGS). On the other hand, in column (3), we directly control for interaction terms between the dummy for regions that would become coastal open cities after the opening-up and birth cohorts fixed effects to absorb the unobservable characteristics unique to those regions that facilitate the rise and development of female empowerment consciousness.¹

In addition, historical trading hubs and economic centers may nurture a pro-market spirit and may correlate with the economic development post-opening-up ([Zhang, 2017](#)). To address this concern, we source the data from [Cao \(2000\)](#) on historical economic centers and add interaction terms with cohort fixed effects to our analysis (Appendix Table [B7](#), Column 4). Overall, we conclude that factors that drive the intensity of market-oriented reforms are unlikely to bias our baseline finding on the positive impact of SDYs on female

1. After the reform and opening-up, the first batch of four cities, namely Shenzhen, Zhuhai, Shantou, and Xiamen, were determined in 1980; in April 1984, China further opened Dalian, Qinhuangdao, Tianjin, Yantai, Qingdao, Lianyungang, Nantong, Shanghai, Ningbo, Wenzhou, Fuzhou, Guangzhou, Zhanjiang, and Beihai, which are 14 coastal port cities, as well as Hainan.

empowerment in rural recipient counties.

A.2 Cultural Revolution

Historical literature suggests that Mao’s Send-down Movement aimed to ease urban unemployment and mitigate the Red Guard turmoil during the Cultural Revolution (Deng, 1993; Zhou and Hou, 1999). This could imply a correlation between the intensity of the Cultural Revolution in urban areas and the inflow of SDYs into nearby rural regions, potentially introducing unobserved confounders to our analysis of the impact of SDYs on rural females.

To address this concern, we adopt a measure of the Cultural Revolution’s intensity from Walder (2017), defined as the ratio of victims during the Cultural Revolution to the county’s 1964 population. We include an interaction term between this intensity measure and cohort fixed effects. Appendix Table B8, Column (2) shows that our baseline results remain robust.

Furthermore, we consider the possibility that local grain productivity determined a region’s ability to accommodate the SDY influx (Chen et al., 2020). During the movement, regions with higher grain surpluses might have seen SDYs shifting from agricultural work to being primary school teachers. We control for this by including an interaction term between cohort fixed effects and per capita grain output in 1965 based on local gazetteer data. Appendix Table B8, Column (3), shows consistent results, suggesting that local agricultural productivity did not significantly confound the SDYs’ impact on rural women’s empowerment.

A.3 The Chinese Great Famine

An additional historical event that could confound our analysis is the Chinese Great Famine from 1959 to 1961, which led to an estimated 16.5 to 45 million deaths nationwide (Meng et al., 2015). Given that our study examines cohorts born between 1946 and 1969, this tragedy directly affected some individuals. The literature has shown that the famine had lasting negative effects on a range of socioeconomic outcomes (Chen and Zhou, 2007; Meng et al., 2015). Furthermore, Meng et al. (2015) established a correlation between local grain production and the severity of the famine in those areas. Grain productivity also influences the capacity of a region to receive and support Sent-Down Youths (SDYs), as previously mentioned. To account for this, in Appendix Table B9, we present results excluding subsamples who experienced the famine at birth or during early infancy. Our findings remain consistent with the baseline results, indicating that the impact of the

Great Famine does not significantly confound the observed effects of SDYs on rural female empowerment.

A.4 Family Planning Policy

We also explore the possible interplay between the Send-down Movement and China’s family planning policies, initiated in the 1970s. These policies, designed to regulate fertility, could have directly influenced women’s decisions regarding childbirth and labor market participation, and thus, the outcomes related to female empowerment (Huang et al., 2021). If the intensity of policy implementation varied by region and corresponded with the volume of SDYs received, it could bias our estimates of the SDYs’ impact on women’s decisions in the labor market, marriage, and fertility.

To mitigate this potential bias, we introduce a measure for the local implementation intensity of family planning policies during the relevant period. Adopting the methodology from Li and Zhang (2017), we calculate the Excess Fertility Rate (EFR) as the proportion of Han mothers aged 25–44 in a locality who had a higher-order birth in 1981. Our baseline model incorporates an interaction term between the city-level EFR and cohort fixed effects. Appendix Table B10 shows that results remain robust.

A.5 Time-persistent regional factors that determined gender norms

We also consider the potentially confounding effect of historical events that had a lasting influence on gender norms.

We consider the legacy of significant Communist Party (CPC) activities in regions known as old revolutionary bases, which were established before the founding of the People’s Republic of China in 1949. These areas had a history of mobilizing local women for war efforts and agricultural production during the Second World War and the Chinese Civil War (Ferlanti, 2023; Johnson, 2009; Li, 2010). This wartime mobilization may have elevated the status of women and fostered gender equality in these communities even before the PRC’s establishment. We identify the locations of these old revolutionary bases using government archives and historical records.

Additionally, we account for the enduring cultural impact of Confucianism, traditionally advocating male dominance and female subordination, which could counteract the drive for female empowerment. We measure this influence by the density of Confucian academies during the Ming and Qing dynasties, sourced from Ji (1996).

In our analysis, we include an indicator for old revolutionary bases and quartile dummies for the regional density of Confucian academies, each interacting with cohort fixed

effects. These interaction terms are incorporated into our baseline model. Our results, detailed in Appendix Tables B13, show that the positive impact of SDYs on female empowerment remains robust after adjusting for these historical and cultural influences.

A.6 Regional Economic Development

We also examine whether SDYs influenced local female labor market outcomes by fostering regional development in local markets and enhancing economic opportunities for rural females. However, this appears unlikely. We present both anecdotal and empirical evidence to support this view.

Firstly, during Mao’s era in the 1960s and 1970s, China’s rural markets were under strict state control (Diamond, 1985). Agricultural production was centralized, with collective farming mandated and private land ownership abolished. The state set prices for agricultural and industrial products, often below market value, to subsidize urban areas. Wage regulations were enforced with minimal differentiation, reflecting the egalitarian ethos. These regulations aimed to standardize economic activity across rural markets and promote socialist principles (Diamond, 1985). During this period, the influx of SDYs was not intended to impact regional development significantly, as the movement’s primary goal was to “educate” the SDYs rather than stimulate the local rural economy (Pepper, 2000; Deng, 1993; Unger, 1982; Zhou and Hou, 1999). Moreover, with the state strictly determining prices, wages, and occupation assignments, it was improbable for rural females to adjust their labor supply or change their designated work roles in collective agriculture despite any potential increase in local labor supply due to SDY inflow.

Secondly, if the SDY inflow had altered economic opportunities for rural females by boosting local economic development, we would expect a more pronounced impact in regions with weaker pre-movement development. The logic is that in regions with weaker economic bases characterized by low agricultural output per capita, the SDY inflow might have reinforced the local labor supply and positively impacted local production and development. To test this, we identified rural counties with below-average output (grain) production per capita before the movement. Appendix Table B12 indicates that in regions with lower agricultural output, the SDY inflow did not significantly enhance measures of female empowerment compared to regions with higher agricultural output. In conclusion, it is generally improbable that SDYs promoted rural female empowerment by increasing their economic opportunities during the movement.

A.7 Rural-to-urban Migration

An alternative explanation for the impact of Sent-Down Youths (SDYs) on rural female empowerment is that increased SDY exposure during the movement could have induced higher rural-to-urban migration among rural females during the subsequent wave of internal migration in the mid-1990s. If true, our estimated effect of SDYs on empowerment might be partially attributed to post-movement out-migration rather than the interaction with SDYs during the movement. While the latter could be a long-term consequence of SDY exposure, it would alter the interpretation of our baseline findings.

To explore this, we first examine if SDY inflow significantly increased rural-to-urban out-migration in recipient counties. We define the out-migration rate of each rural county from 1995 to 2000 based on two retrospective questions from the Census 2000 regarding migration history: (1) whether the individual resided in their current county/city five years prior, and (2) if not, their place of residence at that time. An out-migrated female from a given rural county is identified as someone who was living in that county five years prior (in 1995) but was currently living in other counties/cities (in 2000). The out-migration rate from 1995-2000 in each rural county is calculated by dividing the number of out-migrated rural females of the treatment cohort (born between 1956 and 1969) by the total population of rural females of the same cohort in the county. Appendix Figure A8 displays a scatter plot of out-migration rates against SDY inflow shares, indicating no significant correlation.

We further validate our findings by conducting two additional analyses. First, we exclude counties with high out-migration rates in the mid-1990s (the top 10% counties in the distribution of out-migration rates). Second, we exclude counties with the top 5% net migration rate (out-migration minus in-migration) or the bottom 5% of the net migration rate. Third, we include a set of out-migration-quartile-cohort FEs and in-migration-quartile-cohort FEs in the baseline specification. Appendix Table B14 reports the estimations results of these three specifications in Panels A to C, respectively. The results are consistent with our baseline findings in Table 3. These results collectively suggest that rural-to-urban migration is unlikely the primary driver of the observed effects of SDY on rural female empowerment.

A.8 Potential Gender Selection of SDYs

A potential concern is that SDYs were gender-selected, with the gender ratio potentially correlated with the pre-existing characteristics of local counties. Because local gazetteers (our main data source of SDY flow) recorded only the total count of received

SDYs without further demographic details, we obtained gender information from individual SDYs based on retrospective questions from the CFPS 2010 regarding respondents' early-life SDY experiences. Our analysis identifies 822 respondents who experienced the send-down, with descriptive statistics revealing a balanced gender ratio (female share at 48.8%). In addition, the average educational attainment was similar between female and male SDYs.

Additionally, we calculate the gender ratio of SDYs for their respective receiving province (only the sent-down province was provided in CFPS 2010). Appendix Figure [A11](#) presents a histogram of the gender ratio, indicating that about 95% of the sampled receiving provinces had a SDY gender ratio within the range of 0.4 to 0.7, suggesting a balanced gender composition in most receiving regions. Appendix Figures [A12](#) and [A13](#) further demonstrate that the SDY gender ratio had minimal correlation with any pre-movement county characteristics.

This evidence aligns with anecdotal accounts suggesting that the primary objective of the movement was to alleviate urban unemployment and associated social unrest among unemployed urban graduates by sending them en masse to rural areas without gender selection.

Appendix B Figures

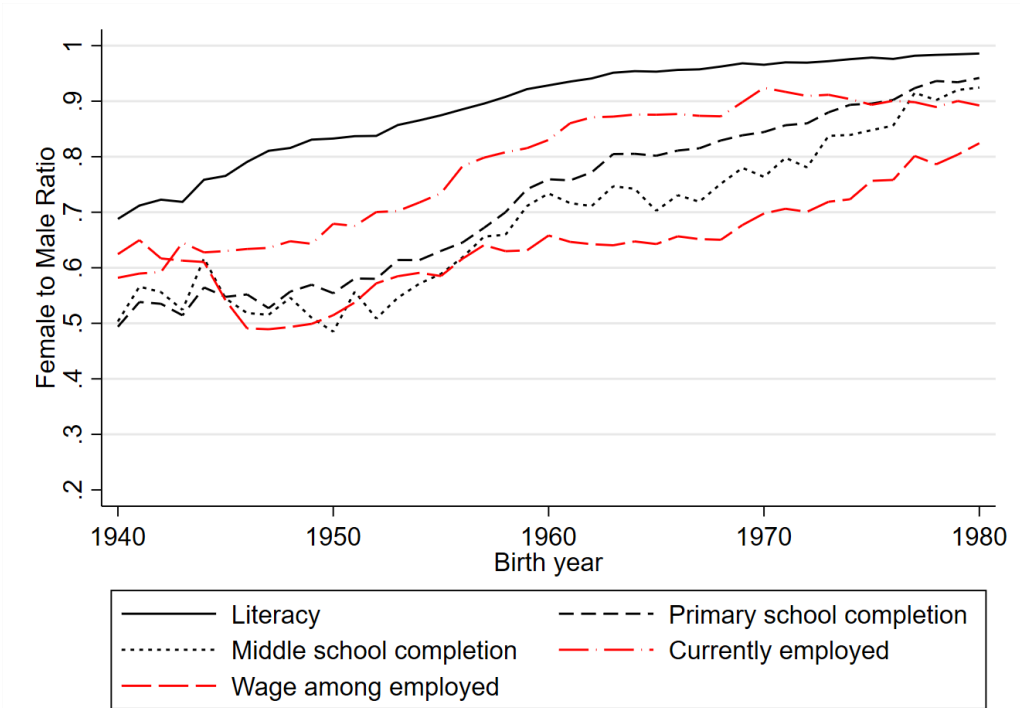
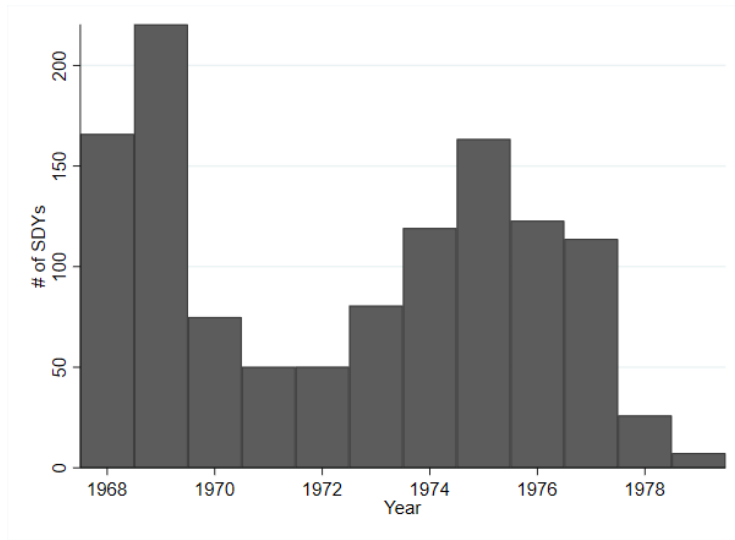


