Persistence through Revolutions

Alberto Alesina
Marlon Seror
David Y. Yang
Yang You
Weihong Zeng*

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Abstract

The Communist Revolution in the 1950s and the Cultural Revolution from 1966 to 1976 aimed to eradicate inequality in wealth and education, to shut off intergenerational transmission, and to eliminate cultural differences in the population. Using newly digitized archival data and linked contemporary household surveys and census, we show that the revolutions were effective in homogenizing the population economically and culturally in the short run. However, the pattern of inequality that characterized the pre-revolution generation re-emerges today. Grandchildren of the pre-revolution elites earn 20 percent more than those from non-elite households. In addition, the grandchildren of pre-revolution elites differ in their cultural values: they are less averse to inequality, more individualistic, more pro-market, more pro-education, and more likely to see hard work as critical to success. Through intergenerational transmission, socioeconomic conditions and cultural traits thus survived one of the most aggressive attempts to eliminate differences in the population and to foster mobility.

*Alesina: Harvard University, NBER, CEPR, and IGIER Bocconi. Email: aalesina@harvard.edu. Seror: University of Bristol, Paris School of Economics, and DIAL. Email: marlon.seror@bristol.ac.uk. Yang: Harvard University and J-PAL. Email: davidyang@fas.harvard.edu. You: Harvard University. Email: yangyou@g.harvard.edu. Zeng: Xi'an Jiaotong University. Email: zengwh@mail.xjtu.edu.cn. Helpful and much appreciated suggestions and comments were provided by Maxim Boycko, Raj Chetty, Melissa Dell, John Friedman, Edward Glaeser, Claudia Goldin, Larry Katz, Gerard Padro i Miquel, Elias Papaioannou, and participants at many seminars and conferences. Yanzhao Liu, Jiabao Song, Angela Yu, and a dedicated data team of China Gazetteer Project provided outstanding research assistance.

One cannot remain rich for more than three generations.
A Chinese Proverb

1 Introduction

A society with a high level of intergenerational mobility of income and wealth is one in which the rich of today may be the not so rich of tomorrow. In a mobile society, inequality may be more acceptable since the poor are not always stuck in poverty and at the bottom of the society. Social scientists have pointed out in recent years that many factors could contribute to the lack of mobility, from taxation schemes to education system and neighborhood influence. A potentially important omission is the intergenerational transmission of "culture" — namely, a set of values and attitudes — from parents to children. Ample evidence documents that vertical transmission of culture could lead to long-term persistence of certain values within a family lineage.[1]

Cultural transmission could hinder social mobility. Imagine that rich parents who have become wealthy because of hard work transmit to their children certain values that made them rich to begin with, such as delayed gratification, savings of productive investments, propensity to invest in education, and work ethics that value effort. As a result, the children of rich parents are likely to be rich as well, since they have the "tools" facilitating them to become rich, even without inheritance and other advantages. Imagine instead that poor and uneducated parents transmit the opposite set of values, and their children could remain stuck in poverty. Thus, holding constant all the other factors that interfere with social mobility, cultural transmission could be a strong force that reduces it. Moreover, cultural transmission within households can be largely immune to policy interventions that aim to level the playing field, making it an even more powerful source of persistence across generations.

In this paper, we investigate the interaction between cultural transmission and social mobility in the context of two major revolutions that occurred back to back in China — the Communist Revolution in the 1950s and the Cultural Revolution from 1966 to 1976. These two revolutions represent two of the most extreme attempts in human history to eliminate advantages of the elite households, to eradicate inequality in wealth and education, to shut off formal channels of intergenerational transmission such as inheritance and schooling, and to erase cultural differences in the population, especially between the rich and the poor. More specifically, during the Communist Revolution and the subsequent Cultural Revolution, land assets were expropriated from the rich and redistributed to the poor, secondary schools and universities were shut down throughout the country, and the values of the rich were heavily stigmatized. In other words, the revolutions set forth to homogenize economically and culturally the entire population of China, and to break

[1] Bisin and Verdier (2001) provide a workhorse model of intergenerational transmission of values. Alesina and Giuliano (2015) review much empirical evidence regarding this type of transmission.

the transmission of wealth and values within families in order to equalize the population both economically and culturally.

Take the family history of Guangyu Huang as an example. Guangyu was born in 1969. His grandfather was a rich landlord in Guangdong, but lost most of his land and assets during the Communist Revolution. Guangyu's father, Changyi Huang, grew up in the midst of the Communist and Cultural Revolutions, and as a result received no inheritance, no formal education, and eked out a living by extracting persimmons oil. Guangyu grew up after the revolutions, but lived by collecting trash with his siblings during his early childhood. Eventually Guangyu graduated from Renmin University, one of China's most prestigious colleges. Guangyu's fate changed in 1987 when he seized the opportunity of the first wave of private enterprise boom during the reform era of China, and founded GOME Electronics. GOME became a huge success, making Guangyu the richest man in mainland China between 2004 and 2018, with a net worth of RMB 36 million (approximately US$ 5 billion). While this is certainly an extreme example, we show in the paper that Huang's family story represents a more general pattern across China. Despite extraordinary repression, the intergenerational transmission of certain values occurred anyway, and the descendants of the pre-revolution economic elites are significantly richer and better off today than the descendants of the pre-revolution poor.

Let us be more precise. Define the "grandparents" as the generation that grew up before the revolutions, thus roughly individuals born before 1940. Define the "children" as the generation that grew up during the Communist and Cultural Revolutions — those born between, say, 1940 and 1965 — who experienced shocks such as the expropriation (or redistribution) of land and school closure. Define the "grandchildren" as those who were teenagers by the time the Communist and Cultural Revolutions had ended, secondary schools and universities had reopened, and China had started to implement the reforms that would enable private asset accumulation and enterprise again. These "grandchildren" are individuals born roughly after 1965.

To systematically examine various socioeconomic outcomes among these three generations, we rely on three main data sources. First, to measure the land asset ownership across Chinese counties before and after the Communist Revolution, we digitize all of the *County Gazetteers*, a set of archival records that each county keeps to chronicle important events. This allows us to systematically examine not just the levels, but crucially the distribution of land ownership by residents in a particular county in 1940s and 1950s, just before and after the Communist Revolution. Second, to measure the contemporaneous inequality, we use the 2000 census to construct inequality in residents' housing situation in the corresponding counties. Third, to measure the socioeconomic outcomes as well as the cultural values among descendants of the pre-reform elites and non-elites, we use the China Family Panel Study, a large, representative survey of Chinese households. We link individuals in the survey to pre-revolution asset ownership levels based on the "class labels" assigned to their grandparents at the beginning of the Communist Revolution (see Section 2.2 for details on the "class labels").

We first demonstrate that the Communist and Cultural Revolutions were successful in homogenizing the "children" generation. The wealth expropriation during the Communist Revolution was thoroughly implemented. The Land Reform (1947-1953), a core component of the Communist Revolution, confiscated land from the landlords and reallocated it equally to everyone in the village. Landlords, who used to own more than 6 times larger plot of land than the rest of the population, no longer owned more than poor peasants in the immediate aftermath of the Communist Revolution. The county-level Gini coefficient in land ownership decreased from 0.5 right before the Land Reform to below 0.1 right afterwards. The Cultural Revolution was also effective in leveling the educational advantage of former elite households. "Children" with elite background were discriminated against in access to education and did not achieve a higher level of education than the "masses" — if anything, the elites did worse in educational attainment than the non-elites among the children generation.

We show that children of the pre-revolution elites no longer have differential access to resources, as they were more likely to suffer from hunger during the famine and much less likely to be members of the Communist Party. In other words, the Communist and Cultural Revolution effectively made children of the pre-revolution elites enjoy no more tangible advantages in wealth and educational attainment than their non-elite peers. This lies in contrast with many failed land reforms and attempts to confiscated wealth from the very rich in recent history throughout many other parts of the world, in particular, Latin America. In fact, counties that were amongst the most unequal in terms of residents' land assets before the Communist Revolution become the most equal in real estate wealth in 2000.[2] Such a reversion, to the best of our knowledge, has never been documented and suggests that the heavy-handed revolution may have put historically unequal regions in China on a different path, toward relatively more equality.

However, despite the immediate success of the Communist and Cultural Revolutions, the patterns of inequality that characterized the "grandparents" generation are re-emerging among the "grandchildren." The grandchildren of the pre-revolution elites earn about 20 percent higher income each year, and have completed more than 10 percent additional years of schooling than those from the non-elite households. Since the pre-revolution landlord elites were approximately in the top decile of the population, this implies that their grandchildren had 13.4% chance of staying in the top decile. This is slightly lower than the persistence rate of top decile (extrapolated from the two generation transition matrix) in the US — 14.1% (Chetty et al., 2014), and much higher than that in Canada — 11.1% (Corak and Heisz, 1998). To put it differently, while the revolutions were explicitly aiming to reverse the order of the rankings of socioeconomic status, especially between the elites and non-elites, they did not manage to do so beyond one generation. The persistence rate of the elites over three generation is much higher than zero, and the Chinese revolutions did not raise China's social mobility above the levels reached by two capitalists economies that did

[2]While urbanization could overestimate the reversion in land and real estate inequality, we discuss in Section 5 that taking into account of urbanization rate does not alter the pattern of reversion in county inequality.

not experience such revolutions.[3]

Cultural transmission is an important reason that explains this rebounce. The grandchildren of the pre-revolution elites exhibit different cultural values: they are less averse to inequality, more individualistic, and more likely to consider effort as important to success. This is aligned with a revealed preference for working significantly longer hours during workdays and spending less time on leisure during weekends. Consistent with vertical transmission of values, these patterns are much stronger amongst grandchildren who co-live with their parents, and absent among those whose parents have already passed away, suggesting that time spent together through co-residence could be a critical condition for cultural values to be passed down across generations.[4] The gap in income between the grandchildren of elites households and those of non-elite households largely disappear once we control for their differences in educational attainment and cultural attitudes, suggesting that the transmission of education status and values is an important channel that contributes to the rebounce of pre-revolution elites' advantages.[5] Intriguingly, while the children generation of the pre-revolution elite households are not significantly more likely to express strong work ethics and valuation of effort than their peers without elite background, they work much longer hours and thus exert significantly more effort at work. This suggests that while the Communist and Cultural Revolutions may have successfully stigmatized some cultural traits and publicly expressed beliefs — e.g., belief that effort pays off — privately held beliefs could still be transmitted across generations through actual behaviors. The intergenerational transmission thus allowed cultural traits to survive perhaps the most aggressive attempt to eliminate differences among people in recent history.

In addition to cultural transmission, other factors may have contributed to this persistence. One is that the pre-revolution elites managed to hide wealth from the confiscation. For those who stayed in Mainland China, this was very rare and private assets of any sort were illegal to possess until the 1980s. Transferring wealth overseas was a viable option, but largely irrelevant to the rural population that we study here. Another possibility would be policies favoring the pre-revolution elites during the Reform and Opening era. To the best of our knowledge, there are no such policies. Yet another possibility is differences in innate characteristics such as genes and personality traits; we do not have direct evidence to support or reject this interpretation.

This paper bridges two strands of literature: on social inequality and mobility, and on cultural persistence within families. Both strands of the literature are enormous, and we simply cannot do justice to all previous works. On social inequality and intergenerational mobility, Chetty et al. (2014) and Chetty and Hendren (2018a,b) explore patterns of social mobility in detail the United States, Alesina et al. (2018) compare the U.S. and several countries in Europe, and Piketty et al.

[3]One may argue that without the revolutions, social mobility in China might have been much lower than, say, that in the US. However, this is impossible to test.

[4]The choice of cohabitation is of course partly endogenous but the early death of parents probably not.

[5]We also find that grandchildren of pre-revolution elites place more value on social networks, perhaps suggesting some role for horizontal transmission of values in addition to the vertical transmission.

(2019) document the rising inequality in wealth due to capital accumulation and the resumption private property. Alesina et al. (2019) study Africa, Asher et al. (2019) investigate educational mobility across Indian regions, and Narayan et al. (2018) construct measures of intergenerational mobility in education and income across many countries using survey data. All these works focus on two generations. Boserup et al. (2014) is a rare exception: they estimate social mobility and persistence across three generations in Denmark, and find that persistence across three generations can be higher than that across two. We contribute to the literature on social mobility by providing the first evidence of intergenerational mobility across three generations in a developing country.

We also contribute to the literature on the persistence of cultural values across generations — surveyed by Alesina and Giuliano (2014, 2015) — by showing that cultural transmission, and especially the robustness of this transmission even when formal transmission channels such as inheritance and schooling investments are shut off, have important consequences on intergenerational mobility. Our paper relates in particular to studies of the transmission of values promoting effort, education, and delayed gratification (see, among others, Galor and Özak (2016); Dohmen et al. (2018); Figlio et al. (2019)).

Our results complement three recent papers that document persistence in socioeconomic outcomes across generations despite large wealth shocks to the rich. Ager et al. (2019) show that the white southern households that lost substantial slave assets after the U.S. Civil War had recovered in income and wealth by 1880. Most directly relevant to our study, Chen et al. (2015) find that urban dwellers in China exhibit high mobility in terms of educational attainment among the generation that grew up during the Cultural Revolution, and low mobility (i.e., high persistence) for the cohorts that grew up after the Revolution; Xie and Zhang (2019) show that grandchildren of pre-Land Reform elites attained more education. We contribute to these existing works by confirming this pattern among a much larger sample of the rural population, extending the persistence pattern beyond educational attainment, and examining evidence on the mechanisms of such persistence across generations.

Our paper also relates to the literature on the impact of Communist and Cultural Revolutions in China. Roland and Yang (2017) show that individuals who missed the re-opening of universities at the end of the Cultural Revolution are more likely to believe that effort is not important for success even decades later; Chen et al. (2017) demonstrate that making the episode of the Land Reform more salient makes the beneficiaries (those who gained land) more supportive of state redistribution, and the victims (those who lost land) more averse to redistributive policies; and **?** show that individuals with traumatic experiences during the Communist Revolution — those who experienced the Great Chinese Famine at the end of 1950s and early 1960s — update their beliefs on government trustworthiness based on both their starvation experiences and the context of such experiences. In this paper, instead of examining the extent to which specific values, preferences, and beliefs are shaped by experiences during the Communist and Cultural Revolutions, we investigate, taking the two revolutions as a whole, whether such aggressive and traumatic rev-

olutions are sufficient to uproot existing differences between pre-revolution elites and non-elites in the long run, across three generations.

This paper is organized as follows. Section 2 provides institutional and historical background on the Communist Revolution and the Cultural Revolution in China. Section 3 describes our data collection effort. Section 4 shows that the revolution was successful in eliminating inequality and homogenizing culture for one generation, that of the "children." Section 5 presents our results on how the grandchildren of pre-revolution elites are substantially richer today, as well as the transmission of values from grandparents to grandchildren. Section 6 discusses various concerns related to data, robustness of the results, and alternative interpretations. The last section concludes.

2 The Communist and Cultural Revolution

In this section, we describe the Communist Revolution and the Cultural Revolution. While the two revolutions are complicated episodes and many books have been written about the historical details (e.g., MacFarquhar and Schoenhals (2006), Dikötter (2016)), we focus on the particular aspects of the revolutions that intended to eradicates the advantages of pre-revolution elites, including confiscating their assets, endowment, removing their access to secondary and higher education, and even stigmatizing attitudes and values that they might have held prior to the revolutions.

2.1 The Communist Revolution and Land Reform

The Communist Revolution was a series of movements that allowed the Chinese Communist Party to consolidate political power throughout China toward the end of the Chinese Civil War.[6] The Land Reform during the Communist Revolution is a crucial effort aimed at gaining the support of the rural masses for the new regime (Kung et al., 2012). The Land Reform started in 1947 in the newly "liberated" regions under the Communist Party's rule and concluded in 1953 when the reform reached the entire country. It is one of the most extreme examples of wealth equalization in a short period of time in human history — at least 43% of the entire land assets in rural China changed hands during the reform (Wong, 1973a).

Landlords owned 6 times more land (per capita, on average) than poor peasants (see Section 4 for details). In other words, while land assets were unequally distributed prior to the Land Reform, the Chinese context does not resemble extreme inequality in the form that land was consolidated into a few large plantations owned by a very small number of households, as one observes in Latin America. The landlords in China owned relatively small amount of land, working on the land themselves, and sometimes employing poor peasants and hired labor as well. Thus, the

[6]Some of the background description here is also shown in Chen et al. (2017). In this paper, we primarily focus on the rural component of the Communist Revolution, namely, the Land Reform. A parallel movement of wealth confiscation and redistribution was carried out in the urban sector, often named the "Socialist Remold of Capitalist Enterprises."

Chinese landlords were closer to well-off farmers in small scale farming economies than rentiers who own huge plots of land.

The reform was formalized and implemented as a nation-wide policy by the *Agrarian Reform Law* in late 1950. The law was based on *China's Agrarian Reform Law Framework* approved in 1947 and built upon the Party's earlier land reform experiences. The law emphasizes the Communist Party's commitment to expropriating the landlord class and to advocating the proprietorship of the peasantry. Article 1 of the law states the overarching principles of the Land Reform:

> The land ownership system of feudal exploitation by the landlord class shall be abolished and the system of peasant land ownership shall be introduced in order to set free the rural productive forces, develop agricultural production, and thus pave the way for New China's industrialization.

The rest of the law lays out specific guidelines for transferring land ownership from landlords to poor peasants. Section 2, titled "Confiscation and Requisitioning of Land," orders the landlords' land, cattle, "excessive production tools," and real estate properties to be confiscated (e.g., Article 2). Section 3, "Distribution of Land," further instructs that the confiscated land and other assets should be distributed uniformly, fairly, and reasonably among landless peasants and poor peasants who owned very limited assets (e.g., Article 10).

The *Agrarian Reform Law* establishes a set of uniform principles that guide decision-making and implementations of the land reform across China.[7] The Communist Party emphasized that peasants should actually receive land and landlords be expropriated. To maximize the chances that the implementation would go smoothly and efficiently, the central government passed down all land reform responsibilities to the local government, leaving considerable flexibility to interpret, adapt, plan, and carry out the land reform in each locality.[8]

The redistribution process typically consists of two stages. First, the locality formed *ad hoc* committees and teams, mobilizing the rural masses via propaganda and indoctrination, and crucially, assigning *class labels* to families (we will discuss *class labels* in detail in Section 2.2). Second, based on the *class labels*, land and other production tools were confiscated from the landlords and rich peasants, and redistributed to the newly identified landless and poor peasants. The expropriation and redistribution were operationally one process, and in the vast majority of the cases, what was expropriated has been entirely redistributed (Wong, 1973b).[9] The Land Reform was a zero-sum game, and the government made immense amount of effort to ensure that the victims

[7]The *Agrarian Reform Law* was nationally oriented in tone and contents, so that more detailed rules and explicit regulations pertaining to implementation needed to be provided in the form of supporting documents, including implementation legislation and important speeches by the central government and provincial authorities.

[8]This heavy emphasis on the informal and often personalized approach of implementing the land reform reflects the reality that the core field staffs of the reform — local cadres complemented by the Peasant's Association — were technically under-trained but politically dedicated (Wong, 1973a).

[9]Appendix Figure A.1 presents a photo took during the Land Reform when rural residents were measuring the land in preparation for the redistribution.

complied, and the beneficiaries indeed received asset transfers. Both physical and psychological violence (or the threat of violence) were deployed during the confiscation process to suppress opposition from the expropriated households.[10]

Property rights over land during this period were complicated. The Land Reform confiscated land from the landlords and rich farmers, and redistributed the land to the poor and landless. During this period, effective private ownership over land was still allowed. In 1954, the first Constitution of the People's Republic of China stipulates all land is owned by the state. Individual farmers could lease land from the state and grow crops, although no rents were effectively paid to the state. The endowed land that individual farmers can grow food on was essentially land (re)allocated to them during the Land Reform (Lardy, 2008).

While scholars debate on the exact magnitude of land redistribution during the Land Reform, it has undeniably resulted in a "monumental and profound" socioeconomic revolution that affected almost every rural resident in China (Huang, 1995). In 1953, the central government declared that the Land Reform had achieved its goals in most of China. The landlord class was essentially eliminated, and their asset level brought down to that of middle or even poor peasants.[11] Landless, poor, and middle peasants received farmland for cultivation amounting to 43% of total land acreage in China, according to some estimates (among others, see, Wong (1973b); Lippit (1974); Perkins (2013)). The far-reaching social impact of the *Land Reform* is described by Schurmann (1971) as follows:

> [...] as a social revolution, land reform succeeded in destroying the traditional system of social stratification in the rural areas. The old rural gentry, whether based on the village or residing in towns, was destroyed. A social element, which had exercised leadership in the village by virtue of its status, its ownership of land, and its access to power had ceased to exist.

2.2 Class labels

In order to facilitate asset confiscation and subsequent redistribution during the Communist Revolution, each household was assigned a class label based on assets. The specific class labels (in both rural and urban sectors) are listed as follows:

	Rural	**Urban**
Non-elites	Hired labors	Poor peasants in the city

[10] A militia was organized for the purpose of the Land Reform, and it is estimated that for every landlord there were 8 organized peasants assisting the land reform implementation, among whom 1 was armed (Wong, 1973a). Forced confessions in small groups and mass trials attended by tens of thousands were employed to induce submission through intense psychological pressure.

[11] Note that in many regions, the redistribution after the *Land Reform* was *de facto* rank preserving. In other words, the reform did *not* bring about complete leveling. The richest families were still among the richest in the locality, although the wealth gap between the rich and the poor was massively reduced or almost eliminated.

	Poor peasants Middle peasants	Workers Employees
Elites	Rich peasants Landlords	Enterprise owners Capitalists

More specifically, to supplement the *Agrarian Reform Law* and to aid the implementation of the Land Reform, the State Council issued a document titled "Decisions on Assigning the Class Labels in Rural Sector" in 1950. It called local reform committees to divide up all rural residents into the following broad classes, and these uniform class labels would act as the basis for redistributive decisions during the Land Reform.

While the exact cutoff used to categorize the class labels were often left to the direction of local land reform committees, the State Council document offered general guidelines. Importantly, these labels were (to a large extent) determined by families asset ownership prior to the reforms, and particularly land assets in rural area. For example, regarding the decision on which households ought to be classified as "landlord" versus "rich peasants," the document stipulated that "in the landlord households, if there were people who regularly worked, and at the same time hire people to work on some of the land, then as long as the land rented out was more than 3 times larger than the land one worked himself, these households should be classified as landlords rather than rich peasants." Such rule suggests that landlords working on the land they own was not a rare phenomenon in rural China — a very different rural landscape than the large, concentrated plantations one observes in places such as Latin America or Europe during the feudal times.

These class labels were used as a exclusive criteria for asset redistribution. Those who were assigned with landlords and rich peasants labels had their excessive assets confiscated, and those who were assigned with the labels of middle peasants, poor peasants and hired labors received asset transfers. We thus group the landlords and rich peasants as pre-revolution elites (approximately 6% of the population in the rural sector), while the rest as non-elites, according to the asset redistribution consequences they faced during the Communist Revolution. Our baseline results are robust to only examining the rich peasants, rather than the entire pre-revolution elites as whole.

The class label was assigned at the family level — each member of the family share the same label; and it was carried forward to the later generations. Until the *Agrarian Reform Law* was repealed in 1987, the label is also stable across time and across generations: once it was initially assigned it was rarely revised; in addition, the same label was passed down along all patriarchal descendants of the family.[12] Moreover, each citizen was required to know her own class label. In other words, elicitation of class labels would allows researchers to trace family lineages, in particular the broad level of household assets prior to the revolutions. We describe in greater

[12]While the initial assignment of the class labels signaled the regime's judgment about the "inherent loyalties of families" (Walder and Hu, 2009), class labels were preserved along patriarchal lines regardless of the actual political inclination and behavior of individuals.

detail of the class label elicitation in our data in Section 3.

An intention of the class label was to discriminate against former elites and eliminate any educational or income advantage they might retain over the masses, consistent with the overarching goal of the Communist Revolution and the subsequent Cultural Revolution. Class labels determined in particular the likelihood of admission to high school and college, job assignments, promotions, and access to Party membership (Kraus, 1981; Unger, 1982; Lee, 1991). One unintended consequence of the system was, however, to remind grandchildren of who their grandparents were, perhaps facilitating the transmission of values or at least making them salient, though such salience effect ought not to be asymmetric between the elites and the non-elites.

2.3 The Cultural Revolution

The Cultural Revolution is a massive sociopolitical movement launched by Mao Zedong in 1966, intended to preserve the fruits of the Communist Revolution. While it began as a purge of "disloyal" Communist Party officials, its scope quickly widened to target all elite groups and authority figures, leading to a decade long of chaos and violence until Mao's death in 1976. We focus here on two main aspects of the Cultural Revolution: its stance toward former elites, and its disruptive education policy.[13]

Since its inception, the Cultural Revolution concerned with status inheritance. One of its primary goals is to prevent the pre-revolution or emerging elites from passing on their privileges to their offspring (Whyte, 1973; Deng and Treiman, 1997; Andreas, 2009). The initial motivation of the Cultural Revolution was to prevent the entrenchment of a bureaucratic elite, who Mao viewed as a threat to the revolution. He feared that they became "a 'privileged stratum' and take the capitalist road, as allegedly [had] happened in the Soviet Union" (Bernstein, 1977). The scope of the Cultural Revolution quickly widened to encompass all high-status groups. Former elite households often managed to secure elite professional occupations in the Communist regime (Walder and Hu, 2009). This, combined with the conception that individuals with a "bad" class background — namely those with the "elite" categories of class labels described above — were inherently "revisionist," or hostile to the revolution, justified in the eyes of Mao further discrimination during the Cultural Revolution.[14] An important goal of the Cultural Revolution was thus to completely eliminate any remaining advantage of the former landlords or their descendants over the masses.

The conjecture that elites were able to maintain their influence through education lies behind the radical and disruptive educational policy initiated during the Cultural Revolution. The rev-

[13]The mass mobilization at the core of the Cultural Revolution led to large-scale disorganization. Before the imposition of martial law, the Cultural Revolution caused in less than two years a complete collapse of the state apparatus and severely disrupted production. Industry valued added dropped from 44.6 to 12.6 million Chinese yuan (in constant 1990 prices) between 1966 and 1967, and it would not recover until 1980 (Dong and Wu, 2004).

[14]In an interview given in 1965 to the French Minister of Cultural Affairs, André Malraux, Chairman Mao claimed that there was a broad "revisionist layer" in China, "large not in numbers but in the influence it exerts. This layer is made up of the former landlords, former rich peasants, former capitalists [...], and part of their children" (Andrieu, 1996).

olution severely disrupted higher education in three ways. First, and most famously, almost all high schools and colleges were shut down between 1966 and 1968, and most universities remained closed until 1972 (Bernstein, 1977; Unger, 1982).[15] Meritocratic-based admission into higher education was suspended throughout the entire Cultural Revolution. When universities reopened in 1972, admission was primarily based on class labels and political achievements rather than academic credentials (Shirk, 1982). The only eligible applicants were workers, peasants, and soldiers, except for small quotas (below 5%) established for the "educable children [of class enemies]" (Deng and Treiman, 1997).[16]

In addition to disruption to education, the Cultural Revolution induced a wide ranges of disturbances across the Chinese society. For example, the inheritance of culture and values from the pre-Communist era was regarded with suspicion: teachers became the targets of "struggle sessions," which included public humiliations, beatings, and torture (Wang, 2001). Children were also encouraged to expose their parents' counter-revolutionary behaviors, representing a consistent effort to weaken the nuclear family structure. Moreover, a whole generation of urban students was sent to the countryside for political reeducation through manual work and contact with the masses (the "Sent-Down Movement"). Zhou (2004) shows that the probability of being sent down increased with the father's education attainment. The separation of children and parents during formative years of their lives could have significant implications on the vertical transmission of cultural value. However, this is less of a concern for our study as we focus on rural households, none of whom sent away children during the Cultural Revolution since there were already residing in the countryside.

The Cultural Revolution is an extremely violent episode of Chinese history. Persecutions ranged from humiliations in public "struggle sessions," beatings, and torture, to even killings (Thurston, 1987; Wang, 2001; Su, 2006, 2011; Walder and Su, 2003). Because of the suspicions they raised, the former elites were often the target of violence. We investigate the relationship between local inequality prior to the Land Reform and violence during the Cultural Revolution in Section 6.

3 Data

The data collection was extensive. We combine several data sources, which we now describe.

[15] Appendix Figure A.2 presents a photo of students at Peking University, one of the best universities in China, during the Cultural Revolution, where students gathered to chant revolutionary slogans.

[16] From the outset, the Chinese Communist Party oscillated between promoting mass education and a meritocratic elite with the technical skills and expertise necessary for economic development (Deng and Treiman, 1997; Andreas, 2009; Chen et al., 2015). In some years, admission into higher education was granted by "recommendation only," and priority was given to workers, peasants, and children of "revolutionary cadres and martyrs" (Deng and Treiman, 1997). In other periods, the national college recruitment examination was re-established. Applicants with an undesirable class background were, however, systematically discriminated against (policy of "priorities among equivalents").