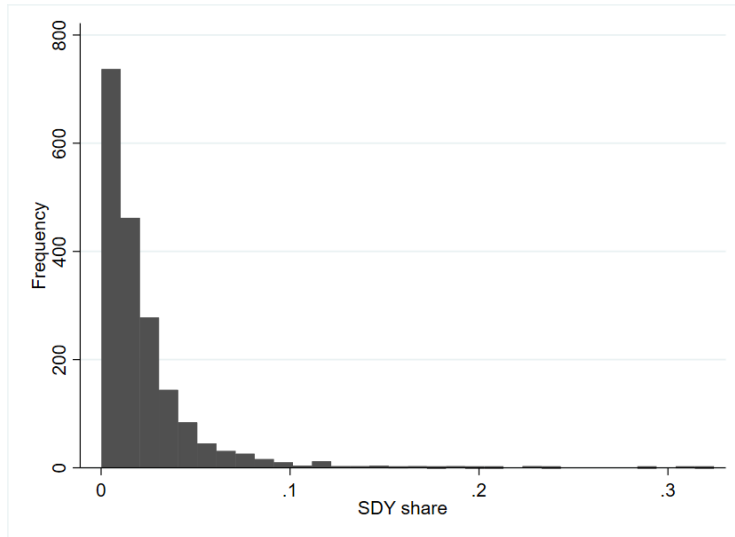
FIGURE A1

Female-to-male Ratio in Educational Attainment and Labor Market in China

Notes: This figure presents the female-to-male ratio in literacy rates, primary school completion rates, middle school completion rates, the rate of formal employment, and average wage among the currently employed across different cohorts in China's population. The data is sourced from the Population Census 2005.



(A) SDY Inflow by Year (Unit: 10,000 people)



(B) Histogram of SDY's Share in Local Population

FIGURE A2
Distribution of SDYs across Recipient Counties, 1967–1979

Notes: This figure plots the number of Send-down Youths (SDYs) across years during the movement (Panel A) and the histogram of its population share (Panel B). The SDY population share is calculated as the total number of SDYs received by each county from 1968-1979 divided by the county's pre-Movement local population in 1968. The data on SDY inflow and local population size are sourced from [Gu \(2009\)](#).



FIGURE A3 Slogans of Pro-woman Movement

Notes: This figure plots the slogans used in the pro-woman movement after the establishment of PRC. At the bottom of the figure, a line of text reads: “*New things are blooming in the garden, and women are holding up half the sky,*” serving to promote the idea of women’s independence and mobilize women to join the labor force.

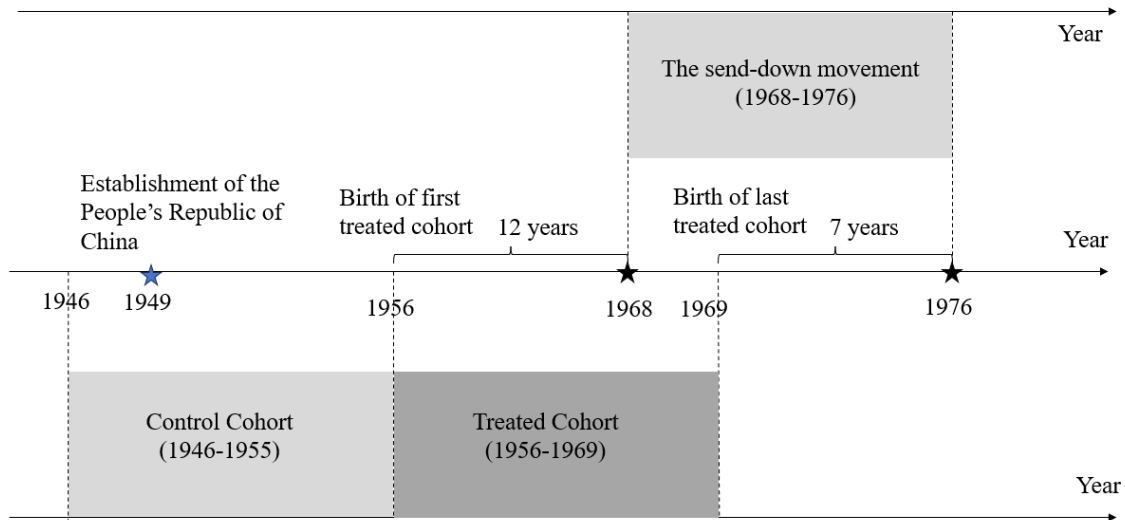


FIGURE A4
Timeline of Send-down Movement

Notes: This figure presents the timeline of the Send-down Movement and other main social events relevant to our study after the establishment of the People's Republic of China.

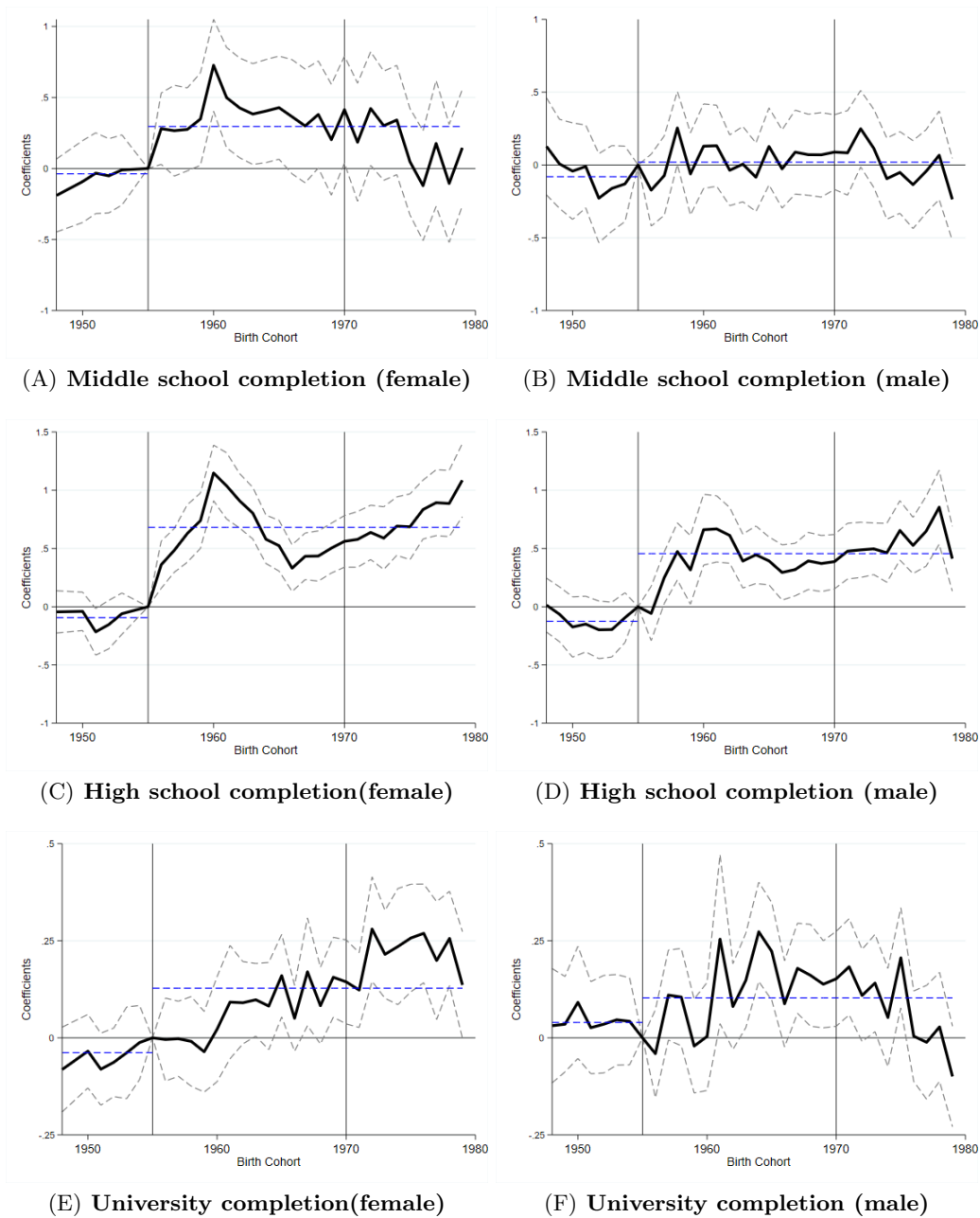


FIGURE A5
Event Study Analysis on SDY's Effect on Educational Attainments

Notes: This figure plots the event study coefficients and corresponding 95% confidence intervals for SDY's impact on educational attainments. The unit of observation is at the individual level. Data are based on the Population Census 2000. The sample includes all cohorts born between 1946 and 1969. The dependent variable indicates middle school completion in panel A-B, high school completion in panel C-D, and completion of university education or equivalent in panel E-F. Panels on the left display effects on females, and those on the right for males. Regression details are specified in Equation 2.

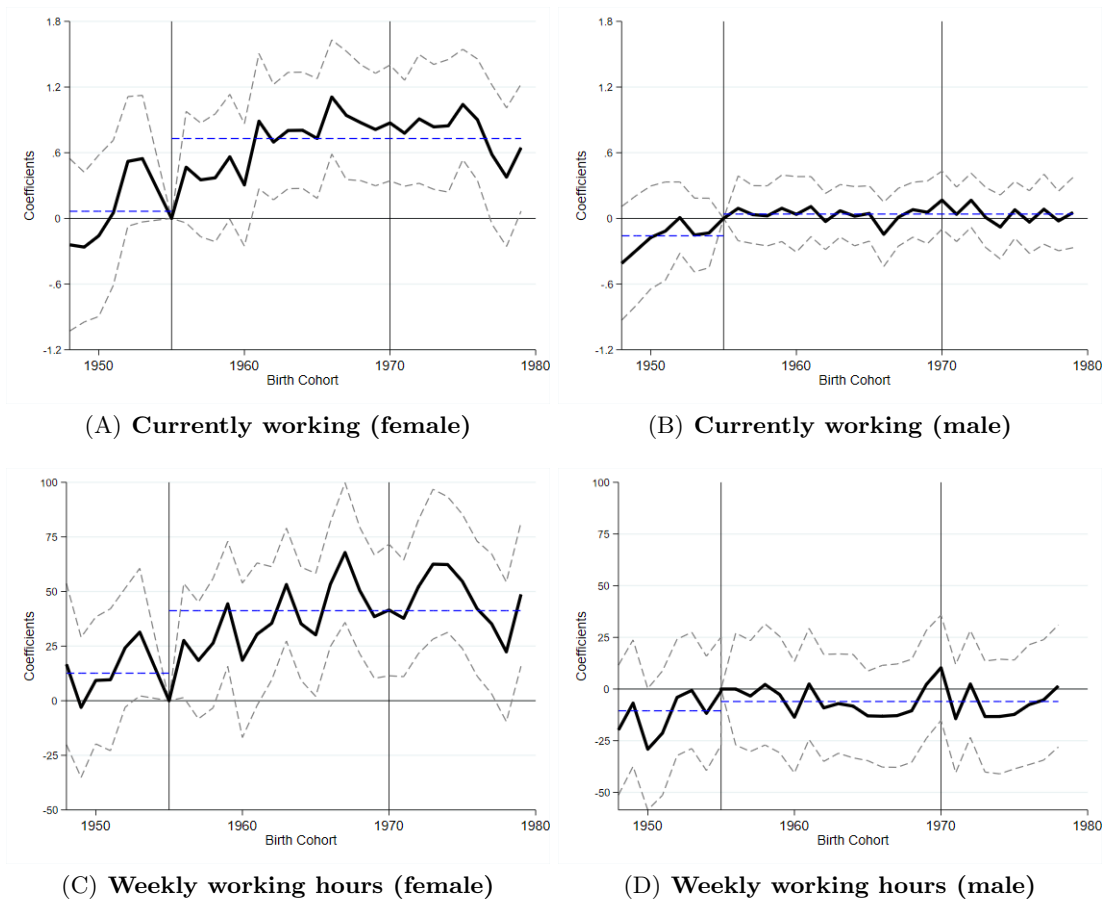


FIGURE A6
Event Study Analysis on SDY's Effect on Labor Market Outcome.

Notes: This figure plots the event study coefficients and corresponding 95% confidence intervals for SDY's impact on educational attainments. The unit of observation is at the individual level. Data are based on Census 2010. The sample includes all cohorts born between 1946 and 1969. The dependent variable indicates currently working in panels A-B, weekly working hours in panels C-D. Panels on the left display effects on females, and those on the right for males. Regression details are specified in Equation 2.