3.1 Distribution of land wealth at the county level

In order to document the immediate effect of the Land Reform during the Communist Revolution on wealth distribution, in particular that of land assets, we digitize the *County Gazetteers* and systematically collect land distribution information around 1950 throughout rural China. The *County Gazetteers*, published in the 1990s, are the county- or city-level archives that cover the historical period from 1949 to 1986. Each locality maintains its own gazetteer, compiling local narrative and statistical information on historical development, socioeconomic progress, major events, and notable instances. Data quality and completeness varies across counties. Some counties spend more effort in gathering data, while other counties may emphasize more descriptive narratives.

We manually collect land ownership and population by the five rural social classes corresponding to the class labels assigned during the Communist Revolution: landlords, rich peasants, middle peasants, poor peasants, and landless peasants. The distribution of land ownership is available both immediately before and immediately after the Land Reform. This, to the best of our knowledge, is the first national dataset on historical inequality in land assets that has been systematically collected in China. Due to the decentralized nature of the gazetteer compilation, such land ownership information is not always in the same format for each county. For example, some counties record land ownership information in table format (see Appendix Figure A.3 for an example), while others embed such information in unstructured narratives (see Appendix Figure A.4 for an example).

Our data collection procedure is based on the county name list in 2000. We identify 609 counties with pre-Land Reform land distribution data that is sufficient to calculate within-county inequality.[17] Out of the 1,329 rural counties in China in the 1950s, 422 have no pre-Land Reform records, and 298 do not provide sufficient information to construct reliable county-level inequality measures.[18]

To ensure that land distribution measures are comparable across counties, we standardize the pre- and post-Land Reform land ownership and population data to the same units (e.g., land ownership counts are converted to per capita, rather than per household as originally reported by some counties). We construct various inequality measures to describe the landscape of wealth inequality across Chinese counties just before and after the Land Reform, such as the Gini coefficient based on county-level land ownership. We assume that the land ownership among households

[17] 609 counties have population and land ownership data for the hired peasants, poor peasants, middle peasants, rich peasants, and landlords, corresponding to the 5 groups of the population as categorized by the "class labels." We assume that land ownership for landless hired peasants is zero if the value is missing. Some counties also list other special classes, for example, small land renters, and half-landlord rich peasants, are also excluded in the normalization. The land owned by these special classes, government, and other organizations is not included.

[18] We start with all areas named as "county" in 2000, which ensures that all counties can be readily matched to their contemporary census records, as we will describe in the next sub-section. Next, we expand our efforts to areas named as "cities'' and add the data to our sample if the pre-Land Reform ownership distribution is available in the Gazetteers. We regard the two counties are the same if they are documented under the same historical narratives in Baidu Baike. Urban districts without documentation about the land reform are excluded. Note also that we exclude Tibet, Xinjiang, and Inner Mongolia due to different land policies designed for minority groups.

within each of the five social classes is homogeneous, and we define the county-level Gini as one minus the area under the (discrete) cumulative distribution function of land ownership. Appendix Figure A.5 illustrates the construction of the Gini coefficients, where we normalize total population and total land ownership to 1 and plot the cumulative land ownership for each social class.

Given that land ownership statistics is only available in aggregate (by category), we make the following adjustment to re-scale the Gini coefficient to [0,1], where 0 refers to the absolutely equal society and 1 refers to the most unequal society. Specifically, we re-scale the Gini as the following:

$$Gini = \frac{maxCDF - CDF(Land)}{maxCDF - minCDF}$$

where $CDF(Land) = \sum_{Class}(Pop_{Class} \times CumulativeLand_{Class})$ is the cumulative density function of land ownership; $maxCDF$ is the maximum value of CDF (i.e., extreme equality) under discrete distribution of population sub-groups, where everyone owns the same share of land in the society; and $minCDF$ is the minimum value of CDF (i.e., extreme inequality) under discrete distribution, where all land is owned by landlords. The numerator ensures that the Gini coefficients are bounded below by 0, and the denominator scales the Gini coefficients so they are between 0 and 1. Figure 1, top panel, maps the Gini coefficients across China, where darker shades indicate counties that were more unequal prior to the revolutions.[19]

3.2 Contemporary wealth distribution at the county level

In order to measure the "contemporary" wealth distribution at the county level, we use a 0.1% micro sample of the 2000 Population Census. We focus on the year 2000 because it is the last wave of census before the mass rural to urban migration began in China. Although migration is an important factor in how local inequality evolves, pre-migration measures on local inequality ensure that the pattern of persistence (or lack thereof) in regional wealth inequality is not driven by selective migration across localities.[20]

We use the residential housing area per capita of the household to construct the contemporary inequality measure at the county level. We rely on residential housing area to measure real estate property inequality because this figure is reported for everyone in the population (both home owners and renters), it is much less likely to subject to self-reporting biases as compared to savings or income. Moreover, as long as the same biases exist for all counties, our comparison of the relative differences in inequality across counties is still valid. An important caveat of inequality measure based on housing size is that as rural areas become more urbanized, the upper tail of

[19] We impute Gini coefficients of the counties with missing data with prefecture averages. Appendix Figure A.6, top panel, shows the map of the counties with non-missing observations.

[20] We cannot, however, rule out that emigration at the onset of the Communist and Cultural Revolutions, especially to foreign countries and nearby safe havens such as Hong Kong and Taiwan. Such emigration was however a marginal phenomenon in rural areas, whereas ties to overseas diasporas were much stronger in urban areas.

the population could begin to reside in apartments that are of smaller size but higher value than rural houses. This would underestimate the contemporary local inequality, particularly in more urbanized counties. In Section 5, we take into account of the urbanization rate and demonstrate that the results we document are unlikely to be driven by urbanization.

Similar to the land-based Gini coefficients in 1950s, we construct Gini coefficients based on housing size, which is one minus the area under the cumulative distribution function of the housing size. Specifically, we sort all individuals by their housing size per capita, compute the cumulative distribution function (CDF) of housing size ownership for each county, and define the integral of the CDF as the modern housing Gini coefficient as following:

$$Gini_j(Housing) = 1 - 2(int_{i \in j} Cumulative\ Housing_i)$$

To capture quality differences in real estate, we adjust living size based on reported housing amenities. Specifically, we inflate the living size by 10% for each of the following modern residential characteristics: building has more than one floor, equipped with gas or electric stove, equipped with tap water, equipped with hot bath water, or equipped with separate bathrooms. The amenity adjustment would take into account for certain structural factors that make smaller living areas more valuable than larger ones (e.g., apartments versus rural houses as we discussed above). Our results are robust to using either amenity adjusted or non-adjusted living size as the basis of the inequality measure.

3.3 Individual outcomes across generations

Finally, the primary dataset we rely on to conduct individual-level analysis is the China Family Panel Study (CFPS). CFPS is a large-scale, nationally representative (except for the 6 provinces not covered) panel survey project conducted by the Institute of Social Science Survey at Peking University.[21] The 25 provinces of China covered by CFPS represent about 95% of the Chinese population in mainland China. Through a multistage probability sampling procedure, CFPS completes interviews with a total of 14,798 sampled households and all individuals living in these households, amounting to 36,000 completed adult observations. For the baseline analyses throughout the paper, we restrict our attention to the subsample of 26,400 adults in rural counties.[22]

Each CFPS survey respondent is asked about the class label assigned to her family at the time of the Communist Revolution. As the class labels have been passed down across generations since the Communist Revolution, this allows us to identify the descendants of pre-revolution elites — namely, those from the households of the landlords or rich peasants — without the need to link individuals across three generations. If the younger generation do not know their household class

[21] Detailed information about the CFPS project can be found at `www.isss.edu.cn/cfps`. The 6 provinces excluded from sampling are Inner Mongolia, Xinjiang, Tibet, Hainan, Ningxia, and Qinghai.

[22] Rural counties are defined based on the administrative classification of the National Bureau of Statistics of China.

label, we use the fathers' class labels since the class labels were passed down through patriarchal lines. Overall, 5.27% of rural respondents are identified as pre-revolution elites, which is in line with the figure (6%) often suggested by historical accounts.

Associating each individual with her family class labels allows us to compare members of the elite versus non-elite households across three generations. The first generation is those born before 1940 — the "grandparents" generation. These individuals grew up *prior to* the Communist and Cultural Revolutions. If they were landlords or rich peasants, their land and other agricultural production assets were expropriated during their adulthood. The second generation is those born between 1940 and 1965 — the "children" generation. They grew up in the midst or immediate aftermath of the Communist and Cultural Revolutions. If they were from the pre-revolution landlords or rich peasants households, they could not receive wealth inheritance and were unlikely to receive formal education, especially at the tertiary level, during the decade of the Cultural Revolution. The third generation is those born between 1965 and 1990 — the "grandchildren" generation. These individuals would not be able to receive inheritance from neither their parents nor grandparents. Nonetheless, the grandchildren generation grew up largely during the post-1978 Reform and Opening era, during which ownership of private assets was reintroduced, universities reopened, and a market economy partially established. Our results are robust to alternative generation cutoffs.

3.4 Summary statistics

Appendix Table A.1, Panel A, presents summary statistics for counties with complete land ownership data for all five classes (609), counties with incomplete data (298), and counties with no land ownership data (422) along the following dimensions: geographical characteristics (distance to the coast, longitude, latitude), economic development (GDP per capita, average nighttime luminosity, average/median years of education, average educational attainment for cohorts born before 1950), and contemporary housing sizes (median housing area per capita, median amenity-adjusted housing area per capita, Gini coefficient of amenity-adjusted housing area).[23]

Panel B presents the p-values from three balance t-tests to check for potential sample selection based on observable features: between the counties with complete and incomplete data, between the counties with complete data and those with either incomplete or no data, and between the counties with at least some data and those without any data. Among all 11 variables we examine, counties with different availability of historical land ownership data differ only along the dimensions of their median contemporary housing area (both raw and amenity-adjusted), and the differences are statistically significant at the 10% level. Importantly, contemporary housing inequality is *not* associated with the availability of complete archival records on land ownership inequality prior to the Land Reform. Our baseline results focusing on the counties with sufficient

[23]Nighttime luminosity as a proxy for regional development level has been widely used: see Alesina et al. (2016) as a recent example and Donaldson and Storeygard (2016) for a review.

data are robust to various extrapolation exercises where we infer counties with missing data based on nearby counties' land distribution records (see Section 4 for details).

In the baseline specification, we exclude counties with less than 80 households in 2000 0.1% Census to reduce measurement errors in within-county inequality. This leads us to drop 199 counties. We will discuss in Section 4 that our baseline results are robust to alternative sample exclusion criteria.

4 Successful revolutions in the short run

We first examine whether the Land Reform during the Communist Revolution and the subsequent Cultural Revolution achieved their redistributive and egalitarian goals in the short run.

4.1 Land Reform and land inequality

We begin by comparing land inequality across counties immediately before and after the Land Reform. We derive three different measures of land inequality across counties from the land distribution data collected from the *County Gazetteers*.

First, we compare landlords' average land holdings (total land share divided by total population share of landlords) right before and after the Land Reform. In Figure 2, the dotted line plots the distribution of the pre-Land Reform average land holding across counties. One can see that the distribution peaks at around 6 acres per capita, and it has a long right tail where landlord households own as much as 25 acres of land per member of the household. The solid line presents the distribution of the average land holding across counties after the Land Reform. The dramatic reduction in the area of land owned by the landlord households is apparent — they got to keep an equal or slightly lower plot of land than the rest of the population. Moreover, the entire distribution is compressed: very little cross-county variation in landlord's land ownership remained after the Land Reform. Such a sharp decrease indicates that the Land Reform indeed successfully expropriated the land assets of the landlord households, nearly eradicating the land wealth owned by these households.

Second, we investigate whether the expropriated land was redistributed to the poor. To do so, we compare the size of land (in acres per capita) owned by households with "poor peasants" class label relative to that owned by the landlord households, immediately before and after the Land Reform. Thus, a number below one indicates that the poor peasants owned less amount of land than the landlords. Figure 3 plots the distribution of this ratio across counties, before (dotted line) and after (solid line) the Land Reform. On the eve of the Land Reform, per capita land holdings in poor peasant households were on average less than 15% of those in the landlord households. The distribution of the ratio shifted substantially to the right after the Land Reform, centered just above 1, indicating that poor peasant and landlord households owned a similar amount of land per capita as a result of the expropriation and redistribution of land, as the *Agrarian Reform*

Law prescribed. If anything, the poor peasant households owned slightly more land than the landlord households after the Land Reform. Note that while the cross-county distribution post-Land Reform is not entirely concentrated around 1, more than 90% of the counties fall within the range between 0.5 and 1.5. Moreover, Figure 5 plots the distribution of land gained by the households in hired peasants, poor and middle peasants categories after the Land Reform. One can see that the entire distribution lays above 0 — namely, non-elite households across all counties in China experienced net land gain, on average, after the Land Reform. Appendix Figure A.7 shows that the land gain by the poor households after the Land Reform was larger among more unequal counties prior to the reform.

Third, we examine whether the Land Reform reduced land asset ownership inequality. We compare the county-level Gini coefficients in land ownership, constructed as described in Section 3, before and after the Land Reform. Figure 1, middle panel, maps the Gini coefficients across Chinese counties, with darker shades indicate higher inequality. Compared to the distribution of inequality just a few years ago prior to the Lad Reform (top panel), the nearly uniform, light color throughout China indicates that inequality in land ownership has been strikingly decreased. Figure 5 plots the distribution of Gini coefficients across counties, before (dotted line) and after (solid line) the Land Reform. One observes that within half a decade, the Land Reform not only sharply reduced the Gini coefficient from on average 0.5 to 0.1, but also substantially compressed its distribution, reducing cross-county variance in land inequality. Correspondingly, Figure 6 plots the pre-Land Reform Gini coefficients (x-axis) against the post-Land Reform Gini coefficients, which allows us to examine the changes in land ownership Gini *within* county. Each dot on Figure 6 represents a county, and these dots largely fall along the 45-degree line. In other words, counties that were more unequal in terms of land ownership experienced a larger reduction in Gini coefficients after the Land Reform, which is consistent with the results that the Land Reform effectively made all counties throughout China similarly equal in land ownership.

The residual inequality after the Land Reform as shown in Figure 5 and even the increase in Gini coefficient in some counties as shown in Figure 6 are *not* due to the limited implementation of land asset equalization. In fact, they are primarily driven by the fact that some counties aggressively deprived the land from landlords, and the poor peasants ended up with slightly more land per capita than landlords. Among 285 counties with complete pre-reform and post-reform land distribution statistics, poor peasants in 192 counties (67%) own more land per capita than the landlords.