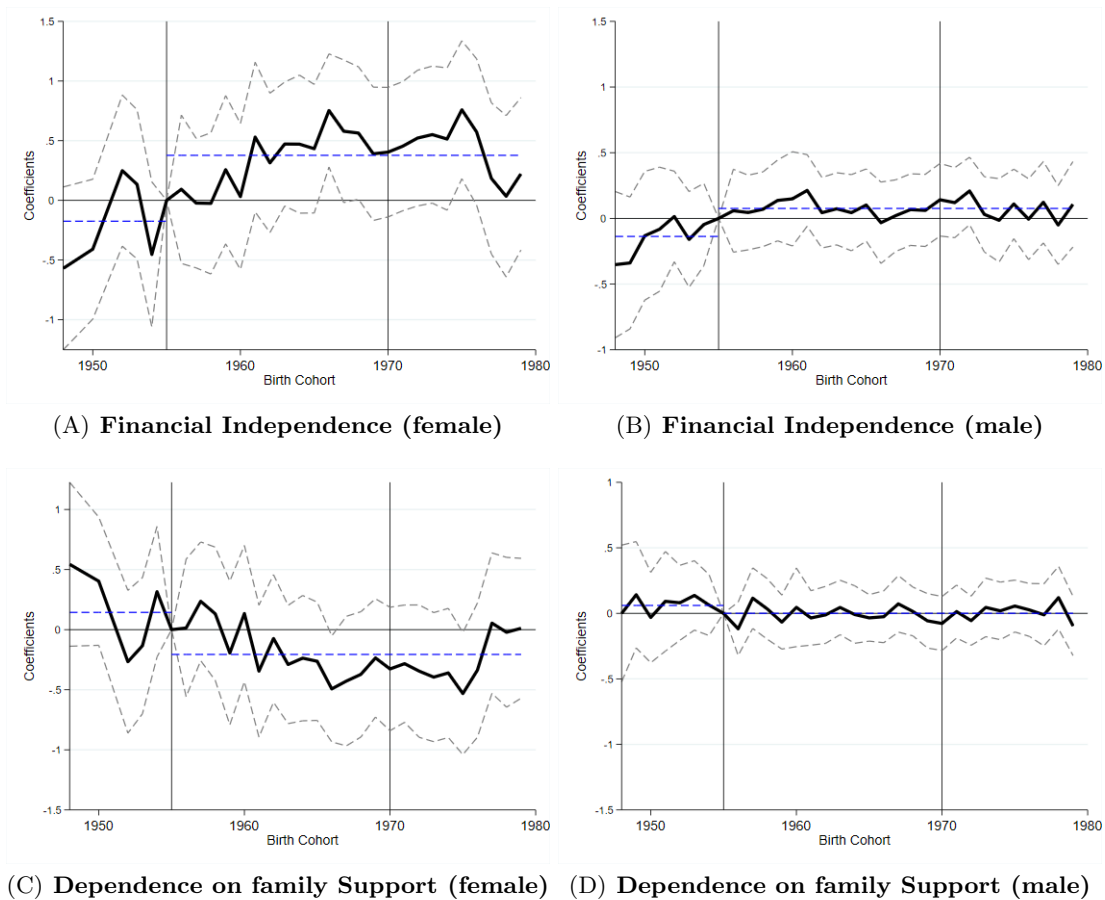
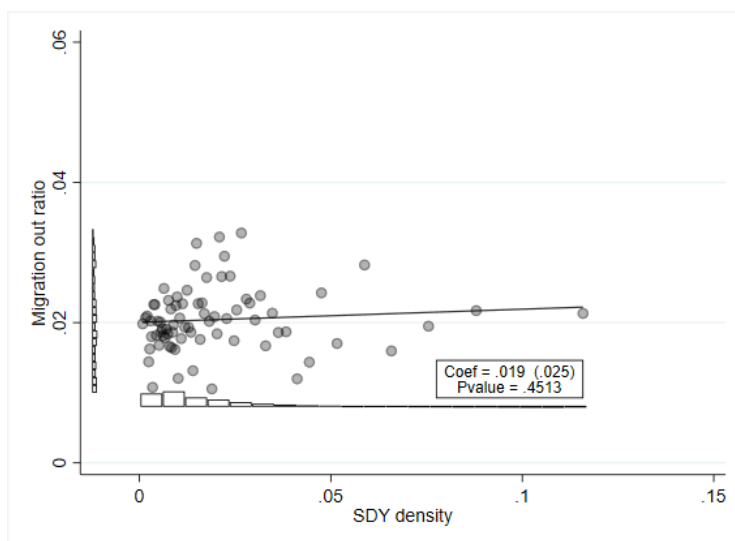
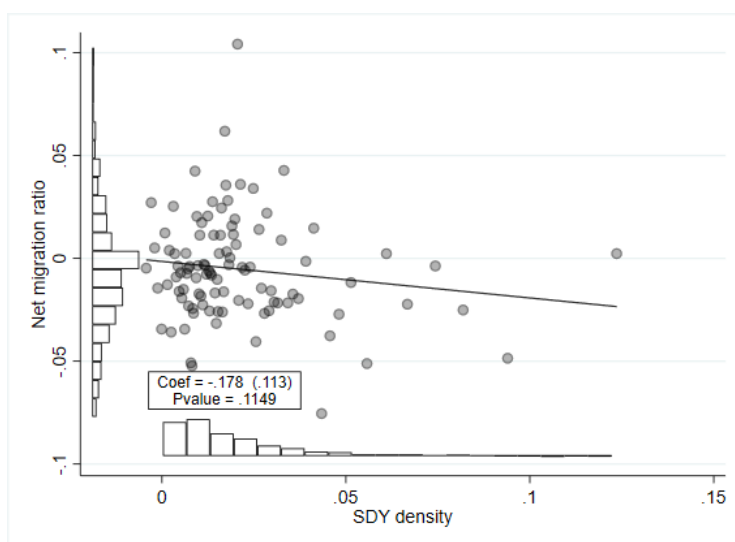


FIGURE A7
Event Study Analysis on SDY's Effect on Financial Independence.

Notes: This figure plots the event study coefficients for the analysis of SDY's impact on financial independence. The unit of observation is at the individual level. Data are based on Census 2010. The sample includes all cohorts born between 1946 and 1969. The dependent variable in panels A and B is a dummy indicating whether an individual's main source of income is one's own work and a dummy indicating whether an individual's main source of income is family support in panels C and D. Regression details are specified in Equation 2.



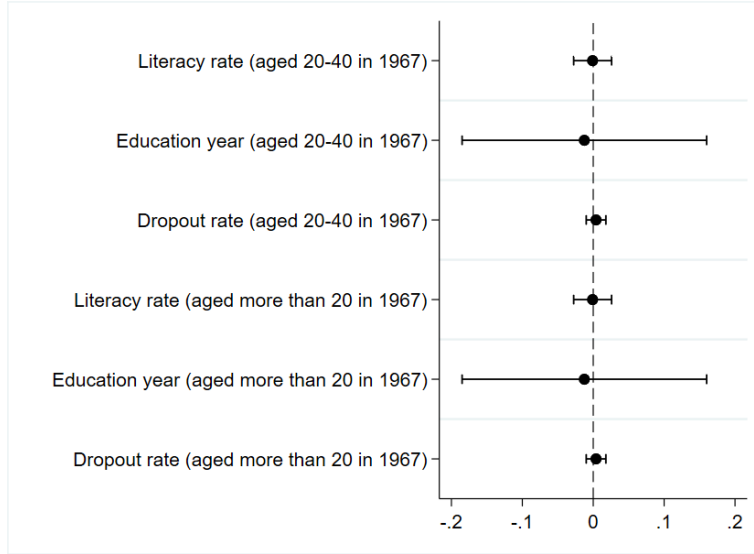
(A) Out migration rate and SDY inflow share



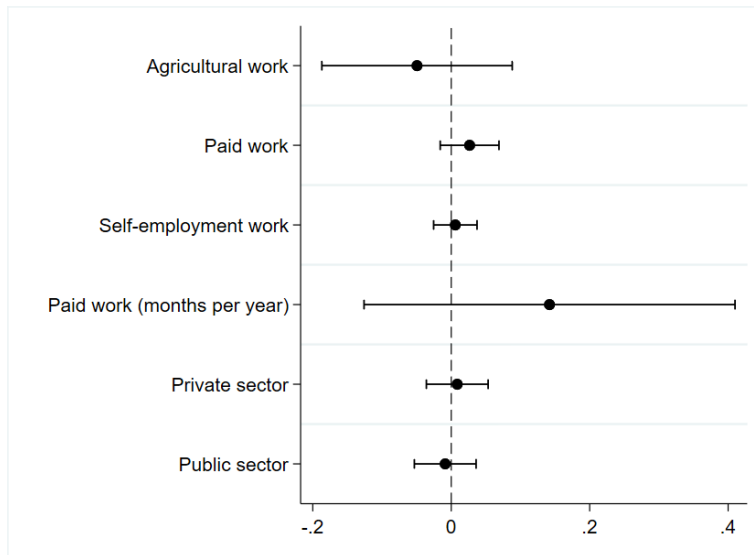
(B) Net migration rate and SDY inflow share

FIGURE A8 The scatter plot of rural female’s migration rate from 1995-2000 and SDY inflow share during the Movement

Notes: This figure depicts the relationship between the county-level out-migration rate among rural females from 1995 to 2000 and the share of SDY inflow during the movement. Data on the out-migration rate are based on the Population Census 2000. An out-migrated female from a given rural county is identified as someone who was living in that county five years prior (in 1995) but was currently living in other counties/cities (in 2000). The out-migration rate from 1995-2000 in each rural county is calculated by dividing the number of out-migrated rural females of the treatment cohort (born between 1956 and 1969) by the total population of rural females of the same cohort in the county. The net migration rate from 1995-2000 in each rural county is calculated by dividing the number of out-migrated rural females minus the number of in-migrated rural females by the total population of rural females in the county. The SDY share is calculated by dividing the number of received SDYs during the movement (1968-1977) by the total county population in 1964.



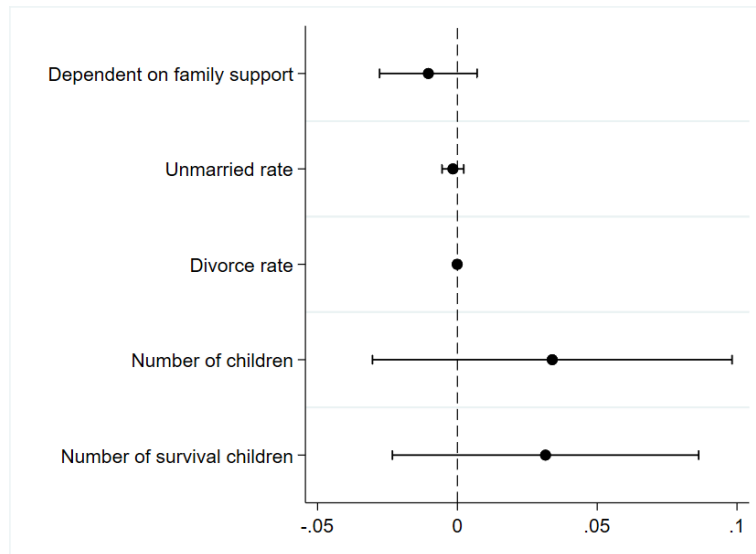
(A) Pre-movement female education



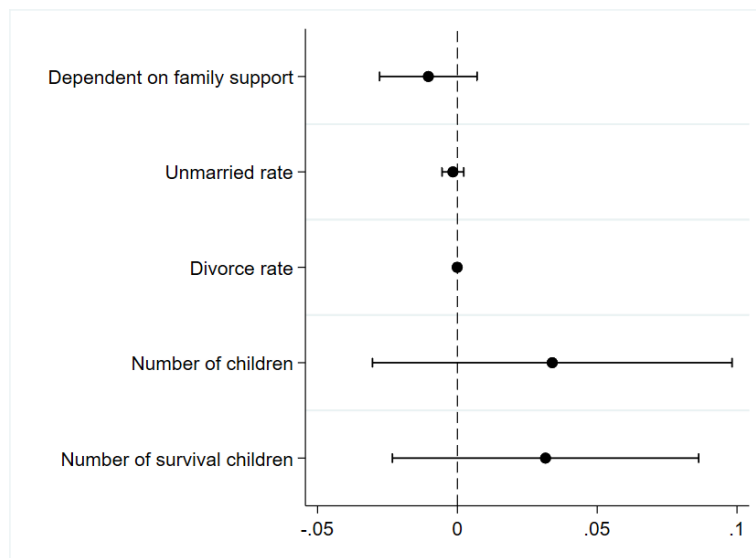
(B) Pre-movement female labor participation

FIGURE A9 Correlation between SDY Intensity and Pre-Movement Recipient-county Characteristics in Education and Labor Market

Notes: This figure presents the estimated coefficients and corresponding 95% confidence intervals by regressing each of the pre-movement county characteristics on the SDY population share. Robust standard errors are clustered at the province level. Dependent variables on the y-axis in Panel (A) are measures of educational attainment of the working-age rural female (aged 20-40) in 1967, calculated based on Census 2010. Dependent variables on the y-axis in Panel (B) are measures of labor market outcomes of the rural females aged more than 20 in 1967, calculated based on CHIP 2013. SDY population share is calculated as the number of SDYs received divided by the county population in 1964, sourced from [Chen et al. \(2020\)](#).