To the extent that there could be residual assets left un-confiscated during the Land Reform, the subsequent collectivization movement from 1956 ensures that productive assets and rural wealth could no longer be owned by private households at all. The collectivization effort centralized the land ownership and rights for agricultural production at the commune level, and this arrangement remained intact until the Household Responsibility System started in 1979, marking the beginning of the Reform and Opening era. Since private assets were outlawed from the Communist Revolu-

tion until the Reform and Opening, formal wealth transmission and inheritance were no longer a viable channel that could contribute to intergenerational transmission and persistence.

Taken together, these results demonstrate that the Land Reform during the Communist Revolution was incredibly successful at eradicating inequality in land asset ownership across China. The Land Reform's short-term success is twofold: it homogenized land ownership not only *within* counties — pre-revolution elites' land assets were largely wiped out and redistributed to the poor, but also *across* counties — the distribution of land ownership inequality is compressed throughout the country. Consequently, the landlord households lost one of the most important assets — land — that they could pass down to subsequent generations.

The remarkable success of the Communist Revolution and its Land Reform in confiscating wealth of the elites and eliminating wealth inequality should not be taken for granted. While there have been ample attempts of land reforms in other parts of the world in recent history, most failed to achieve wealth confiscation and eradication of wealth inequality even in the short run. Notable examples are the Brazilian Land Reform in 1930s, Chilean Land Reform during 1960s and 1970s, and more recently, the Land Reform in Zimbabwe in early 2000s. In fact, wealth confiscation is one of the most politically challenging tasks to achieve, especially when the wealthy are entrenched with political power and are able to evade or even revolt. Many factors may have contributed to the success of Chinese Land Reform in 1950s, such as the strong state capacity and use of violence and coercion during the implementation process.

4.2 Cultural Revolution and education inequality

Next, we examine whether education disruption during the Cultural Revolution affected inequality in educational attainment among cohorts that would have attended senior high school and university at that time. We first document the gap in educational attainment between pre-revolution elites and non-elites for the cohorts not affected by the Cultural Revolution. Figure 7 presents, for each birth cohort, the difference between the share of individuals from pre-revolution elite households who completed at least secondary education and that for individuals from the non-elite households. For the birth cohorts between 1930 and 1947, which are not directly affected by the Cultural Revolution as they would have graduated from high school before the disruption of higher education began, we can see that for most of these cohorts, individuals from elite households are about 10 percentage points more likely to have completed at least secondary school education. This is an extremely large difference given the low level of average educational attainment among these cohorts — less than 10% individuals from rural China completed education beyond middle school for most of these early cohorts who grew up prior to the revolutions.

The advantage in educational attainment among members of the elite households sharply decreased starting from the 1947 cohort, as marked by the vertical dotted line in Figure 7. Regular education programs of universities and many senior high schools halted, and meritocratic admissions were also abolished into the remaining, limited amount of education programs that were

still operating during the Cultural Revolution. The positive gap between the share of individuals from pre-revolution elite households who completed secondary or above education and that of individuals from the non-elite households rapidly shrank among cohorts who were directly affected by the decade of the Cultural Revolution. In fact, among the cohorts born after 1955, who would only be able to finish elementary school education prior to the eve of the Cultural Revolution, pre-revolution elites are worse off in terms of education attainment than their counterparts in the non-elite households. This is due to two reasons: first, expansion of basic education disproportionately benefited individuals from non-elite households during this period; and second, the pre-revolution elites belonged experienced unfavorable treatment in terms of access to formal education, often unable to be admitted to schools if their class labels were landlords and rich peasants.[24]

Combined with the previous evidence on physical assets, these results show that the two factors highlighted by economists as central to production activities, namely, physical capital and (formal) human capital, could not be passed down through the Communist and Cultural Revolutions. The pre-revolution elites' advantage in physical capital and human capital ave largely diminished or even backfired due to the revolutions.

4.3 The life of the "children"

Finally, we examine the outcomes of the "children" generation, beyond the assets they inherited (which was none) and the educational attainment. Table 1, Columns 1 and 2 compare individuals from the "children" generation, between those from the elite households and their peers from the non-elite households. We control for cohort and county of residence fixed effects, hence exploring only within cohort within county differences across elite and non-elite descendants. Column 3 presents the overall mean in the corresponding variables among the "children" generation as a whole.

Panel A presents income measured at 2010. One can see that the annual labor income for individuals from the non-elite households are approximately 15% lower than the income of individuals from the non-elite households. Despite the lower personal income, the children generation of the elite households earn higher total household income, primarily because their children — the grandchildren generation — are earning more and are contributed to the total household income, as we will show in the next section in greater detail. Panel B replicates results on educational attainment as shown in the previous sub-section. The children of the pre-revolution elites no longer enjoy advantage in attaining formal education, and if anything, become less likely to complete secondary or tertiary education than their peers from non-elite households. Interestingly, we do not observe significant differences between children of the elite and non-elite households in their

[24]Formal education during the Cultural Revolution specifically discriminated against the "Black Fives," a category coined during the Cultural Revolution. "Black Fives" include: landlords, rich peasants, counter-revolutionaries, anti-socialists, and rightists.

math skills, tested in a standardized test in 2010. That suggests that despite the lack of formal schooling, elite households may supplement other informal forms of human capital accumulation such as home schools. Panel C further examines the labor market choices, especially decisions in the sectors one works in. Consistent with the fact that pre-revolution elites were largely excluded from accessing jobs in the public sector, we find that children of the pre-revolution elites are more likely to be self-employed, less likely to work in the public sector such as the state-owned enterprise, and in fact also less likely to work in the agricultural sector.

Although it is challenging to get a comprehensive and systematic measure of how well children of the pre-revolution elites lived during and in the immediate aftermath of the revolutions, one can get a glimpse from their experiences during the Great Chinese Famine (1959-1961). The Famine was one of the worst peacetime disasters in modern history, largely caused by misallocation of food (Meng et al., 2015). We find that children of the pre-revolution elites were *more* likely to experience hunger during the Famine (Table 1, Panel D), despite the fact that their parents were landlords and rich peasants with ample access to agricultural products merely a decade before the Famine. In fact, children of the pre-revolution elites were also significantly less likely to be members of the Communist Party, an indicator of formal political connections and status after the revolutions, specially in rural China. While pre-revolution elites enjoyed substantial advantage and were likely positioned with significant local power, the children's generation no longer experienced so — anyone with tangible political and social connections, hence with preferential access to scarce resources (such as food during the Communist Revolution and the collectivisation period) would have taken advantage of their connections to minimize the impact of the Famine on herself and her family.

Taken together, these results shown that among the children's generation, members of the pre-revolution elite households no longer exhibit "elite premium" in most of the dimensions that we can measure.

5 The life of the "grandchildren"

The Land Reform during the Communist Revolution and the Cultural Revolution were remarkably successful in the short run — essentially eradicated the inequality in land ownership and education attainment, and directly affecting the lives of those in the children's generation. In this section, we examine whether the revolutions had a persistent impact. W first focus on the county as a whole at the time of 2000, and then we zoom in on the individuals among the grandchildren generation.

5.1 County-level persistence

To examine the persistence (or lack thereof) in inequality at the aggregate level, we ask whether real estate inequality in a given county today is associated with the land ownership inequality

prior to the Communist Revolution? The results in Section 4 show that the land ownership inequality within counties soon after the Land Reform was no longer associated with the land inequality just prior to the Reform. In other words, the Land Reform "leveled the playing field." Fast forward to the next generation: if the real estate inequality in 2000 — after the Reform and Opening era began in 1978, when private assets are allowed to be accumulated again — remains not associated with the land inequality prior to the Land Reform, then this would indicate that the Land Reform has persistently reshaped the landscape of real estate inequality across Chinese counties. If there exists systematic associations between pre-Land Reform land inequality in late 1940s and the real estate inequality in 2000, then either the resurgence or reversion of the pre-revolution inequality patterns have emerged. Note that within-county inequality in 1950s is calculated based on land assets, and that in 2000 is calculated based on primary housing sizes. While different bases of the inequality measures could mechanically affect the overall level of inequality due to measurement, such differences would not necessarily affect the level of inequality relative to other counties in the country. Urbanization could affect the association between land assets and housing size, and we explicitly examine the role of urbanization in the section below.

We first examine the pattern visually. Figure 1, bottom panel, maps the real estate housing Gini coefficients in 2000 across counties. Relatively to the land ownership inequality just after the Land Reform (middle panel), inequality began to re-emerge throughout China by 2000. Moreover, regions that were more unequal prior to the Land Reform (top panel), such as the northeastern provinces became relatively more equal in 2000. In Table 2, we regress the real estate housing Gini coefficients in 2000 at the county level on the corresponding land ownership Gini coefficients just prior to the Land Reform. We include province fixed effects throughout to account for large differences in overall inequality across provinces, which could reflect the structure of the economy in different regions of China. Column 1 presents the baseline coefficient estimates. We observe a strong and sizable *negative* relationship between the pre-Land Reform inequality and the contemporary one in 2000. In other words, the Land Reform and the subsequent Revolutions were successful in the long run at the county level: past inequalities were not only suppressed, but the Land Reform in fact reversed the pattern across China and made historically more unequal places relatively more equal today. Note that since this analysis is conducted at the county level, the reversion we document does not suggest that counties more unequal prior to the Land Reform become more equal in 2000 in *absolute* terms, but rather, they become more equal *relative* to other counties.

This pattern of reversion is robust to taking into account of a variety of factors that could affect inequality. In fact, any time invariant factors that would be associated with inequality within county (e.g., geographic or structural reasons that make a county inherently more unequal that others) could not drive this reversion, unless the revolutions triggered a different set of regional characteristics to reshape inequality, which we cannot rule out. Table 2, Columns 2-4 test the robustness of the reversion finding. Column 2 controls for the contemporary county development

level proxied by nighttime luminosity in 2000; Column 3 controls for the historical county development level, proxied by average educational attainment level in 1950; and finally, Column 4 controls for a variety of geographic attributes that may be associated with either development or within-county inequality, such as land ruggedness and distance to resources.[25] The negative relationship that we document in Column 1 remains largely unchanged throughout these alternative, more conservative specifications. It is also robust to excluding coastal regions where rich households may be more likely to emigrate prior to the revolutions in order to evade confiscation (Column 5) — such emigration of the wealthy could generate reversion in inequality. Moreover, this negative relationship is robust to alternative sampling criteria (Appendix Table A.2), and to extrapolating missing observations for county inequality based on nearby counties (Appendix Table A.3). Finally, to the extent that urbanization may induce households at the top of the income and wealth distribution to move to urban apartments that have smaller sizes than rural houses, this could underestimate the contemporary inequality and hence overestimate the inequality reversion over time. However, we find that the reversion in county-level inequality is remarkably robust to controlling for urbanization rate in 2000 (proxied by share of population in a given locality who hold urban hukou status), as shown in Appendix Table A.4.

The reversion in county-level inequality between late 1940s and 2000 is largely driven by individuals at the top of the housing wealth distribution. Figure 8 decomposes the inequality reversion over time by different parts of the distribution.[26] We estimate the correlation coefficients between pre-Land Reform land Gini coefficient and the corresponding county's 2000 housing inequality. Instead of the overall Gini coefficient of 2000 housing inequality, we construct separate inequality measure for each decile as the ratio between the "X"th and 50th percentile of the housing size in 2000 in a given county, where "X" range from 10 to 90. We trace out "X" along the x-axis, and the corresponding correlation coefficient estimates on the y-axis. We reverse the ratios if $X < 50$, so that one can interpret negative coefficients across the entire spectrum of "X" as indicating a reversion between historical and contemporary inequality. One can see that the estimated coefficients for the percentile below the 50th percentile are in general indistinguishable from zero, suggesting that the reversion in equality did not occur among the lower half of the distribution in terms of housing size. Note that this does not indicate a resurgence of historical inequality either — the coefficient estimates close to zero suggest that the reshuffling of historical inequality is fairly persistent among the below-median households. However, one begins to observe an increasingly negative coefficient as X increases beyond 50. This indicates that while historically more unequal places become relatively more equal today, much of the movement toward equality comes from the compression of the difference between the above-median (especially the top deciles) and median households. Of course, we cannot distinguish whether this is primarily due

[25]The geographical controls including distances (km) to shore, fast-speed road network, major rivers, means and standard deviations of elevation and slope.

[26]Same results are presented in regression form in Appendix Table A.5; the pattern that we document here is robust to various alternative sampling criteria, as shown in Appendix Figure A.8.

to the top households moving closer to the median, or the median households increasing housing size and approaching the top of the distribution.

The within-county education inequality exhibits a different pattern. We find that rather than reversion in inequality in terms of real estate as we showed previously, educational inequality within county bounced back among the generation of individuals who attended schools after the end of the Communist and Cultural Revolutions. In Appendix Table A.6, we examine the relationship between pre-revolution inequality and subsequent inequality in educational attainment within a given county. In the baseline specification, we measure county-level education inequality as the difference in years of education between the top 20th percentile and the bottom 20th percentile in the county. We construct such a measure for each of the three generations of interest — the grandparents, children, and grandchildren generations, shown in Columns 1, 2, and 3, respectively. The pre-revolution inequality in land is positively associated with inequality in educational attainment among the grandparents generation, who would have completed most if not all of their schooling prior to the start of the Communist Revolution. In other words, county-level inequality prior to the revolution is unidimensional — places that were more unequal in terms of land ownership tend to be also more unequal in terms of educational attainment. However, the positive association between historical inequality and educational attainment inequality disappears among the parents' generation and re-emerges among the grandchildren's generation.

Finally, we investigate whether the Communist and Cultural Revolutions affected the overall preference toward inequality and redistribution in a given county. Specifically, we examine the county-level average answer to the following survey questions related to redistribution and inequality, as elicited in the CFPS in 2010:

To what extent do you agree with the following statement:
For the economy to thrive, one needs to enlarge income inequality in the population.

1 = extremely disagree
5 = extremely agree

In Table 3, we look at the relationship between pre-revolution land ownership inequality (measured by Gini coefficient) and the contemporary average attitude toward inequality held by residents in the corresponding county. One sees that counties that were more unequal prior to the Land Reform display substantially lower tolerance toward inequality. This association is robust even controlling for cohort and income at the time of the survey, as shown in Columns 2 and 3. In other words, the Communist Revolution and the Cultural Revolution appear to have generated a lasting impact across Chinese rural counties — rural counties that were more unequal prior to the revolutions have become collectively less tolerable toward inequality as a region.

5.2 Grandchildren of the pre-revolution elites

The aggregate patterns examined in the previous sub-section do not immediately imply that individual-level inequality followed the same trajectory. We now explicitly examine the outcomes of the grandchildren of the pre-revolution elites, and compare them with those from the non-elite households.