(A) Pre-movement female marriage and fertility (working age)



(B) Pre-movement female marriage and fertility (all adults)

FIGURE A10 Correlation between SDY Intensity and Pre-Movement Recipient-county Characteristics in Marriage and Fertility

Notes: This figure presents the estimated coefficients and corresponding 95% confidence intervals by regressing each of the pre-movement county characteristics on the SDY population share. Robust standard errors are clustered at the province level. Dependent variables on the y-axis in Panel (A) are measures of marriage and fertility outcomes of the working-age rural female (aged 20-40) in 1967, calculated based on Census 2010. Dependent variables on the y-axis in Panel (B) are measures of marriage and fertility outcomes of the rural females aged more than 20 in 1967, calculated based on Census 2010. SDY population share is calculated as the number of SDYs received divided by the county population in 1964, sourced from [Chen et al. \(2020\)](#).

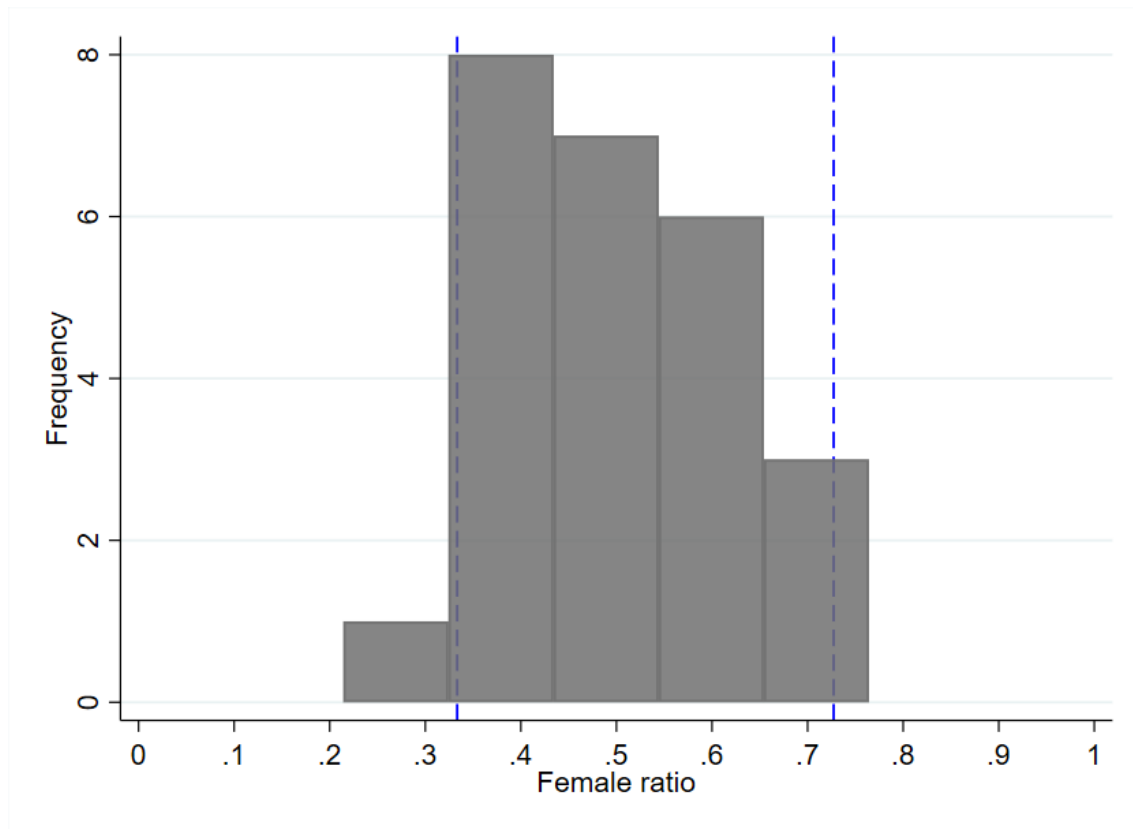
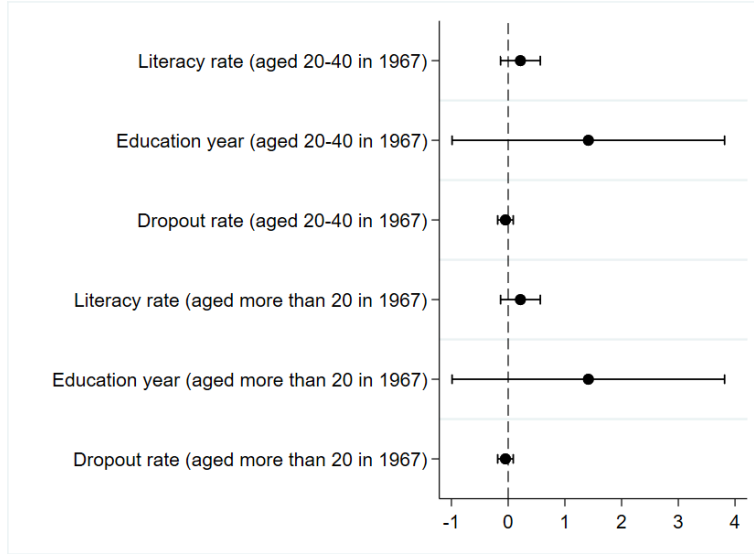
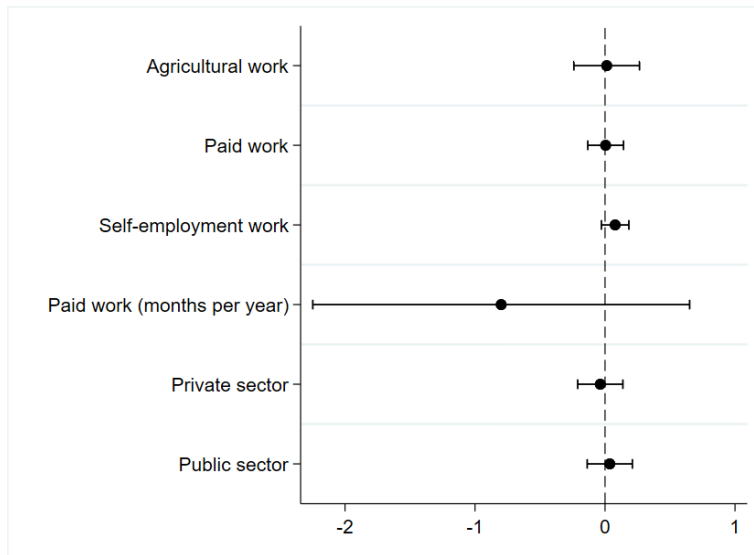


FIGURE A11
Histogram of Provincial SDY Gender Ratio

Notes: This figure plots the histogram of the provincial SDY gender ratio. The SDY gender ratio is calculated in three steps. First, we identified 822 respondents from the CFPS 2010 who confirmed being sent down during the movement. Second, these individuals were grouped according to the provinces they were sent to. Third, within each province, the SDY gender ratio was determined as the proportion of females within the group. The blue dashed lines indicate the 95% confidence intervals.



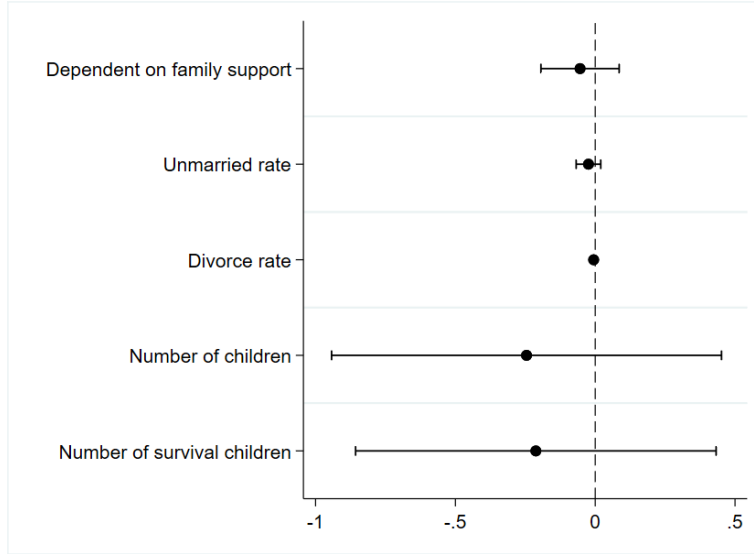
(A) Pre-movement female education and SDY sex ratio



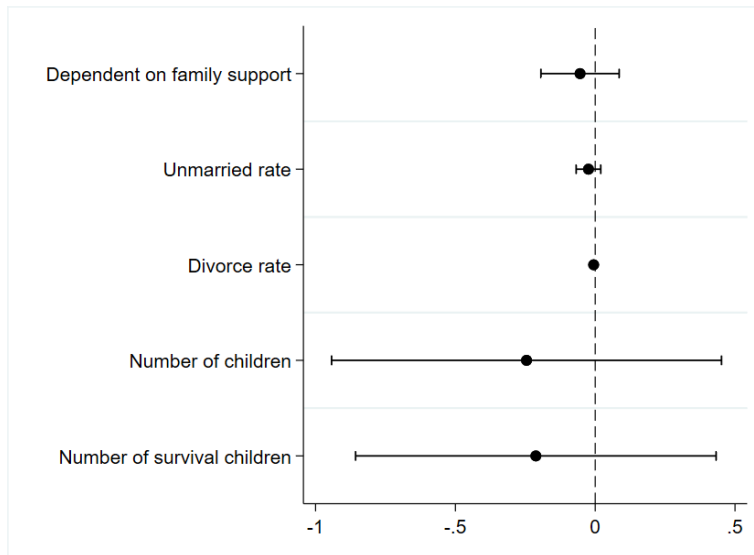
(B) Pre-movement female labor participation

FIGURE A12 Correlation between SDY Gender Ratio and Pre-Movement Recipient-county Characteristics in Education and Labor Market

Notes: This figure presents the estimated coefficients and corresponding 95% confidence intervals by regressing each of the pre-movement county characteristics on the SDY gender ratio. Robust standard errors are clustered at the province level. Dependent variables on the y-axis in Panel (A) are measures of educational attainment of the working-age rural female (aged 20-40) in 1967, calculated based on Census 2010. Dependent variables on the y-axis in Panel (B) are measures of labor market outcomes of the rural females aged more than 20 in 1967, calculated based on CHIP 2013. The provincial SDY gender ratio is calculated based on CFPS 2010.



(A) Pre-movement female marriage and fertility (working age)



(B) Pre-movement female marriage and fertility (all adults)

FIGURE A13 Correlation between SDY Gender Ratio and Pre-Movement Recipient-county Characteristics in Marriage and Fertility

Notes: This figure presents the estimated coefficients and corresponding 95% confidence intervals by regressing each of the pre-movement county characteristics on the SDY gender ratio. Robust standard errors are clustered at the province level. Dependent variables on the y-axis in Panel (A) are measures of marriage and fertility outcomes of the working-age rural female (aged 20-40) in 1967, calculated based on Census 2010. Dependent variables on the y-axis in Panel (B) are measures of marriage and fertility outcomes of the rural females aged more than 20 in 1967, calculated based on Census 2010. Provincial SDY gender ratio is calculated based on CFPS 2010.