Income and labor market outcomes

We first compare contemporary total income between the grandchildren of pre-revolution elites and non-elites. Table 1, Panel A, Columns 4-6 present the regressions of total annual labor income and total household income on an indicator of whether one's grandparents were pre-revolution landlords and rich peasants. The baseline specification controls for cohort fixed effects and county of residence fixed effects, absorbing cross-sectional differences in wage and labor market conditions across counties. We restrict the sample to rural individuals born between 1965 and 1990, namely, the grandchildren generation, amounting to 8,762 survey respondents of the CFPS throughout China. Note that total income is measured in 2010 — while this measure keeps the macroeconomic conditions at the time of measurement fixed, it does not capture the life cycle variation in an individual's income trajectory.

The grandchildren of the pre-revolution elites on average earn RMB 1,948 more per year in labor income and RMB 1,995 more per year in total household income in 2010 than their counterparts from non-elite households. Relative to the average wage, this amounts to an annual income gap of approximately 17%.[27] In other words, the descendants of pre-revolution elites, especially those from landlord and rich peasant households, who primarily contribute to the pre-revolution regional inequality, have systematically bounced back in the third generation after two radical revolutions explicitly aimed at eliminating (or even suppressing) the lead of the elite, land-owning households.

The large annual income gap is a particularly striking difference, given that the parents of these individuals do not differ in terms of their educational attainment and inherited wealth as a result of the Communist and Cultural Revolutions. Yet, in the grandchildren generation, we observe an annual income gap of similar magnitude with the racial (blacks vs. whites) or gender income gap in the United States. Another way to benchmark the income gap is to calculate the transition probability — the chance that one stays in top 10 percentile in terms of income if grandparents were in the top 10 percentile. The three generational transition matrix is rarely estimated in other contexts due to data limitations, and hence we extrapolate from the two generational transition matrix, assuming the same transition probability between the grandparents-to-children

[27] The annual income here captures a combination of labor market wage income, income from own business and other private enterprises, pension and other transfers, as well as capital income from savings and other financial investments, although the share of capital income in rural China remains fairly small.

and children-to-grandchildren.[28] Appendix A describes the detailed procedure of recovering the transition matrix from regression coefficients. Since the pre-revolution landlord elites were approximately in the top decile of the population, our estimates imply that their grandchildren had 13.4% of staying in the top decile. This is slightly lower than the persistence rate of top decile in the US — 14.1% (Chetty et al., 2014), and much higher than that in Canada — 11.1% (Corak and Heisz, 1998). Thus, the two major revolutions with the explicit goals of eliminating class privileges and removing inequality did not manage to increase social mobility above those observed in the two major capitalist economies that have not experienced similar revolutions. However, we do not know what social mobility would have been in rural China without the revolutions.

The rebounce of the pre-revolution elites in income is compatible with the inequality reversion across counties that we showed in the previous sub-section. The reversion of within-county inequality captures the relative distribution of inequality patterns across counties throughout China. The rebounce of the pre-revolution elites largely occurs within counties over time. Appendix Figure A.9 illustrates how these two seemingly opposite patterns could coexist. On the one hand, we observe a reversion and compression in inequality across counties, where counties that were more unequal prior to the Land Reform become relatively more equal and compressed in assets distribution. On the other hand, within-county inequality is at least partly due to the pre-revolution elite households remain systematically richer today than the rest of the residents.

What explains the contemporary income gap?

Grandchildren of the pre-revolution elites are more pro-market and entrepreneurial, as reflected by their employment sectors. Table 1, Panel C, presents the results of a regression of various employment statuses on the elite household indicator. Employment status is measured by: *(i)* an indicator for self-employment (e.g., small enterprise owner, local entrepreneurs); *(ii)* an indicator for public employment (equal to 1 if employed by a state-owned enterprise and 0 otherwise); and *(iii)* the ISEI score of the particular job, which ranks occupation categories so as to maximize the role of occupation as an intervening variable between education and income (Ganzeboom et al., 1992). We find that grandchildren of the pre-revolution elites are about 30% more likely to be self-employed, 31% less likely to be employed in the public sector, and in general hold occupations that have significantly higher occupational status as measured by the ISEI score.

To what extent is the 17% annual income gap driven by the sectoral differences in employment? In particular, the grandchildren of pre-revolution elites may be restricted from entering the state public sector due to their family background, which could indirectly push some of them to enter the private sector and even become entrepreneurs that they otherwise would not consider. The public vs. private sector wage gap that have emerged since the late 1990s could then contribute

[28] This implicitly assumes that the transmission from the 1st to 2nd generation is i.i.d with the transition from the 2nd and 3rd generation, which could over-estimate the transition probability if there exists persistence within the household.

to the labor income gap between the grandchildren of pre-revolution elites and non-elites. In Table 4, we decompose the identified income gap into between and within public vs. private sector differences. Column 1 replicates the baseline specification, showing an average annual income gap of RMB 1,947.6. This specification already takes into account the average income differences across provinces, as province fixed effects are included. Column 2 in addition controls for public and private sector fixed effects, taking out the cross-sector income differences across China. The elite versus non-elite income gap remains largely unchanged, which implies that the primary sources of the income gap is *within* sector rather than between. In Column 3, we control for province-specific public-private income gap to account for the provincial heterogeneity in cross-sectoral income difference. Finally, in Column 4, we control for rural-to-urban migrants fixed effects. The estimated difference in the income gap between elites and non-elites remain largely unchanged throughout Columns 1 to 4. Thus, even if we take into account regional differences in sectoral performance and the differential labor market that may be experienced by migrant workers, the gap between elite and non-elite grandchildren's labor market performance is primarily due to the difference in income *within* employment sectors.

Next, we examine whether the income gap between grandchildren of elite and non-elite backgrounds systematically differs across cohorts. Figure 9 traces the income gap (a positive number indicating higher income among elite household members compared to their peers from the non-elite households) for birth cohorts starting in 1930. The income gap between elites and non-elites household descendants steadily increases as the cohorts become younger, in particular among those born after the 1960s, who entered the labor market in the Reform and Opening era (from 1978 onwards). This pattern suggests that as one spends a longer proportion of her professional career during the Reform and Opening era when market forces began to function again, her pre-revolution family background plays a bigger role in predicting her contemporary income and labor market performance. Household characteristics that could be relevant for the market emerge and help individuals accumulate higher gains from the labor market, as soon as the institutional and socioeconomic environment began to (re)align with these characteristics.

Educational attainments

We now examine the educational attainment among the grandchildren generation. Figure 10 extends Figure 7 to subsequent cohorts up to those born in 1990, tracing the difference in the proportion of individuals who have completed at least secondary education between individuals from pre-revolution elite households and those from non-elite households. The figure exhibits a U-shape pattern. As we document in the previous section, the Cultural Revolution deprived the elites and their descendants of education opportunities, especially for those who entered schooling age prior to the eve of the Cultural Revolution. For the cohorts directly affected by the Cultural Revolution, elite-household parents experienced a sharp decline in their relative access to higher education. In contrast, among the cohorts that began senior high school and college education

after the end of the Cultural Revolution (i.e., those born after 1961), the proportion of individuals from pre-revolution elite households who completed at least secondary schools immediately bounced back and remained much larger than that of their counterparts in non-elite households. In other words, those from pre-revolution elite families completed significantly more years of schooling, despite the lack of a difference between elite and non-elite backgrounds among their parents' generation.

We then analyze this pattern more rigorously in regression, where we exploit across households, within region and within cohort variations. As shown in Table 1, Panel B, the grandchildren generation of pre-revolution elite households on average completed 0.75 years (or 10%) more schooling, and in particular, much more likely to complete senior high school and higher education, than their counterparts from the non-elite households. The increased schooling also reflects differences in tangible human capital accumulation, as measured by math skills in a standardized tests implemented in the 2010 CFPS module. Grandchildren of the pre-revolution elites performed significantly and substantially better in math than their peers from the non-elite households. Given that just one generation ago, the pre-revolution elites did not enjoy any advantage in — if anything, discrimination in access to — formal schooling, the rapid and systematic rebounce of the grandchildren generation becomes especially striking.

Cultural traits and attitudes

We now show the extent to which cultural traits and attitudes are resilient to the disruptions of the Communist and Cultural Revolutions and were passed down to the grandchildren generation. In particular, we examine attitudes across several dimensions that have been identified as "productive cultural traits and attitudes." We focus on the following survey questions from the CFPS, whose differences are in general associated with differences in income and wealth (Alesina and Giuliano, 2015):

1	How important is being rich to you? (1 = not important at all; 5 = extremely important)
2	Do you agree that for the economy to thrive, one needs to enlarge income inequality in the population? (1 = do not agree at all; 5 = completely agree)
3	Do you agree that fair competition is essential to harmonious interpersonal relationships in the society? (1 = do not agree at all; 5 = completely agree)
4	Do you agree that the most important factor that determines one's success is how hard she works? (1 = do not agree at all; 5 = completely agree)

In Table 5, Columns 1 to 4, we examine whether the grandchildren generation of the pre-revolution elites hold different attitudes along these dimensions, compared to their peers from the non-elite households. Similar to the specifications previously, we control for birth cohort and county of residence fixed effects. Compared to their counterparts from the non-elite households, the grandchildren of the pre-revolution elites are significantly more likely to: *(i)* consider being rich as an important aspect in life; *(ii)* believe that inequality is desirable in the society in order to incentivize growth; *(iii)* consider competition essential in maintaining social cohesion; and *(iv)* believe that hard work is critical to success.

The differences in these attitudes are consistent with the actual differences in behaviors between the pre-revolution elites and the non-elites. We investigate the hours spent on work during weekdays and the hours spent on leisure on weekends, self-reported in the CFPS. In Table 5, Columns 5 and 6, we present estimates from regressing these measures of time allocation between work and leisure on whether the grandchildren generation is from pre-revolution elite or non-elite households (again controlling for birth cohort and county of residence fixed effects). Indeed, beliefs are consistent with behavior: the grandchildren of elite households spent significantly more hours working on weekdays and fewer hours on leisure (hence more hours at work) on weekends, aligned with their expressed work ethics and beliefs that hard work is critical. This difference holds even accounting for province, county, and public-private sector fixed effects. The difference in hours worked is substantial — close to 10% longer work hours during workdays, amounting to 200 more hours at work (and hence less leisure) each year.

Co-residence with parents is an important factor to account for the elite grandchildren's attitudinal differences from their non-elite peers. The closure of schools and especially universities could make the channels of vertical transmission more prominent than horizontal transmission.[29] Co-residence with parents is (partly) endogenous: perhaps children who choose to co-live with their parents share similar values with them to begin with, which would upward bias the estimate of cultural transmission. However, we also investigate co-residence with parents (or lack thereof) depending on whether the parents are (prematurely) dead, which can be considered exogenous at least to a first approximation. Vast majority of the co-residence with parents that we observe is with biological parents, as the divorce rate in China is relatively low — less than 2 per 1,000 inhabitants at the time of the 2010 CFPS. Nonetheless, one may co-reside with extended family members (especially if she does not reside with parents), and we do not directly observe such behavior.

In Table 6, we examine the extent to which the pattern of elite differences varies with the co-

[29]For example, not spending a substantial amount of time with schoolmates may make exposure to the values and attitudes held by parents more salient and distinguishable. Not moving to a different city to attend university may also make one more likely to spend time with parents and other household members. However, it is possible that transmission of values also occurred horizontally through connections among peers. We do find that grandchildren of the pre-revolution elites are more connected to networks beyond nuclear family. Whether such networks play a role in transmitting values or in providing career help and opportunities in more practical terms is difficult to establish with the data currently available.

residence between the children and grandchildren generations. Column 1 first replicates the baseline specification of the previous results on elite vs. non-elite differences in work ethics. Column 2 focuses on the sub-group of individuals in the grandchildren generation who co-live with their parents (namely, the children generation); Column 3 focuses on those who do not co-live with their parents despite their parents are still alive; and finally, Column 4 focuses on the sub-group whose parents are no longer alive. One can see that the sub-group of individuals in the grandchildren generation who co-live with their parents exhibit the largest elite vs. non-elite attitudinal differences, and the gap essentially vanishes among those whose parents have already passed away (and hence no longer reside together). To the extent that sorting associated with co-residence with parents could be driven by the alignment of fundamental attitudes between the two generations (hence purely through sorting), the inability to co-residence due to parents' passing away makes such sorting less of a concern. Overall, the evidence here is consistent with the pattern that vertical transmission, of which co-residence and spending significant amount of time together are the prerequisite, plays an important role. Moreover, similar differences in attitudes are observed even among the adolescents, who have not yet engaged in the labor market and experienced actual income differences themselves. In other words, the attitudinal differences observed between the members of pre-revolution elite and non-elite households are likely to have emerged as a result of transmission, rather than directly reflecting the labor market outcome differences.

The transmission of attitudes that are previously stigmatized can be nuanced. In fact, expression of pro-market and pro-work ethics attitudes was strongly suppressed and stigmatized during the Cultural Revolution, as they are associated with capitalist ideology and incompatible with the communist agenda. Table 7, Panel B, presents the differences in expressed attitudes on work ethics and the work hours between members of elite and non-elite households, in the parents generation (Panel A replicates those for the grandchildren's generation, as shown in previous tables). Interestingly, while the parents generation and grandparents generations exhibit a very similar pattern in actual hours worked — much higher for members of pre-revolution elite households in both generations, we do not observe such a difference in self-reported work-related attitudes among the parents. If we were to infer from actual behavior one's private conviction regarding work ethics and pro-market attitude, then these private attitudes and convictions may not have changed among the parents' generation during the Cultural Revolution, and they have been passed down to the grandchildren generation. The picture is completely different when it comes to willingness to express pro-market and pro-work ethics attitudes. The stigma of such expression during the revolutions may have made the parents generation reticent, an effect that persists to this day. Nonetheless, what is remarkable is that despite such stigmatization, private conviction may remain unchanged and the transmission of such attitudes across generations is resilient. Transmission of (stigmatized) private convictions and behaviors would particularly require close interactions and substantial time spent between the generations, which is consistent with the co-residence patterns that we examined above.

Finally, we examine to what extent differences in attitudes and educational attainments could account for the large income gaps we document between the grandchildren of elites and non-elite households. In Table 4, Column 5, we compare the annual labor income between the grandchildren of the pre-revolution elites and their peers from the non-elite households. In addition the baseline controls of birth cohort and county of residence fixed effects (shown in Column 1), we also control for the cultural traits and attitudes we examined above, as well as education attainment. The elite vs. non-elite income gap, 1,948 RMB/year in the baseline specification, is dramatically reduced by 89% (to 227 RMB/year) once the differences in cultural traits, attitudes, and education attainments are taking into account. One ought to be cautious at interpreting results from such exercise as the covariance structure of the regressors could affect the coefficient estimates, but the pattern suggests that cultural transmission of a particular set of values such as work ethics and educational attainment is an important channel through which the income advantage of the pre-revolution elites emerges again among the grandchildren generation.