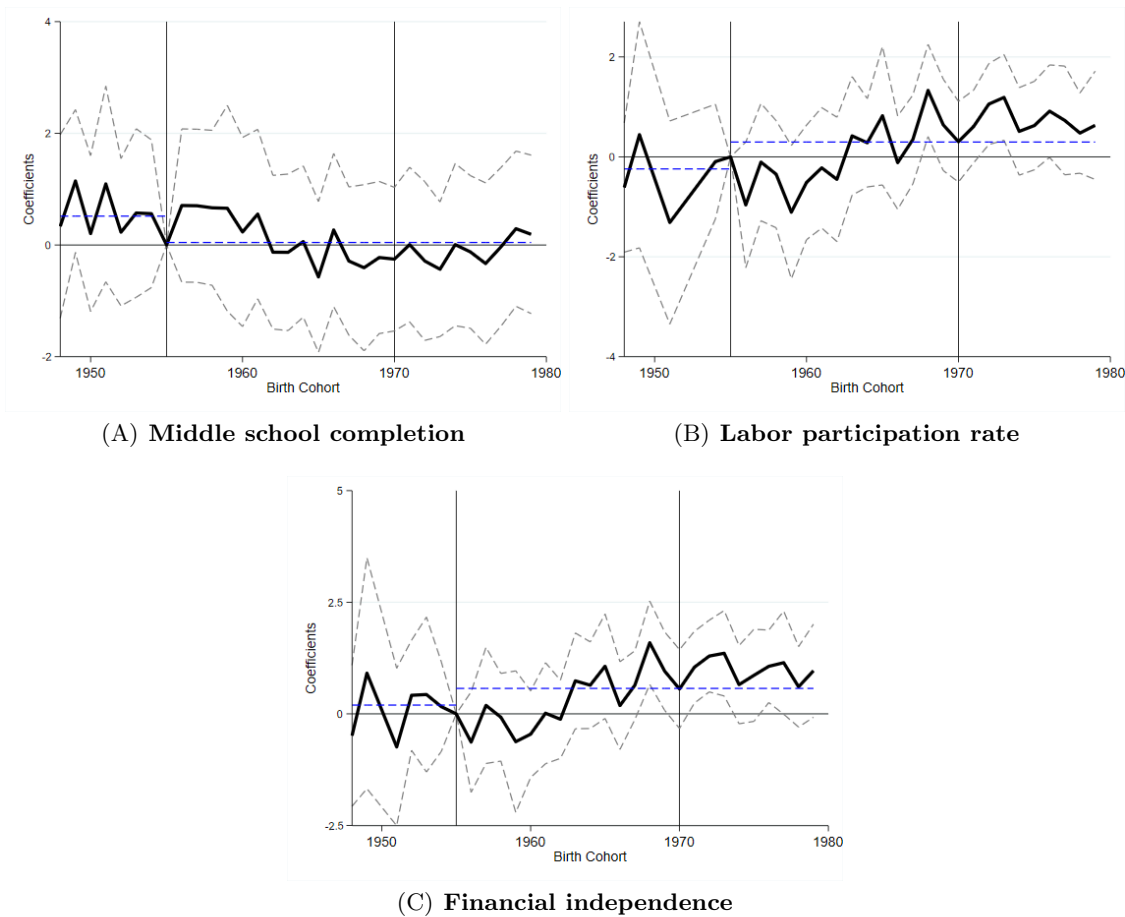


FIGURE A14 Event Study Analysis on SDY’s Effect on Gender Gap in Urban Sending Regions

Notes: This figure plots the estimated coefficients and corresponding 95% confidence intervals for event study analyses of SDY’s effect on the county-cohort gender gap in urban samples. The unit of observation is at the county-by-cohort level. All data are from the Population Census 2000. The gender gap is calculated as the ratio of female-to-male averages for each outcome in the urban population across counties. Specifically, Panel A displays the middle school completion rate, Panel B shows the labor market participation rate, and Panel C illustrates the average financial independence rate, defined as the primary source of income being one’s own work. The coefficients and their respective 95% confidence intervals are derived from the estimation based on Equation 2.

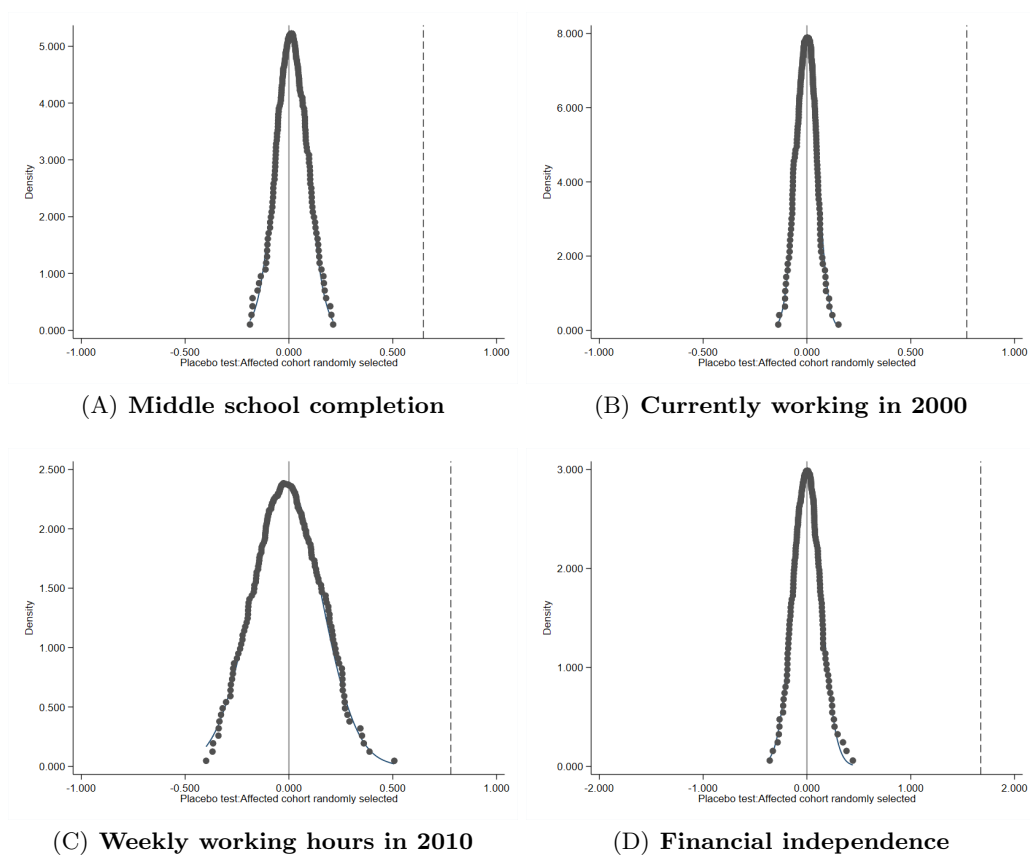


FIGURE A15
Permutation-test Coefficients for the Effect of Placebo SDY Exposure on Rural Gender Gap

Notes: This figure plots the coefficients of permutation test. We conduct each permutation test by randomly assigning SDY population share across counties and estimate the Equation 1 with the placebo SDY population share. We repeat each regression 500 times and plot the coefficients from all permutation regressions. The dependent variables in Panel A-D are the gender gap defined as the ratio of females to males in middle school completion rates, labor market participation rates in 2000, (unconditional) weekly working hours in 2010, and the indicator of financial independence (whether the main source of income is one's own work), respectively. The dashed line on the right of each figure is the baseline estimate from Table 3.

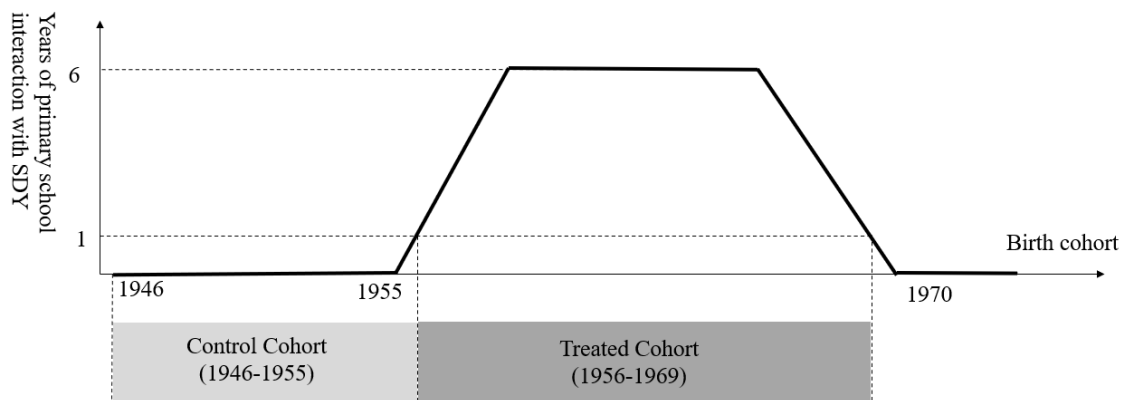


FIGURE A16
Number of Primary-School Years Spent with SDYs

Notes: This figure presents the number of years spent with Send-down Youths during primary school for local rural pupils across birth cohorts. The treatment cohort in the figure represents those who had spent at least one year in primary school with SDYs during the send-down movement, and the control group is those who had already passed the primary school age before the arrival of SDYs.

Appendix C Tables

TABLE B1 Total Number of Sent and Received SDYs in Each Province, 1962–1979

Province	SDY Received (thousands)			SDY Sent (thousands)		
	Total	Inside	Outside	Total	Inside	Outside
Beijing	384.2	384.2	0.0	636.3	384.2	252.1
Tianjin	193.6	193.6	0.0	465.1	193.6	271.5
Hebei	510.5	377.8	132.7	384.4	377.8	6.6
Shanxi	312.9	264.3	48.6	264.3	264.3	0.0
Inner Mongolia	299.3	193.8	105.5	193.8	193.8	0.0
Liaoning	2,018.0	2,013.4	4.6	2,013.4	2,013.4	0.0
Jilin	1,052.6	991.4	61.2	991.4	991.4	0.0
Heilongjiang	1,922.2	1,519.2	403.0	1,519.2	1,519.2	0.0
Shanghai	532.3	532.3	0.0	1,252.2	532.3	719.9
Jiangsu	861.2	810.2	51.0	828.4	810.2	18.2
Zhejiang	595.9	563.9	32.0	646.2	563.9	82.3
Anhui	725.5	576.5	149.0	576.5	576.5	0.0
Fujian	372.3	372.3	0.0	372.3	372.3	0.0
Jiangxi	622.5	504.5	118.0	504.5	504.5	0.0
Shandong	492.7	492.7	0.0	512.9	492.7	20.2
Henan	673.0	673.0	0.0	673.0	673.0	0.0
Hubei	878.6	878.6	0.0	886.6	878.6	8.0
Hunan	635.8	635.8	0.0	635.8	635.8	0.0
Guangdong	973.2	973.2	0.0	973.2	973.2	0.0
Guangxi	434.8	434.8	0.0	434.8	434.8	0.0
Sichuan	1,427.4	1,427.4	0.0	1,472.4	1,427.4	45.0
Guizhou	224.1	213.5	10.6	213.5	213.5	0.0
Yunnan	339.1	232.5	106.6	232.5	232.5	0.0
Tibet	3.4	3.4	0.0	3.4	3.4	0.0
Shaanxi	490.3	463.1	27.2	463.1	463.1	0.0
Gansu	264.3	245.2	19.1	245.2	245.2	0.0
Qinghai	51.0	43.6	7.4	43.6	43.6	0.0
Ningxia	57.5	49.2	8.3	49.2	49.2	0.0
Xinjiang	416.6	277.6	139.0	277.6	277.6	0.0
Total	17,764.8	16,341.0	1,423.8	17,764.8	16,341.0	1,423.8

Source: This table is obtained from Table 1 of [Chen et al. \(2020\)](#), originally sourced from the work of [Gu \(2009\)](#).

TABLE B2 Summary Statistics on Variables of Ideologies and Self-perceptions

Variable	(1)	(2)	(3)	(4)
	Females		Males	
	Mean	Std.Dev.	Mean	Std.Dev.
Panel A: CHIP 2008				
Self-rated importance: ^a				
Formal employment	0.745	0.167	0.814	0.153
Financial independence	0.774	0.165	0.850	0.148
Overcoming challenges	0.822	0.173	0.862	0.159
Self-confidence	0.823	0.144	0.853	0.139
Willingness to take risk	0.199	0.202	0.260	0.237
SDY population share	0.020	0.013	0.021	0.014
Treatment group	0.641	0.480	0.554	0.497
Panel B: CFPS 2018				
To what extent do you agree with: ^b				
Believe in self-accomplishment	0.776	0.231	0.793	0.222
Consider oneself as reserved and conservative	0.660	0.241	0.620	0.245
Value independent spousal relation	0.828	0.227	0.875	0.190
Desired number of children	2.400	0.977	2.257	0.911
Being a CCP party member	0.020	0.141	0.110	0.313
SDY population share	0.019	0.027	0.020	0.028
Treatment group	0.656	0.475	0.665	0.472
Observations in CHIP 2008	3,268		4,256	
Observations in CFPS 2018	2,697		2,567	

Notes: This table provides descriptive statistics for key variables of rural individuals born between 1946 and 1969. Panel (A) reports variables from CHIP 2008, and Panel (B) reports variables from CFPS 2018.

^a: The self-rated importance of each question is initially ranked on a scale from 1 to 4 and has been normalized to a range of 0 to 1, where a higher value signifies greater agreement with the statement.

^b: The self-rated extent of agreement to each question is initially ranked on a scale from 1 to 5 and has been normalized to a range of 0 to 1, where a higher value signifies greater agreement with the statement.

TABLE B3 Summary Statistics: Mental Health and Subjective Well-beings

Variable	(1)	(2)	(3)	(4)
	Females		Males	
	Mean	Std.Dev.	Mean	Std.Dev.
Panel A: CHIP 2008				
Rated by 1 (not at all) - 4 (always):				
I feel distracted from work	1.896	0.842	1.567	0.753
I worry about not sleeping well	1.776	0.599	1.634	0.575
I feel high mental pressure	1.802	0.597	1.714	0.589
I fear of difficulties	1.722	0.580	1.604	0.559
I feel sad and depressed	1.705	0.577	1.589	0.557
SDY population share ^a	0.020	0.013	0.021	0.014
Treatment group ^b	0.641	0.480	0.554	0.497
Panel B: CFPS 2016-2018				
K6 scale of distress (ranging 0-24)	10.344	3.560	9.215	3.163
Modest risk of depression (K6 \geq 8)	0.752	0.432	0.631	0.483
Severe risk of depression (K6 \geq 13)	0.230	0.421	0.137	0.344
K6 sub-items: 0 (not at all) - 4 (always):				
I feel nervous	1.814	0.853	1.652	0.785
I feel worthless	1.956	0.956	1.788	0.916
I have poor sleep	2.065	1.024	1.702	0.910
I feel lonely	1.533	0.823	1.432	0.754
I feel sad	1.640	0.816	1.425	0.700
I am unable to carry on with life	1.336	0.689	1.217	0.561
Life satisfaction: 1 (not at all) - 4 (always):				
I feel happy	2.774	1.018	2.907	0.986
I am enjoying life	2.914	1.004	3.034	0.969
SDY population share ^a	0.019	0.026	0.019	0.027
Treatment group ^b	0.647	0.478	0.663	0.473
Observations in CHIP 2008	3,268		4,256	
Observations in CFPS 2016-2018	5,883		5,513	

Notes: This table provides descriptive statistics for key variables of rural individuals born between 1946 and 1969. ^a: SDY population share is defined as the number of received SDYs during 1968-1977 divided by pre-Movement local population in 1964. ^b: The treatment group is defined as cohorts born between 1956 and 1969 (at primary school during the Send-down Movement); the control group is defined as cohorts born between 1946 and 1955. See Appendix Figure A4 for a timeline illustration of the movement and how it defines the treatment and control cohorts.