6 Discussions

6.1 Who are the post-revolution upper class?

While the revolutions divided the Chinese rural population into two distinct groups (pre-revolution elites and non-elites), different sub-groups may emerge as the new post-revolution upper and upper-middle classes. Specifically, one may be concerned that since the pre-revolution landlords were stigmatized, they could be permanently suppressed, and it is the less stigmatized rich peasants households who systematically bounced back. We examine whether the post-revolution re-bounce of elite advantage is primarily driven by rich peasants, rather than landlords. In Appendix Table A.7, we show that, comparing to the grandchildren of the pre-revolution non-elites, individuals from both the landlord households and rich peasants households earn significantly higher income. In fact, the income gap between the grandchildren of landlords and those of the non-elites are larger than between the grandchildren of rich peasants and those of the non-elites. This suggests that despite being severely stigmatized, landlord households did not remain suppressed, and bounced back as much as, if not more than, the rest of the elite households.

6.2 Alternative channels of persistence

Cultural transmission may not be the only reason for persistence, and we discuss here several prominent alternative channels that could explain the re-bounce of the pre-revolution elites.

First, the pre-revolution elites' comeback could simply reflect the failure of the Communist and Cultural Revolutions to thoroughly deprive elite households of their wealth and access to higher education. We think that the lack of access to post-secondary education among pre-revolution elites during the Cultural Revolution is rather comprehensive, since a "good" class label was a

pre-requisite for admission into any school, and it was extremely costly to forge one. Hidden wealth, on the other hand, is by definition difficult to measure and could potentially be relevant. There are several categories of potential forms of hidden wealth. Wealth could be hidden if the Land Reform did not take away all the land from the landlord and rich peasant households beyond the subsistence level, and these families could leave behind other agricultural productive assets. This is unlikely not only because of the evidence we present in Section 4, but also due to the collectivization movement in 1952-1957 that completely eliminated private property rights (both usage and transfer rights) to any land and production assets soon after the Land Reform. To the extent that one could try to hide wealth and assets from being confiscated, it is primarily in the form of slaughtering cattle for short-term, one-time, private consumption, and the estimated scale of such a behavior is rather low (Chen and Lan, 2017). A more plausible channel of confiscation evasion during the Communist Revolution and the Cultural Revolution is to transfer the wealth overseas, two primary destinations being Hong Kong and Taiwan. This typically involved individuals physically migrating along with their assets, since private savings and overseas transfers were shut off until the late Reform and Opening period. While we think this could capture the behavior of the top wealthy families in major urban centers, in particular Shanghai, such a strategy is unlikely to be prevalent among the rural landlords whom we focus on in this project. Moreover, members of the elite households may receive remittances from emigre relatives after overseas transfers were resumed, but we do not find evidence that the magnitude of such remittances is substantial among the rural households we study.[30] Finally, a small fraction of the urban elites received a portion of their pre-revolution real estate properties back in the early 1990s. Again, no confiscated assets were returned in rural areas, and hence this is unlikely to drive the persistence among rural elites that we document.[31]

Second, the resurgence the pre-revolution elites may be driven by differential policies that favor these elites. Any such policies, if they exist, would have to be recent because the pre-revolution elites were in fact discriminated in most public policies throughout the revolution period and even during the first decade of the Reform and Opening era. Our reading of the contemporary Chinese policies suggests that there were no systematic policies that explicitly and favorably target pre-revolution elites. One subtle form of such favorable policies could be that pre-revolution elites have an easier time obtaining business license, though in those cases one cannot determine whether it is coming from the demand side (e.g., firms prefer to hire individuals from

[30] Based on our calculation using CFPS data, as of 2010, about 12% of rural residents among the grandchildren generation have received transfers from relatives not co-residing with them. Not all of these transfers are remittance, in particular that from overseas. Compared to those from the non-elite households, individuals from the pre-revolution elite households are in fact slightly less likely to receive such transfer, and conditional on receiving the transfer, the amount is also slightly lower.

[31] A systematic examination of the records in *County Gazetteer* suggests that while the ownership of the (previously confiscated) agricultural production assets such as semi-mechanized farming tools were re-allocated from the collectives to households since 1981, but they were not re-allocated to the original owners where these assets were taken during the Land Reform.

pre-revolution elite households) or the supply side (e.g., the pre-revolution elites possess better know-hows to navigate the bureaucratic structure). The latter would be consistent with our broad definition of cultural traits and characteristics that could be passed down from one generation to another.

Third, one may be concerned that the pattern of persistence among the pre-revolution elites is driven by selective violence against the elites during the Land Reform and Cultural Revolution. Achieving the goals of the Land Reform sometimes required the use of violence: the systematic killing of landlords, although occurred, was limited in scale as most of the pre-revolution landlords survived the revolutions; violence was used to suppress the pre-revolution elites' resistance to expropriation in some areas. To the extent that killing could result in selective survival, and violence could lead to selective suppression of pre-revolution elites' advantages, attitudes, etc., our baseline results on intergenerational persistence can be driven by these selections. The selective killing and violence can operate in two (ex-ante ambiguous) directions. If the killing and violence were more intense in historically unequal places, systematically targeting those wealthy and capitalism-aligned individuals or regions, then such selection would downwardly bias our estimates of intergenerational persistence. If instead, the killing and violence were more intense in historically less unequal places, more successful among those have less resources and capacity to resist, or those who would not be able to ensure that their descendants perform well, then such selection could generate a pattern of persistence and upwardly bias the estimates on intergenerational persistence. We examine the relationship between pre-revolution local inequality (such as the landlord share of the population or land ownership Ginis) and the intensity of violence (both the cases of killings and cases of persecutions) reported in the corresponding counties. Statistics on mass killings are compiled from Walder and Su (2003), and persecution cases are collected from the *County Gazetteers*. We examine the violence during the Land Reform and the Cultural Revolution separately, and the results are presented in Appendix Tables A.8 and A.9, respectively. We can see that violence was not associated with regional inequality prior to the revolutions. More importantly, the overall level of the violence, albeit not zero, was too low to drive the persistence pattern that we document.

Fourth, the pattern of grandchildren of pre-revolution works harder and values wealth more could be explained by their willingness to "revenge" and rectify the persecution experienced by the previous generations of the households. A similar hypothesis is that the persecution of the grandparents and children generation established or made salient the elite group identity, which is critical in fostering a set of work ethics and other "productive" cultural traits. While we are unable to trace perceived identity over time across generations, the persecution induced revenge sentiment or identity would be stronger among those whose household members were persecuted to death during the revolutions. However, we do not observe differences in work ethics between elites and non-elites among the grandchildren generation if their parents are no longer alive by 2010 (Table 6, Column 4). Of course, not all the perished individuals in the parents generation

passed away due to persecution during the revolutions — to the extent that some of them did, we do not observe this corresponds to a bigger differences in the cultural traits and attitudes between elites and non-elites.

Finally, one could attribute part of the persistence and re-bounce to innate traits and characteristics. This could include genetics, personalities broadly defined, intelligence, and emotional intelligence. We do not have direct measures in any of these dimensions, and hence we cannot rule in or rule out the possibility that these characteristics contribute to the persistence.

6.3 Inequality prior to the revolutions: other measures

The main analysis that we present in the paper takes land inequality in the late 1940s, just before the Land Reform, as the starting point. To gauge whether land inequality on the eve of the Land Reform reflects the medium-run distribution of land in rural China, we complement our baseline analysis with a data source on land distribution that is independent from the *County Gazetteer*. Specifically, we measure the land ownership distribution in the 1930s, the earliest period for which data on land distribution across Chinese counties exist. The source is *Land Utilization in China: A Study of 16786 Farmers in 168 Localities, and 38256 Farm Families in Twenty Two Provinces in China, 1929-1933*, compiled by John Buck in 1937. John Buck sent his students to different villages across China to survey land utilization. We aggregate these reports from villages to the county level, which cover 142 counties. The counties are not representative of China, but these reports are the most comprehensive data available on China's agricultural sector prior to 1949.

We first examine whether the land distribution in the 1930s is predictive of that in the late 1940s just before the Land Reform. Overall, 52 counties can be matched to the pre-Land Reform Gazetteer data. As shown in Appendix Table A.10, Panel A, the share of land area owned by landlords in the 1930s is positively, significantly, and robustly correlated with the corresponding measures in the late 1940s. In other words, the land distribution on the eve of the Land Reform reflects the agricultural landscape in China at least for several decades, and potentially for even longer periods.

We then examine whether the pattern of reversal in county-level land inequality in 2000 is robust to focusing on a longer time horizon — from the 1930s to 2000. We match 123 counties in the 1930s reports to the 2000 Census. In Appendix Table A.10, Panel B, we predict real estate inequality in 2000 with land inequality in the 1930s. We can see that the share of land area per landlord in the 1930s is signicantly negatively correlated with housing inequality measured in 2000. This, again, suggests that the Land Reform and Communist Revolution is a shock to China's land distribution, which has been otherwise fairly slow-moving.

7 Conclusion

The Communist and Cultural Revolutions in China were among the most radical social transformations in recent human history. The redistribution of wealth, in particular of land, was massive, and there is little doubt that the immediate goal of achieving extreme redistribution and homogenization of the population has been achieved. The Cultural Revolution was also successful from the point of view of the revolutionaries. It closed the educational gap in the generation that grew up during the Cultural Revolution, effectively interrupting the transmission of educational achievements across generations.

However, elite households survived these aggressive attempts to homogenize the population, to eliminate intergenerational transmission, and especially to eradicate the advantages enjoyed by the pre-revolution elite households. When certain degree of "normality" was reestablished in the 1980s, the descendants of the former elites earn a 17% higher annual income than those of the former non-elites, such as poor peasants. The grandchildren of pre-revolution elites systematically bounced back, despite that the cards being stacked against them and their parents. They could not inherit land and other assets from grandparents — the Communist Revolution and Land Reform successfully confiscated land assets, wiped out within- and cross-county inequality; their parents could not attend secondary school or university due to the Cultural Revolution; their parents were unwilling to express previously stigmatized pro-market attitudes in surveys; and they reside in counties that have become more equal and more hostile toward inequality today.

One channel we emphasize is the cultural transmission of values from one generation to the other. The grandchildren of the former landlords are more likely to express pro-market and individualistic values, such as approving of competition as an economic driving force, and willing to exert more effort at work and valuing education as an input into success. In fact, the vertical transmission of cultural values ("informal human capital") is extremely resilient: even stigmatizing public expression of values may not be sufficient, since the transmission in the private environment could occur regardless.

The transmission of cultural values makes socioeconomic status persist. Even if the transmission of economic conditions is temporarily shut off, persistence in economic conditions could rebound once income and wealth accumulation is allowed again, as long as income- and wealth-enhancing cultural traits are transmitted and remain present among the previously elite households. In other words, as cultural transmission within the family seems to have survived extraordinarily broad and deep institutional and political changes, such resilience can be a force against intergenerational economic mobility.

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Figures and tables

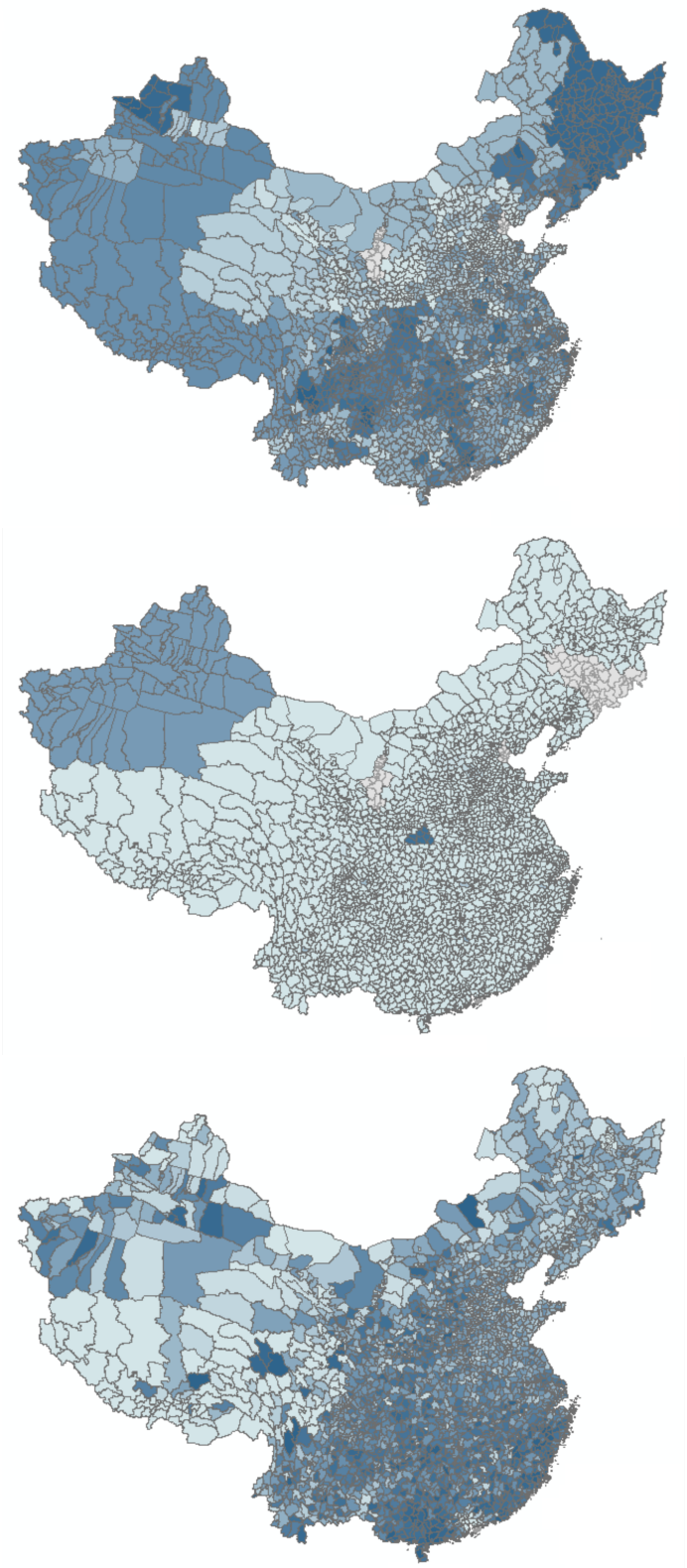


Figure 1: Top panel: Gini coefficients in land ownership across counties, prior to the Land Reform; counties with missing observations are imputed using prefecture averages. Middle panel: Gini coefficients in land ownership across counties, just after the Land Reform; counties with missing observations are imputed using prefecture averages. Bottom panel: Gini coefficients in housing sizes across counties in 2000. Darker color indicates higher within-county inequality.