TABLE B4 Robustness Checks by Progressive Inclusion of Covariates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A	Middle school completion			High school completion			University completion		
<i>SDY</i> × <i>Treat</i>	-0.030 (0.087)	0.431*** (0.131)	0.434*** (0.131)	0.534*** (0.063)	0.646*** (0.063)	0.647*** (0.063)	0.113*** (0.015)	0.127*** (0.018)	0.127*** (0.018)
Observations	1,264,842	1,264,842	1,264,842	1,264,842	1,264,842	1,264,842	1,264,842	1,264,842	1,264,842
Control-group mean	0.215	0.215	0.215	0.046	0.046	0.046	0.006	0.006	0.006
Panel B	Currently working in 2000			Currently working in 2010			Weekly working hours		
<i>SDY</i> × <i>Treat</i>	0.808*** (0.081)	0.695*** (0.072)	0.694*** (0.072)	0.768*** (0.128)	0.652*** (0.120)	0.643*** (0.123)	26.355*** (5.745)	24.678*** (5.946)	24.571*** (5.945)
Observations	1,264,842	1,264,842	1,264,842	312,366	312,350	312,350	312,366	312,350	312,350
Control-group mean	0.812	0.812	0.812	0.685	0.685	0.685	25.496	25.496	25.496
County FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cohort FE	✓			✓			✓		
Province-cohort FE		✓	✓		✓	✓		✓	✓
Control			✓			✓			✓

Notes: This table reports the impact of SDYs on female education after gradually adding controls. The results are based on the 2000 and 2010 censuses. The unit of observation is at the individual level. The dependent variable in Columns 1 to 3 in Panel A is a dummy variable that takes the value of 1 if the sample has completed middle school and 0 otherwise, while in Columns 4 to 6 in Panel A is a dummy variable that takes the value of 1 if the sample has completed high school, and 0 otherwise. Columns 7 to 9 in Panel A are dummy variables that take the value of 1 if the sample has completed university and 0 otherwise. The dependent variable in Columns 1 to 6 in Panel B are a dummy variable indicating whether the woman is currently working in 2000 or 2010; while in Columns 7 to 9 in Panel B are weekly working hours in 2010. *SDY* is the county-level SDY population share, defined as the number of received SDYs during 1968-1977 divided by pre-Movement local population in 1964. *Treat* is a dummy variable indicating whether the individual was born between 1956 and 1969. The control variable is whether the individual belongs to the Han ethnic group. Robust standard errors clustered at the county level are presented in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE B5 Effect of SDY on Female Financial Independence

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)
	Financial independence			Financial dependence		
	Female	Male	All	Female	Male	All
<i>SDY</i> × <i>Treat</i>	0.651*** (0.120)	0.210** (0.082)	0.150* (0.086)	-0.434*** (0.113)	-0.104 (0.072)	-0.098 (0.102)
<i>SDY</i> × <i>Treat</i> × <i>Female</i>			0.580*** (0.107)			-0.416*** (0.106)
Control	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
Province-by-cohort FE	✓	✓	✓	✓	✓	✓
Observations	312,350	304,241	615,260	312,350	304,241	615,260
R-squared	0.171	0.087	0.217	0.158	0.075	0.213
Control-group mean	0.676	0.871	0.774	0.290	0.086	0.391

Notes: This table reports results testing for the impact of SDYs on female financial independence. The unit of observation is at the individual level. Data are based on the 2010 Population Census. The sample includes all cohorts born between 1946 and 1969. The dependent variable in Columns 1 to 3 is an indicator of financial independence, equals to one if an individual's primary source of income is their own work; the dependent variable in Columns 4 to 6 is an indicator of financial dependence, equals to one if an individual's primary source of income is family support. *SDY* is the county-level SDY population share, defined as the number of received SDYs during 1968-1977 divided by pre-Movement local population in 1964. *Treat* is a dummy variable indicating whether the individual was born between 1956 and 1969. *Female* is a dummy variable indicating whether the individual is female. Robust standard errors clustered at the county level are presented in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE B6 Estimated Effect of SDY on Labor Supply in Formal Employment

	(1)	(2)	(3)	(4)	(5)	(6)
Labor Supply in Non-agriculture Work						
	All non-agriculture		Paid work		Self-employment	
	Female	Male	Female	Male	Female	Male
<i>SDY</i> × <i>Treat</i>	1.319*** (0.480)	-0.977 (0.722)	1.896*** (0.487)	-0.734 (0.662)	-0.321 (0.378)	0.254 (0.297)
Observations	5,114	5,476	5,139	5,487	5,106	5,443
R-squared	0.268	0.217	0.269	0.184	0.119	0.126
Control-group mean	0.125	0.378	0.086	0.298	0.044	0.099
	(7)	(8)	(9)	(10)	(11)	(12)
Labor Supply in Paid Employment						
Dependent variable	Months worked per year		Participation			
			Private sector		Public sector	
	Female	Male	Female	Male	Female	Male
<i>SDY</i> × <i>Treat</i>	15.422*** (4.357)	3.001 (4.175)	3.481*** (0.982)	-1.079*** (0.394)	-3.555*** (1.007)	1.002*** (0.356)
Observations	5,140	5,480	1,380	3,426	1,380	3,426
R-squared	0.335	0.234	0.304	0.163	0.312	0.166
Control-group mean	0.638	2.179	0.928	0.890	0.072	0.106
Control	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
Province-cohort FE	✓	✓	✓	✓	✓	✓

Notes: This table reports results for the effect of SDY on labor supply in formal employment. The data is sourced from CHIP 2013. The unit of observation is at the individual level. The dependent variable in Columns 1 to 2 is a dummy variable indicating whether the individual engages in non-agricultural work (*All non-agriculture*). The dependent variable is a dummy variable indicating whether the individual has paid work (*Paid work*) in Columns 3 to 4, and whether the individual has non-agricultural but non-employment work (*Self-employment*) in Columns 5 to 6. The dependent variable in Columns 7 to 8 is the number of months engaged in paid work per year (*Paid work (months per year)*). The dependent variable in Columns 9 to 10 is whether the individual participates in private sector employment (*Private sector*), while in Columns 11 to 12 represents whether the individual participates in public sector employment (*Public sector*). *SDY* is the county-level SDY population share, defined as the number of received SDYs during 1968-1977 divided by pre-Movement local population in 1964. *Treat* is a dummy variable indicating whether the individual was born between 1956 and 1969. Robust standard errors clustered at the county level are presented in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE B7 Alternative Explanation: Market-oriented Reforms

	(1)	(2)	(3)	(4)
	Baseline	Terrain-cohort FE and Distance- to-coast-cohort FE	Coastal-cities- cohort FE	Historical- centers-Cohort FE
Panel A: Gender ratio in middle school completion				
<i>SDY</i> × <i>Treat</i>	0.647*** (0.193)	0.745*** (0.280)	0.649*** (0.193)	0.529*** (0.190)
Observations	38,935	38,935	38,935	38,935
R-squared	0.873	0.876	0.874	0.874
Panel B: Gender ratio in currently working in 2000				
<i>SDY</i> × <i>Treat</i>	0.770*** (0.083)	0.942*** (0.124)	0.770*** (0.083)	0.742*** (0.083)
Observations	38,935	38,935	38,935	38,935
R-squared	0.775	0.759	0.775	0.776
Panel C: Gender ratio in weekly working hours in 2010				
<i>SDY</i> × <i>Treat</i>	0.780*** (0.175)	0.879*** (0.211)	0.785*** (0.176)	0.670*** (0.171)
Observations	36,743	36,743	36,743	36,743
R-squared	0.277	0.289	0.278	0.279
Panel D: Gender ratio in financial independence				
<i>SDY</i> × <i>Treat</i>	1.676*** (0.255)	2.100*** (0.344)	1.683*** (0.254)	1.449*** (0.242)
Observations	38,354	38,354	38,354	38,354
R-squared	0.631	0.637	0.631	0.633
Control	✓	✓	✓	✓
County FE	✓	✓	✓	✓
Province-cohort FE	✓	✓	✓	✓

Notes: This table presents results testing for alternative explanations about market-oriented reforms. The unit of observation is at the county by cohort level. The dependent variables across Panel A-D are the gender gap (female-to-male ratio) in middle school completion rates, whether currently working in 2000, weekly working hours in 2010, and the indicator of financial independence (the main source of income being one's own work). Regression specification in Column 1 is identical to the baseline Table 3, adding terrain-cohort FE and distance-to-coast-cohort FE in Column 2, adding coastal-cities-cohort FE in Column 3, and adding historical-centers-cohort FE in Column 4. All regressions are weighted by cohort-by-county population size. Robust standard errors clustered at the county level are presented in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE B8 Alternative Explanation: Cultural Revolution and Grain Output

	(1) Baseline	(2) Cultural Revolution Casualties-cohort FE	(3) Per Capita Grain Output-cohort FE
Panel A: Gender ratio of middle school completion rates			
<i>SDY</i> × <i>Treat</i>	0.647*** (0.193)	0.634*** (0.195)	1.024*** (0.236)
Observations	38,935	38,599	27,366
R-squared	0.873	0.873	0.875
Panel B: Gender ratio of currently working in 2000			
<i>SDY</i> × <i>Treat</i>	0.770*** (0.083)	0.756*** (0.083)	0.767*** (0.094)
Observations	38,935	38,599	27,366
R-squared	0.775	0.776	0.776
Panel C: Gender ratio of weekly working hours in 2010			
<i>SDY</i> × <i>Treat</i>	0.780*** (0.175)	0.752*** (0.176)	1.218*** (0.249)
Observations	36,743	36,452	26,005
R-squared	0.277	0.277	0.304
Panel D: Gender ratio of financial independence			
<i>SDY</i> × <i>Treat</i>	1.676*** (0.255)	1.661*** (0.256)	2.328*** (0.368)
Observations	38,354	38,040	27,098
R-squared	0.631	0.633	0.638
Control	✓	✓	✓
County FE	✓	✓	✓
Province-cohort FE	✓	✓	✓

Notes: This table presents results testing for alternative explanation about Cultural Revolution and grain output. The unit of observation is at the county by cohort level. The dependent variables across Panel A-D are the gender gap defined as the ratio of females to males in middle school completion rates, currently working in 2000, weekly working hours in 2010, and financial independence in 2010 (defined as one if an individual's main source of income is their own work). Regression specification in Column 1 is identical to the baseline Table 3, adding cultural revolution casualties-cohort FE in Column 2, adding per capita grain output-cohort in Column 3. All regressions are weighted by cohort-by-county population size. Robust standard errors clustered at the county level are presented in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE B9 Alternative Explanation: the Chinese Great Famine

	(1)	(2)	(3)	(4)
	Gender gap defined as the ratio of females dividing by males			
Dependent variable	Middle school completion	Currently working in 2000	Weekly working hours in 2010	Financial independence
Panel A: Exclude individuals born during the Chinese Great Famine (1959-1961)				
$SDY \times Treat$	0.614*** (0.197)	0.778*** (0.084)	0.820*** (0.179)	1.728*** (0.269)
Observations	34,087	34,087	32,303	33,685
R-squared	0.880	0.781	0.286	0.644
Panel B: Exclude individuals below 3 years old during the Chinese Great Famine				
$SDY \times Treat$	0.644*** (0.224)	0.822*** (0.084)	0.988*** (0.193)	2.004*** (0.307)
Observations	29,217	29,217	27,654	28,864
R-squared	0.888	0.785	0.286	0.659
Control	✓	✓	✓	✓
County FE	✓	✓	✓	✓
Province-cohort FE	✓	✓	✓	✓

Notes: This table presents the results for an alternative explanation of the Chinese Great Famine. The unit of observation is at the county by cohort level. The dependent variables across columns 1-4 are the gender gap (female-to-male ratio) in middle school completion rates, whether currently working in 2000, weekly working hours in 2010, and the indicator of financial independence in 2010 (the main source of income being one's own work). Regression specifications are identical to the baseline Table 3. The sample in Panel A excludes cohorts born during the Chinese Great Famine (1959-1961). The sample in Panel B excludes cohorts under three years old during the Chinese Great Famine. All regressions are weighted by cohort-by-county population size. Robust standard errors clustered at the county level are presented in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE B10 Alternative Explanation: Family Planning Policy

Dependent variable	(1)	(2)	(3)	(4)
	Gender gap defined as the ratio of females dividing by males			
	Middle school completion	Currently working in 2000	Weekly working hours in 2010	Financial independence
$SDY \times Treat$	0.648*** (0.195)	0.762*** (0.083)	0.789*** (0.179)	1.672*** (0.259)
EFR-exposure cohort FE	✓	✓	✓	✓
Observations	38,095	38,095	35,707	37,297
R-squared	0.873	0.776	0.278	0.631
Control	✓	✓	✓	✓
County FE	✓	✓	✓	✓
Province-cohort FE	✓	✓	✓	✓

Notes: This table presents the results for an alternative explanation of the family planning policy. The unit of observation is at the county by cohort level. The dependent variables across columns 1-4 are the gender gap, defined as the ratio of females to males in middle school completion rates, currently working in 2000, weekly working hours in 2010, and the proportion living on one's own work. Regression specification is based on the baseline Table 3 by adding the EFR-exposure cohort FE. EFR (the excess fertility rate) is the percentage of Han mothers aged 25-44 with higher-order births in 1981. Exposure cohort refers to individuals aged between 15 and 45 when the "later, longer, fewer" family planning policy was introduced. All regressions are weighted by cohort-by-county population size. Robust standard errors clustered at the county level are presented in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE B11 Robustness Test based on Alternative Subsamples

	(1)	(2)	(3)	(4)
	Gender ratio (female divided by male) in			
Dependent variable	Middle school completion	Currently working	Weekly working hours	Financial independence
Panel A: Exclude provinces in the “Construction of Third Front”				
<i>SDY</i> × <i>Treat</i>	0.569*** (0.210)	0.707*** (0.084)	0.819*** (0.225)	1.567*** (0.307)
Observations	25,289	25,289	23,081	24,020
R-squared	0.877	0.795	0.274	0.632
Control-group mean	0.343	0.824	0.628	0.881
Panel B: Exclude provinces with a low population share of received SDYs				
<i>SDY</i> × <i>Treat</i>	0.549*** (0.207)	0.843*** (0.094)	0.801*** (0.183)	1.793*** (0.284)
Observations	32,812	32,812	31,616	32,800
R-squared	0.881	0.774	0.278	0.631
Control-group mean	0.288	0.879	0.688	0.952
Control	✓	✓	✓	✓
County FE	✓	✓	✓	✓
Province-cohort FE	✓	✓	✓	✓

Notes: This table presents the effect of SDY on the gender ratio of education, formal employment, and financial independence using alternative sample restrictions to exclude some counties that might have implemented confounding policies during the movement. The unit of observation is at the county by cohort level. The data source is Population Census 2000 for Columns 1 and 2 and Population Census 2010 for Columns 3 and 4. All dependent variables represent the female-to-male ratio in corresponding dimensions. The dependent variable is the gender ratio of a dummy variable to indicate if the individual has completed middle school (*Middle school completion*) in Column 1; a dummy variable to indicate if the individual was currently working (*Currently working*) in Column 2, the weekly working hours (*Weekly working hours*) in Column 3, and a dummy variable to indicate if the main source of income is one’s own work (*Financial independence*) in Column 4. *SDY* is the county-level SDY population share, defined as the number of received SDYs during 1968-1977 divided by pre-Movement local population in 1964. *Treat* is a dummy variable indicating whether the individual was born between 1956 and 1969. Regressions in Panel (A) exclude 9 Provinces in the “Third Front” Construction Region (Sichuan, Guizhou, Yunan, Gansu, Ningxia, Shaanxi, Guangxi, Hubei, and Hunan), and regressions in Panel (B) exclude five provinces (Shanxi, Heilongjiang, Yunnan, Ningxia, and Xinjiang) where local gazettes account for a relatively small share of the received SDY participants compared to national statistics. All regressions are weighted by the cohort-county population size. Robust standard errors clustered at the county level are presented in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE B12 Heterogeneous Effect of SDY on Gender Gap by Regional Pre-movement Economic Development

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Education Attainment		Labor Participation			Main Source of Income	
	Middle school	High school	Working in 2000	Working in 2010	Working hours	Own work	Family support
Panel A: Gender gap defined as females minus males							
<i>SDY × Treat</i>	0.424*** (0.107)	0.141** (0.065)	0.487*** (0.077)	0.454*** (0.170)	27.231*** (8.752)	0.446*** (0.170)	-0.293* (0.169)
<i>SDY × Treat × Low Development</i>	0.084 (0.137)	-0.011 (0.077)	0.018 (0.098)	0.070 (0.197)	7.350 (10.272)	0.025 (0.197)	0.001 (0.193)
Observations	38,790	38,790	38,790	37,299	37,299	37,299	37,299
R-squared	0.480	0.257	0.671	0.361	0.293	0.367	0.406
Control-group mean	-0.228	-0.069	-0.160	-0.221	-12.051	-0.226	0.234
Panel B: Gender gap defined as the ratio of females dividing by males							
<i>SDY × Treat</i>	0.719*** (0.229)	2.442*** (0.356)	0.792*** (0.097)	0.655*** (0.231)	0.864*** (0.272)	1.522*** (0.354)	-9.058** (3.765)
<i>SDY × Treat × Low Development</i>	0.104 (0.298)	0.051 (0.430)	0.032 (0.129)	-0.013 (0.259)	0.122 (0.305)	-0.248 (0.432)	-2.537 (4.870)
Observations	38,935	38,935	38,935	36,937	36,743	38,354	37,242
R-squared	0.873	0.654	0.775	0.361	0.277	0.631	0.586
Control-group mean	0.297	0.175	0.865	0.744	0.686	0.948	4.782
County FE	✓	✓	✓	✓	✓	✓	✓
Province-cohort FE	✓	✓	✓	✓	✓	✓	✓

Notes: This table reports results on SDY's heterogeneous impact on the county-level gender gap across rural counties with different levels. The dependent variable is the county-level gender gap defined as the female minus male in Panel A and the ratio of females divided by males in Panel B. *SDY* is the county-level population share of received SDYs during the movement (1968-1978) relative to the local population in 1964. The dependent variable is the county-level gender gap defined as the female minus male in Panel A and the ratio of females divided by males in Panel B. *SDY* is the county-level SDY population share, defined as the number of received SDYs during 1968-1977 divided by pre-Movement local population in 1964. *Treat* is a dummy variable indicating whether the individual was born between 1956 and 1969. *Low Development* is a dummy variable indicating whether the local county's grain output per capita is lower than the sample average in periods before the movement. All regressions are weighted by county-cohort population size. Robust standard errors clustered at the county level are presented in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE B13 Alternative Explanation: The Women's Movement

	(1)	(2)	(3)	(4)
	Baseline	Revolutionary- base-cohort FE	Revolutionary- base/CCM- membership- cohort FE	Confucian- academies-cohort FE
Panel A: Dependent Variable: Gender ratio for middle school completion				
<i>SDY</i> × <i>Treat</i>	0.647*** (0.193)	0.621*** (0.192)	0.713*** (0.272)	0.735*** (0.271)
Observations	38,935	38,935	33,548	33,548
R-squared	0.873	0.874	0.876	0.875
Panel B: Dependent Variable: Gender ratio for formal employment				
<i>SDY</i> × <i>Treat</i>	0.770*** (0.083)	0.764*** (0.082)	0.922*** (0.122)	0.929*** (0.123)
Observations	38,935	38,935	33,548	33,548
R-squared	0.775	0.775	0.759	0.758
Panel C: Dependent Variable: Gender ratio for weekly working hours				
<i>SDY</i> × <i>Treat</i>	0.780*** (0.175)	0.772*** (0.175)	0.824*** (0.207)	0.844*** (0.206)
Observations	36,743	36,743	32,551	32,551
R-squared	0.277	0.278	0.290	0.288
Panel D: Dependent Variable: Gender ratio for financial independence				
<i>SDY</i> × <i>Treat</i>	1.676*** (0.255)	1.678*** (0.255)	2.033*** (0.341)	2.044*** (0.337)
Observations	38,354	38,354	33,843	33,843
R-squared	0.631	0.631	0.637	0.636
Control	✓	✓	✓	✓
County FE	✓	✓	✓	✓
Province-cohort FE	✓	✓	✓	✓

Notes: This table presents results testing for alternative explanation about the women's movement. The unit of observation is at the county by cohort level. The dependent variables across Panel A-D are the gender gap (female-to-male ratio) in middle school completion rates, whether currently working in 2000, weekly working hours in 2010, and the indicator of financial independence (the main source of income being one's own work). Regression specification in Column 1 is identical to the baseline Table 3, adding revolutionary-base-cohort FE in Column 2, adding revolutionary-base/CCM-membership-cohort FE in Column 3, and adding Confucian-academies-cohort FE in Column 4. All regressions are weighted by cohort-by-county population size. Robust standard errors clustered at the county level are presented in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE B14 Alternative Explanation: Rural-to-urban migration

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Education Attainment		Labor Participation			Main Source of Income	
Gender Gap in	Middle school completion	High school completion	Working in 2000	Working in 2010	Weekly working hours	Own work	Family
Panel A: Excluding counties with top 10% out-migration rates post mid-1990s^a							
<i>SDY</i> × <i>Treat</i>	0.435** (0.214)	2.317*** (0.253)	0.776*** (0.095)	0.619*** (0.178)	0.656*** (0.199)	1.402*** (0.288)	-6.812** (3.440)
Observations	34,562	34,562	34,562	29,826	29,707	30,900	30,144
Panel B: Excluding counties with top and bottom 5% net migration rates post mid-1990s^b							
<i>SDY</i> × <i>Treat</i>	0.626*** (0.205)	2.436*** (0.255)	0.784*** (0.088)	0.580*** (0.157)	0.622*** (0.176)	1.401*** (0.250)	-7.376** (3.475)
Observations	36,153	36,153	36,153	31,012	30,880	32,172	31,380
Panel C: Including in/out-migration-quartile-cohort FEs as controls							
<i>SDY</i> × <i>Treat</i>	0.451** (0.190)	2.212*** (0.241)	0.739*** (0.083)	0.632*** (0.160)	0.741*** (0.178)	1.580*** (0.260)	-7.688** (3.070)
Observations	38,935	38,935	38,935	36,937	36,743	38,354	37,242
County FE	✓	✓	✓	✓	✓	✓	✓
Province-cohort FE	✓	✓	✓	✓	✓	✓	✓

Notes: This table presents results testing for alternative explanation about rural-to-urban migration during the mid-1990s. The unit of observation is at the county by cohort level. Data are based on Population Census 2000 in Columns 1 to 3 and Population Census 2010 in Columns 4 to 7. The sample includes all cohorts born between 1946 and 1969. Panel A excludes counties with out-migration rates exceeding the top decile of out-migration rate distribution. Panel B excludes counties with in-migration rates exceeding the top decile of in-migration rate distribution. Panel C adds a set of out-migration-quartile-cohort FEs and in-migration-quartile-cohort FEs to the baseline specification. All other regression specifications are the same as in baseline Table 3. Robust standard errors clustered at the county level are presented in parentheses. All regressions are weighted by county-cohort population size. ***p < 0.01, **p < 0.05, *p < 0.1. ^a: The out-migration rate from 1995-2000 of the treatment cohort in each rural county is calculated by dividing the number of out-migrated rural females of the treatment cohort (born between 1956 and 1969) by the total population of rural females of the same cohort in the county. ^b: The net migration rate from 1995-2000 in each rural county is calculated by dividing the difference between the number of out-migrants and in-migrants by the total population of rural females in the county.

TABLE B15 Summary Statistics of SDYs surveyed in CFPS 2010

Variable	(1)	(2)	(3)	(4)
	Females		Males	
	Mean	Std.Dev.	Mean	Std.Dev.
Birth year	1952.439	6.298	1952.169	7.421
Middle school completion	0.803	0.398	0.810	0.393
High school completion	0.347	0.476	0.387	0.488
University completion	0.082	0.275	0.121	0.327
Sent-down in the same province ^a	0.748	0.435	0.810	0.393
Observations	401		421	

Notes: This table provides descriptive statistics on the demographics of Sent-Down Youths (SDYs) surveyed in the CFPS 2010. All individuals included in the survey responded affirmatively to having been sent down to rural counties during the Send-down Movement.

^a: This indicator equals one if the respondent reported that the rural county they were sent to was in the same province as their urban home.