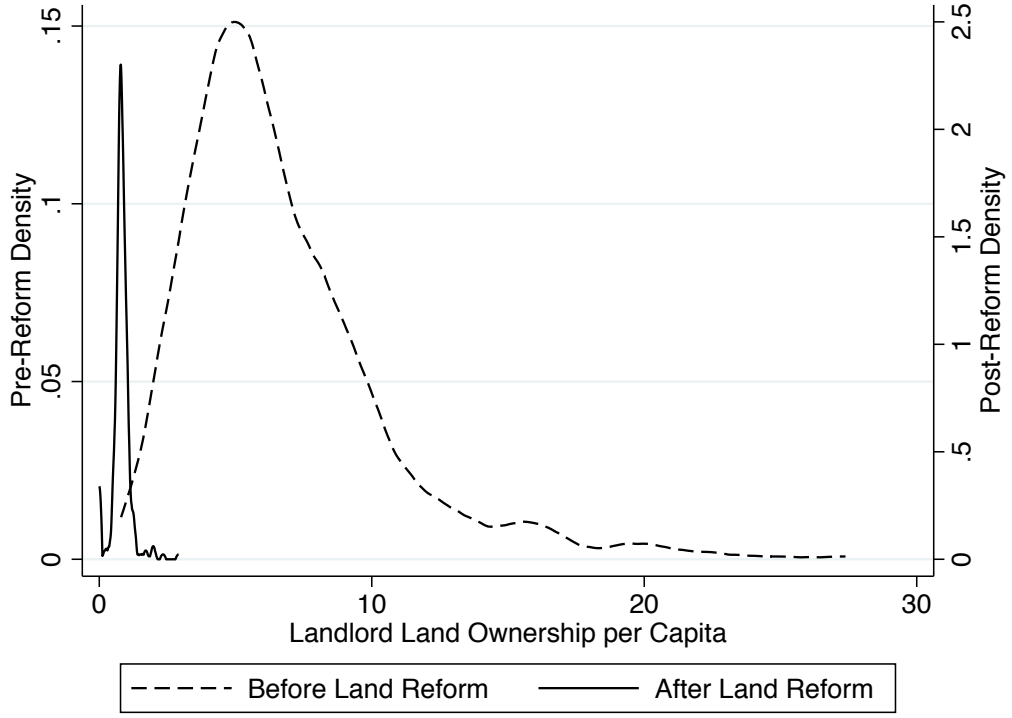


Figure 2: This figure plots the units of land owned by one unit of landlord before and after the reform. The dashed line is the probability density function of pre-reform land ownership. The solid line is the probability density function of post-reform land ownership.

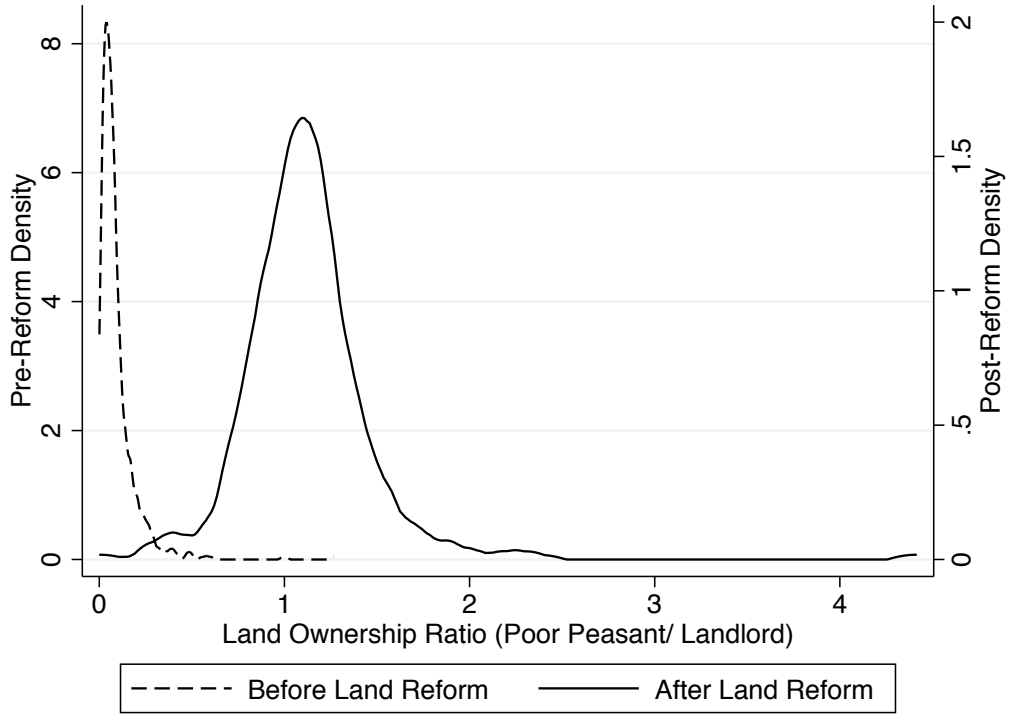


Figure 3: This figure plots the ratio of land ownership per poor peasant to the land ownership per landlord before and after the reform. The dashed line is the probability density function of pre-reform ratio. The solid line is the probability density function of post-reform ratio.

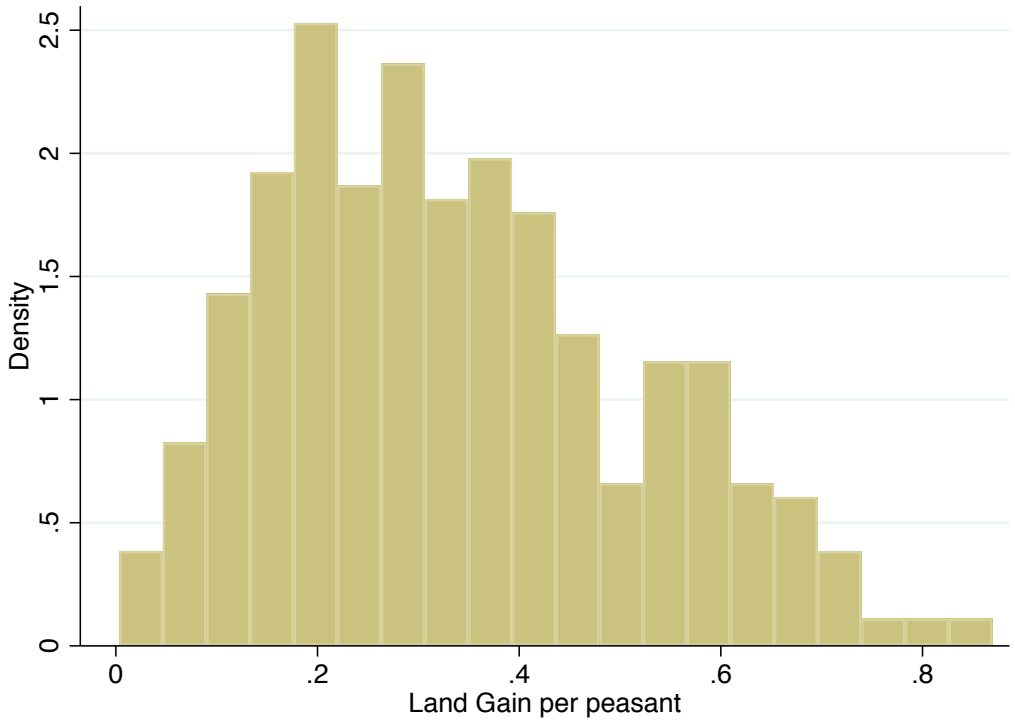


Figure 4: This figure plots probability density of land gain after the Land Reform by households in the poor or middle peasant categories across counties.

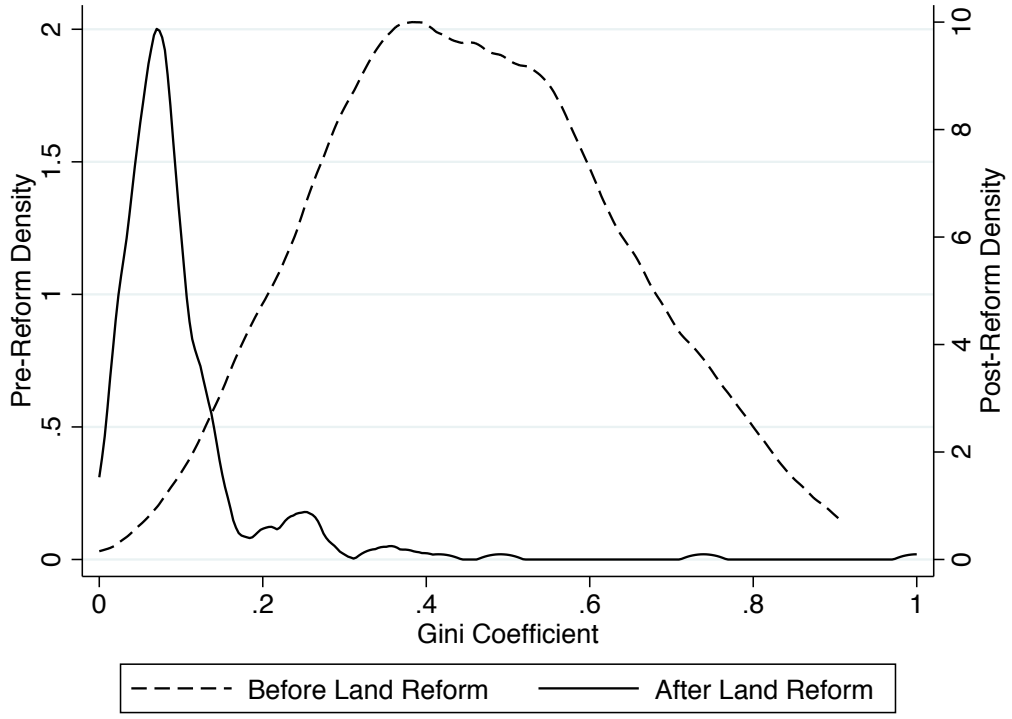


Figure 5: This figure plots the Gini coefficient before and after the reform. The dashed line is the probability density function of pre-reform ratio. The solid line is the probability density function of post-reform ratio.

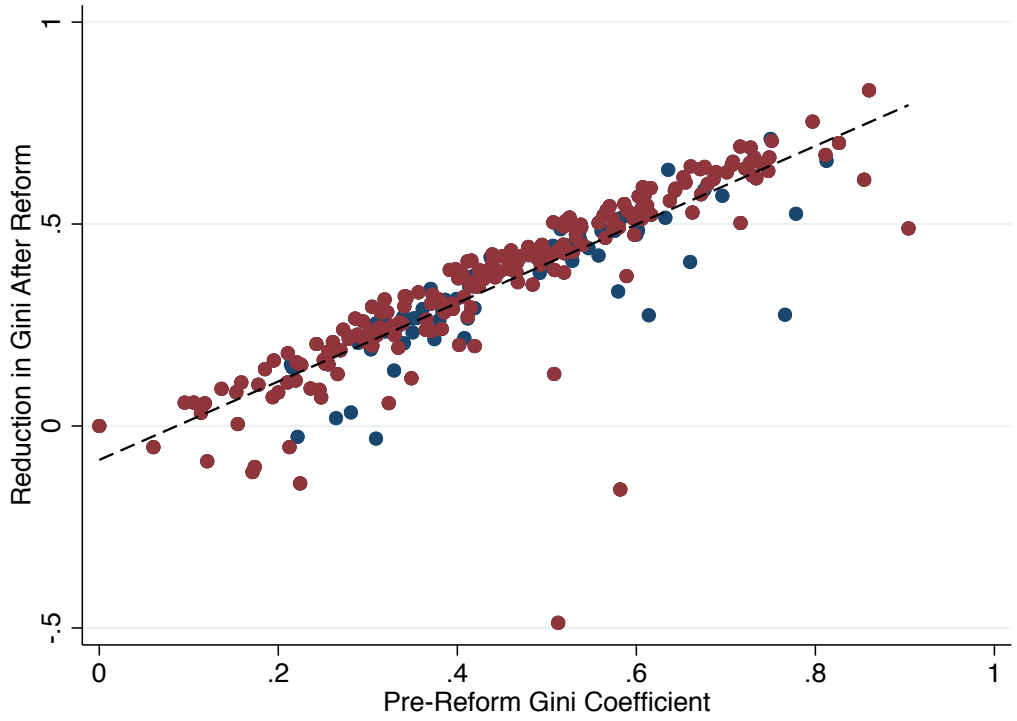


Figure 6: This figure plots the Gini coefficient before the Land Reform against the Gini coefficient after the Land Reform. Blue (red) dots represent counties that have landlords owning more (less) land than poor peasants, on average.

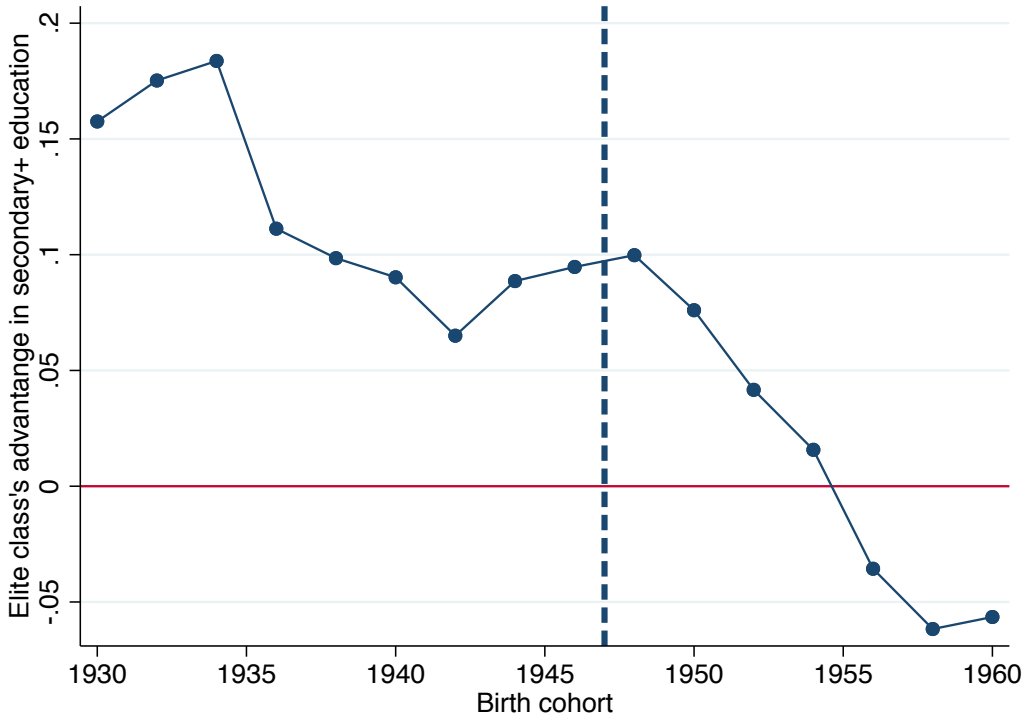


Figure 7: This figure plots the average advantage of elite class (defined as individuals with landlord fathers) in the years of secondary education or above by birth cohort from 1930 to 1960. The vertical blue dashed line refers to the first birth cohort (Year 1947) whose education can be potentially affected by the Culture Revolution. After birth cohort 1955, elite class does not enjoy the advantage in education.