TABLE B16 Different Bandwidths of Treated Cohorts

	(1)	(2)	(3)	(4)
	Gender ratio (female divided by male) in			
Dependent variable	Middle school completion	Currently working	Weekly working hours	Financial independence
Panel A: Treated cohorts: 1956-1966				
<i>SDY</i> × <i>Treat</i>	0.673*** (0.182)	0.751*** (0.082)	0.686*** (0.171)	1.565*** (0.241)
Observations	34,043	34,043	31,878	33,428
R-squared	0.870	0.775	0.273	0.614
Control-group mean	0.297	0.865	0.686	0.948
Panel B: Treated cohorts: 1956-1971				
<i>SDY</i> × <i>Treat</i>	0.637*** (0.199)	0.780*** (0.080)	0.769*** (0.174)	1.680*** (0.262)
Observations	42,193	42,193	39,989	41,641
R-squared	0.876	0.774	0.282	0.638
Control-group mean	0.297	0.865	0.656	0.948
Panel C: Treated cohorts: 1953-1969				
<i>SDY</i> × <i>Treat</i>	0.727*** (0.172)	0.954*** (0.099)	0.875*** (0.229)	1.610*** (0.278)
Observations	38,935	38,935	36,743	38,354
R-squared	0.873	0.775	0.277	0.630
Control-group mean	0.297	0.865	0.686	0.978
Control	✓	✓	✓	✓
County FE	✓	✓	✓	✓
Province-cohort FE	✓	✓	✓	✓

Notes: This table presents the effect of SDY on the gender ratio of education, formal employment, and financial independence using alternative definitions of treatment groups. The unit of observation is at the county by cohort level. The data source is Population Census 2000 for Columns 1 and 2 and Population Census 2010 for Columns 3 and 4. All dependent variables represent the female-to-male ratio in corresponding dimensions. The dependent variable is the gender ratio of a dummy variable to indicate if the individual has completed middle school (*Middle school completion*) in Column 1; a dummy variable to indicate if the individual was currently working (*Currently working*) in Column 2, the weekly working hours (*Weekly working hours*) in Column 3, and a dummy variable to indicate if the main source of income is one's own work (*Financial independence*) in Column 4. *SDY* is the county-level population share of received SDYs during the movement to the county population in 1964. *Treat* is a dummy variable indicating whether the individual was born between 1956 and 1966 in Panel (A), those born between 1956 and 1971 in Panel (B), and those born between 1953 and 1969 in Panel (C). All regressions are weighted by the cohort-county population size. Robust standard errors clustered at the county level are presented in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE B17 Testing the Channel of Human Capital Accumulation through In-school Interactions with SDYs

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Education Attainment		Labor Participation			Main source of income	
	Middle school completion	High school completion	Working in 2000	Working in 2010	Weekly working hours	Own work	Family
Panel A: Gender ratio (females divided by males)							
<i>SDY × Treat</i>	0.131 (0.302)	1.398*** (0.433)	0.800*** (0.099)	0.541*** (0.170)	0.693*** (0.193)	1.436*** (0.253)	-5.644* (2.917)
<i>SDY × Treat × High</i>	0.088 (0.154)	1.739*** (0.480)	0.109* (0.057)	0.219** (0.102)	0.157 (0.122)	0.435*** (0.145)	-3.122** (1.415)
Observations	38,890	38,694	38,935	36,937	36,743	38,354	37,242
R-squared	0.793	0.522	0.727	0.361	0.277	0.631	0.586
Panel B: Gender difference (females minus males)							
<i>SDY × Treat</i>	0.313*** (0.084)	0.101** (0.050)	0.449*** (0.065)	0.294** (0.128)	17.598** (6.970)	0.316** (0.127)	-0.203 (0.125)
<i>SDY × Treat × High</i>	0.131** (0.063)	0.110* (0.061)	0.058 (0.056)	0.204** (0.090)	8.691 (5.342)	0.203** (0.091)	-0.161** (0.081)
Observations	38,790	38,790	38,790	37,299	37,299	37,299	37,299
R-squared	0.480	0.257	0.671	0.361	0.293	0.367	0.406
County FE	✓	✓	✓	✓	✓	✓	✓
Province-cohort FE	✓	✓	✓	✓	✓	✓	✓

Notes: This table reports results on SDY's impact on the county-level average gender gap in labor market outcomes and financial independence. The unit of observation is at the county by cohort level. Data are based on Population Census 2000 in Columns 1 to 4 and Population Census 2010 in Columns 5 to 8. The sample includes all cohorts born between 1946 and 1969. Regression specifications are the same as in baseline Table 3, except including the triple interaction term, $SDY \times Treat \times High$. *High* is an indicator that equals one if a given cohort had spent five years with SDYs in primary school and zero otherwise. Robust standard errors clustered at the county level are presented in parentheses. All regressions are weighted by county-cohort population size. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

TABLE B18 Testing the Channel of Ideology Transmission through In-school Interactions with SDYs

	(1)	(2)	(3)	(4)	(5)
Data source	CFPS 2018				
Dependent variable	CCP member	Believe in self accomplishment	Reserved and conservative	Value indep. spousal relation	Desired number of children
<i>SDY × Treat × Female</i>	2.422*** (0.661)	0.810* (0.421)	-1.304** (0.524)	0.444 (0.413)	-3.034 (2.009)
<i>SDY × Treat × Female × High</i>	0.256 (0.551)	0.254 (0.534)	0.135 (0.369)	0.581 (0.533)	-0.035 (1.596)
Observations	4,905	4,842	4,853	4,879	4,886
R-squared	0.284	0.291	0.302	0.297	0.478
Control-group mean	0.074	0.789	0.624	0.845	2.543
	(6)	(7)	(8)	(9)	(10)
Data source	CHIP 2008				
Dependent variable	Formal employment	Financial independence	Overcoming challenges	Self-confidence	Willingness to take risk
<i>SDY × Treat × Female</i>	2.956*** (0.536)	3.066*** (0.620)	2.068*** (0.584)	1.165*** (0.364)	1.386* (0.703)
<i>SDY × Treat × Female × High</i>	-0.108 (0.428)	-0.257 (0.360)	0.272 (0.350)	0.081 (0.383)	0.048 (0.582)
Observations	7,400	7,397	7,402	7,399	7,375
R-squared	0.276	0.290	0.269	0.283	0.359
Control-group mean	0.773	0.813	0.843	0.834	0.215
Control	✓	✓	✓	✓	✓
County-cohort FE	✓	✓	✓	✓	✓

Notes: This table reports results testing for the impact of SDYs on female political participation, self-perception, and social values. The unit of observation is at the individual level. The data sources are CFPS 2018 for Columns 1 to 5 and CHIP 2008 for Columns 6 to 10. All regression specifications are the same as in Table 6, except including the triple interaction term, *SDY × Treat × High*. *High* is an indicator that equals one if a given cohort had spent five or six years with SDYs in primary school and zero otherwise. Robust standard errors clustered at the county level are presented in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE B19 Testing the Channel of Social Interactions with SDYs in Regions with Different Demand for Female Labor

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)
	First marry age if ever married		Ever divorced		Financial independence	
	Female	Male	Female	Male	Female	Male
Panel A: High- vs low-intensity in tea cultivation						
<i>SDY</i> × <i>Young</i>	4.016*** (0.749)	0.545 (0.879)	-0.025 (0.041)	-0.034 (0.041)	0.750*** (0.136)	1.007*** (0.137)
<i>SDY</i> × <i>Young</i> × <i>Tea</i>	3.342** (1.504)	-0.384 (1.486)	0.094* (0.054)	-0.013 (0.063)	0.560* (0.311)	0.008 (0.295)
Observations	943,616	944,171	944,664	989,261	944,664	989,261
R-squared	0.159	0.090	0.027	0.036	0.199	0.116
Control-group mean	21.616	24.185	0.041	0.039	0.812	0.953
Panel B: High- vs low-intensity in orchard cultivation						
<i>SDY</i> × <i>Young</i>	4.288*** (0.746)	0.939 (0.821)	0.024 (0.053)	0.005 (0.051)	0.753*** (0.169)	0.862*** (0.133)
<i>SDY</i> × <i>Young</i> × <i>Orchard</i>	1.993 (1.415)	-1.054 (1.431)	-0.022 (0.062)	-0.085 (0.064)	0.415 (0.282)	0.285 (0.270)
Observations	943,616	944,171	944,664	989,261	944,664	989,261
R-squared	0.159	0.090	0.026	0.036	0.199	0.116
Control-group mean	21.616	24.185	0.041	0.039	0.812	0.953
Control	✓	✓	✓	✓	✓	✓
County FE	✓	✓	✓	✓	✓	✓
Province-cohort FE	✓	✓	✓	✓	✓	✓

Notes: This table reports results testing for the effect of social interactions with SDYs across regions with different demand for female labor in agricultural production. The observation unit is at the individual level based on data from the Census 2000. The sample includes rural individuals aged between 15 and 30 during the movement. Dependent variables columns 1 to 2 are the age at first marriage if ever married; an indicator if the person had ever divorced in columns 3 and 4, and an indicator of having never married in columns 5 and 6. *SDY* is the county-level SDY population share, defined as the number of received SDYs during 1968-1977 divided by pre-Movement local population in 1964. *Young* is a dummy variable indicating whether the individual was aged between 15-25 during the movement. *Tea* is a dummy variable indicating whether the province's tea cultivation per hectare of arable land exceeds the sample median; *Orchard* is a dummy variable indicating whether the province's orchard cultivation per hectare of arable land exceeds the sample median. Other regression specifications are the same as in Equation 1. See Section 4.1 for more details. Robust standard errors clustered at the county level are presented in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE B20 Effect of SDY on Female’s Later-life Mental Health and Life Satisfaction (1)

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Sub-items of K6 scale of mental distress						Life satisfaction	
	Nervousness	Worthless	Poor Sleep	Loneliness	Sadness	Unable to live on	Happiness	Enjoying Life
<i>SDY</i> × <i>Treat</i> × <i>Female</i>	-3.182*** (1.073)	-6.078*** (1.173)	-11.122*** (1.454)	-1.310 (1.418)	-4.425*** (1.315)	-2.695*** (0.825)	1.875 (1.904)	1.187 (1.837)
Control	✓	✓	✓	✓	✓	✓	✓	✓
County-cohort FE	✓	✓	✓	✓	✓	✓	✓	✓
Year FE	✓	✓	✓	✓	✓	✓	✓	✓
Observations	11,116	11,119	11,123	11,114	11,119	11,117	11,120	11,119
R-squared	0.223	0.249	0.239	0.239	0.258	0.233	0.225	0.234
Control-group mean	1.748	1.948	1.957	1.510	1.558	1.295	2.841	2.983

Notes: This table reports results testing for the impact of SDYs on depression. The dependent variables in Columns 1 to 8 represent how respondents conform to the aforementioned values or emotional descriptions. The data primarily comes from the CFPS 2016-2018 database. The dependent variables are sub-items of the K6 scale in Columns 1 to 6 and self-rated items of happiness and life satisfaction in Columns 7 and 8. The respondent rates each item of K6 item from 0 (“not at all”) to 4 (“all of the time”), and the two items of life satisfaction from 1 (“not at all”) to 4 (“all of the time”). *SDY* is the county-level SDY population share, defined as the number of received SDYs during 1968-1977 divided by pre-Movement local population in 1964. *Treat* is a dummy variable indicating whether the individual was born between 1956 and 1969. *Female* is a dummy variable indicating whether the individual is female. Robust standard errors clustered at the county level are presented in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE B21 Effect of SDY Exposure on Female Later-life Mental Health and Life Satisfaction (2)

Dependent variable	(1) K6 scale	(2) Modest risk of depression ($K6 \geq 8$)	(3) Severe risk of depression ($K6 \geq 13$)
<i>SDY</i> × <i>Treat</i> × <i>Female</i>	-28.788*** (5.357)	-3.952*** (0.639)	-1.579** (0.777)
Control	✓	✓	✓
County-cohort FE	✓	✓	✓
Year FE	✓	✓	✓
Observations	11,098	11,192	11,192
R-squared	0.296	0.250	0.240
Control-group mean	10.012	0.702	0.209

Notes: This table reports results testing for the impact of SDYs on depression. The dependent variable in Column 1 represents the level of depression experienced by respondents, measured using the K6 index. The dependent variables in Columns 2 to 3 indicate the presence of moderate and severe depressive symptoms, respectively. The data primarily comes from the CFPS 2016-2018 database. *SDY* is the county-level SDY population share, defined as the number of received SDYs during 1968-1977 divided by pre-Movement local population in 1964. *Treat* is a dummy variable indicating whether the individual was born between 1956 and 1969. *Female* is a dummy variable indicating whether the individual is female. Robust standard errors clustered at the county level are presented in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.

TABLE B22 Effect of SDY Exposure on Female Later-life Emotional States and Attitudes

	(1)	(2)	(3)	(4)	(5)
Dependent variable	Distracted from work	Worried and poor sleep	High mental pressure	Fear of difficulties	Sad and depressed
<i>SDY</i> × <i>Treat</i> × <i>Female</i>	-12.519*** (2.465)	-4.275*** (1.604)	-2.964* (1.665)	-3.092* (1.833)	-4.799*** (1.311)
Observations	7,395	7,398	7,396	7,395	7,399
R-squared	0.295	0.271	0.267	0.263	0.283
Control-group mean	1.789	1.741	1.738	1.663	1.662
Control	✓	✓	✓	✓	✓
County-cohort FE	✓	✓	✓	✓	✓

Notes: This table reports results testing for the impact of SDYs on emotion. The dependent variables in Columns 1 to 5 represent how respondents conform to the aforementioned mental states. Each answer is rated from 1 (“not at all”) to 4 (“all of the time”), and a smaller value indicates a more positive mental status. The data are based on the CHIP 2008. *SDY* is the county-level SDY population share, defined as the number of received SDYs during 1968-1977 divided by pre-Movement local population in 1964. *Treat* is a dummy variable indicating whether the individual was born between 1956 and 1969. *Female* is the female indicator. Robust standard errors clustered at the county level are presented in parentheses. ***p < 0.01, **p < 0.05, *p < 0.1.