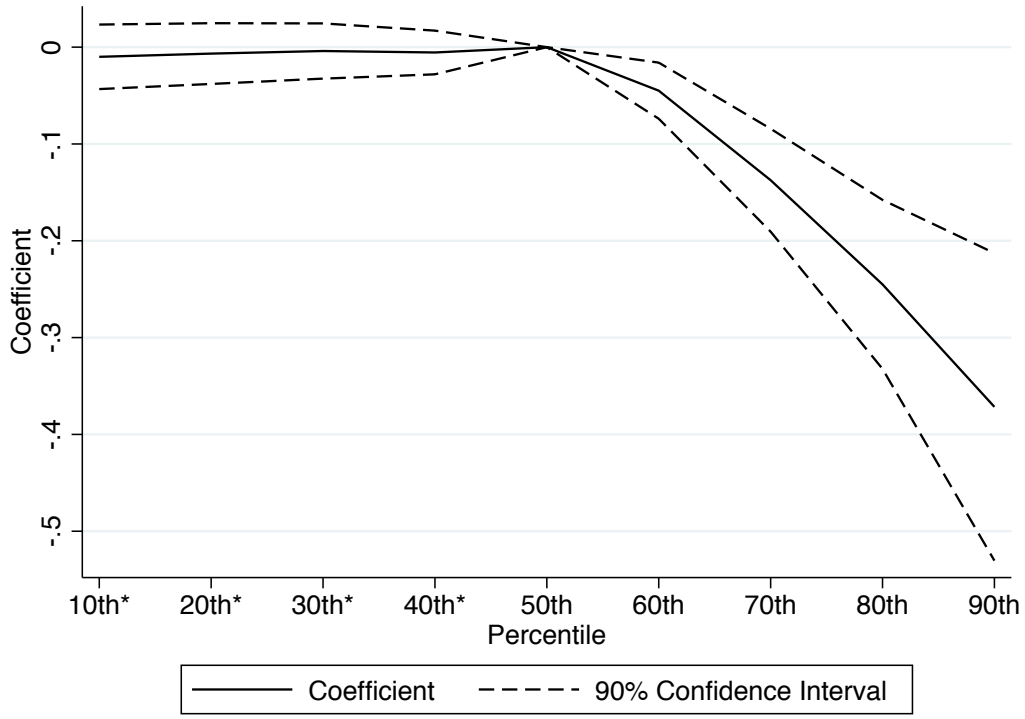


Figure 8: This figure plots coefficients of regressing the ratio of $X^{th}/50^{th}$ of amenity-adjusted housing area on the pre-reform land ownership Gini. The corresponding coefficients are reported in Appendix Table A.4 Panel A "Counties with more than 80 households". Regression coefficients are also available with imputed Gini coefficient in Panel B. Alternative cutoffs with "more than 50 houesholds" and "more than 100 houesholds" are also reported in Table A.4.

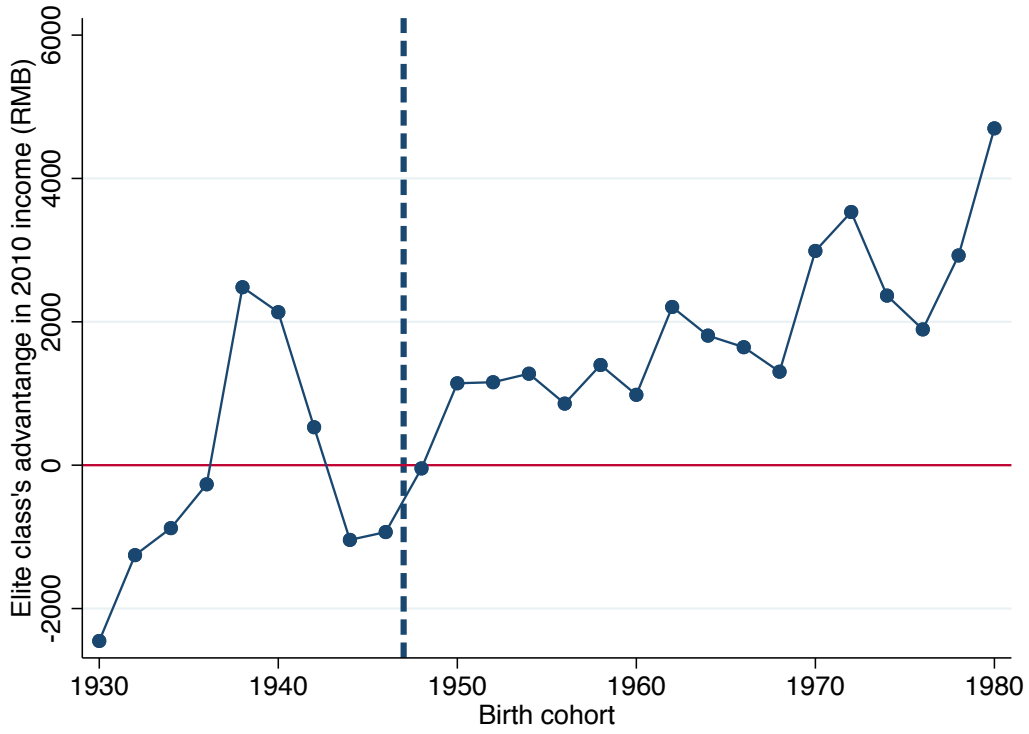


Figure 9: This figure plots the average advantage in 2010 income of elite class (defined as individuals with landlord fathers or grandfathers) by birth cohort from 1930 to 1980. The vertical blue dashed line refers to the first birth cohort (Year 1947) whose education can be potentially affected by the Culture Revolution.

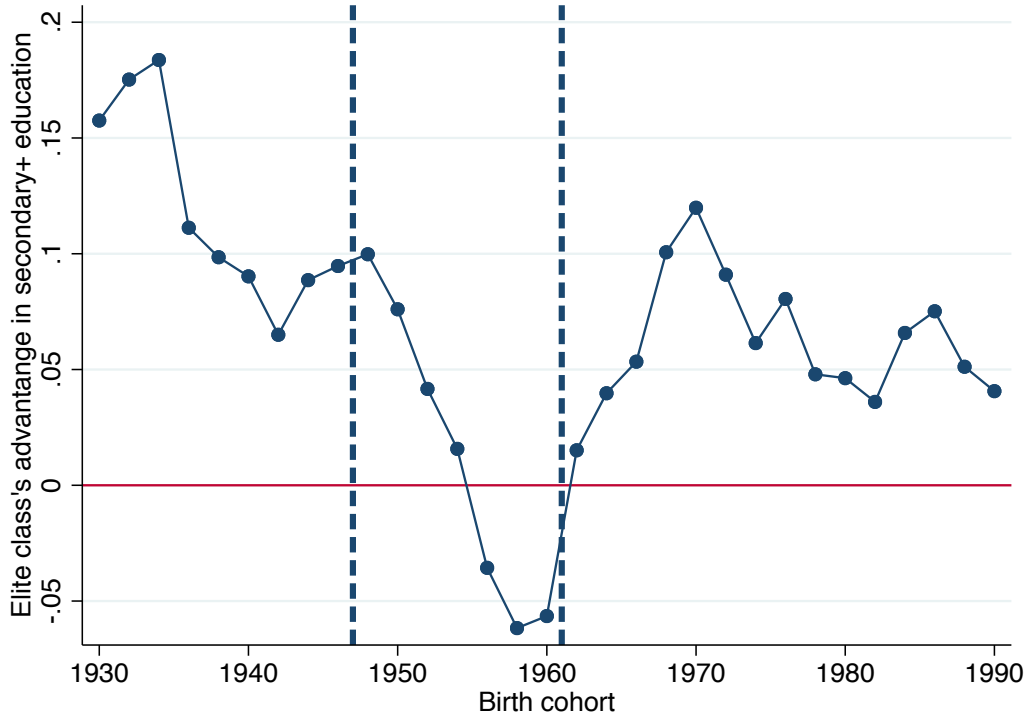


Figure 10: This figure plots the average advantage of elite class (defined as individuals with landlord fathers) in the years of secondary education or above by birth cohort from 1930 to 1990. The first vertical blue dashed line refers to the first birth cohort (Year 1947) whose education can be potentially affected by the Culture Revolution. The second vertical blue dashed line refers to the last birth cohort (Year 1961) affected.

Table 1: Children and grandchildren of pre-revolution elites

	Children's generation			Grandchildren's generation		
	Elite class diff.		Overall	Elite class diff.		Overall
	Coef.	Std. err.	Mean	Coef.	Std. err.	Mean
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: income						
Annual labor income	-1,113.7**	[477.0]	6,152.0	1,947.6**	[865.9]	11,633.0
Total household income	398.0	[419.0]	6,139.0	1,994.7***	[619.8]	9,953.0
Panel B: educational performance						
Years of education completed	0.156	[0.168]	4.419	0.748***	[0.190]	6.743
Completed at least junior high school	-0.026**	[0.011]	0.102	0.041**	[0.018	0.178
Math skills tested in 2010	0.001	[0.035]	1.880	0.161***	[0.045]	2.393
Panel C: labor market sector choices						
Self-employed	0.033*	[0.017]	0.084	0.046**	[0.022]	0.151
Employed in public sector	-0.013*	[0.008]	0.030	-0.016	[0.010]	0.052
Career prestige score (ISEI)	-0.208	[0.545]	27.98	1.515**	[0.757]	32.33
Panel D: political and social connections						
Communist Party member	-0.055***	[0.010]	0.094	0.012	[0.011]	0.052
Experienced hunger during famine	0.033*	[0.018]	0.228	-	-	-
Co-living with parents	0.015**	[0.006]	0.010	0.214***	[0.019]	0.233
Visit friends during holidays	0.261	[0.276]	3.324	0.567*	[0.319]	4.112

Notes: control for cohort fixed effects and residence county fixed effects.

Table 2: Inequality in land properties before and after revolutions

	Gini coefficient in 2000 (Amenity-adjusted housing area per capita)				
	(1)	(2)	(3)	(4)	(5)
Pre-revolution land Gini	-0.024***	-0.020***	-0.020***	-0.019***	-0.0142*
	[0.0065]	[0.0062]	[0.0062]	[0.0064]	[0.0074]
# observations	410	410	410	410	284
Control for province FEs	Yes	Yes	Yes	Yes	Yes
Control for 2000 night light level	No	Yes	Yes	Yes	Yes
Control for 1950 education level	No	No	Yes	Yes	Yes
Control for geographic attributes	No	No	No	Yes	Yes
Regions	All	All	All	All	Non-coastal

Notes: This table reports the relation between the pre-reform land Gini and the 2000 Gini of the amenity-adjusted housing area per capita. All specifications include the province fixed effects. Standard errors are reported in parenthesis. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3: Preference towards inequality

	Preference towards inequality		
	(1)	(2)	(3)
Pre-revolution gini	-1.818***	-1.751***	-1.701***
	[0.268]	[0.270]	[0.271]
DV mean	3.067	3.067	3.067
DV std. dev.	1.067	1.067	1.067
Cohort FE	No	Yes	Yes
Income control	No	No	Yes

Notes: This table shows the correlation between the historical pre-reform Gini and today's preference toward inequality. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Sample: 1970-1990 birth cohorts; number of observations = 8,762.

Table 4: Decomposing income differences

	Total annual labor income				
	(1)	(2)	(3)	(4)	(5)
Elite class	1,947.6** [865.9]	2,043.1* [861.5]	2,008.9** [864.9]	1,970.5** [864.2]	227.3 [965.3]
Province FE	Yes	Yes	No	Yes	Yes
Add comment Sector FE	No	Yes	No	No	No
Province×sector FE	No	No	Yes	No	No
Migrants FE	No	No	No	Yes	No
Control for educ. and values	No	No	No	No	Yes

Notes: Columns (1), (2), and (3) report results with province fixed effects, province and sector fixed effects, and province-sector fixed effects using the full sample. Columns (4) and (5) limit the sample to public and private sector respectively. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Sample: 1970-1990 birth cohorts; number of observations = 8,405.

Table 5: Values of grandchildren of pre-revolution elites

	Pro-market values			Work ethics		
	Important to become rich	Inequality is desirable	Competition is desirable	Hard work is critical to success	Hours worked during workdays	Hours on leisure during weekends
	(1)	(2)	(3)	(4)	(5)	(6)
Elite class	0.094*	0.081	0.061*	0.073**	0.620***	-0.757***
	[0.055]	[0.052]	[0.034]	[0.029]	[0.179]	[0.139]
DV mean	3.654	2.945	3.794	3.913	5.939	13.11
DV std. dev.	1.190	1.078	0.758	0.637	4.191	3.327

Notes: The dependent variables report three variables about work ethics: important to become rich, hard work is critical to success, and hours worked during workdays. The independent variable is a dummy variable that indicates whether grandfather's class label is landlord or not. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Sample: 1970-1990 birth cohorts; number of observations = 8,762.

Table 6: Co-residence and vertical transmission of values

	Hard work is critical to success			
	All	Parents alive and co-living	Parents alive and not co-living	Parents not alive
	(1)	(2)	(3)	(4)
Elite class	0.073**	0.140***	0.050	-0.004
	[0.029]	[0.043]	[0.058]	[0.055]
DV mean	3.913	3.924	3.895	3.923
DV std. dev.	0.637	0.652	0.635	0.631

Notes: Columns (1), (2), and (3) report results with province fixed effects, province and sector fixed effects, and province-sector fixed effects using the full sample. Columns (4) and (5) limit the sample to public and private sector respectively. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Sample: 1970-1990 birth cohorts; number of observations = 8,405.

Table 7: Attitudes and behaviors: children vs. grandchildren

	Stated attitudes		Behaviors
	Important to become rich	Hard work is critical to success	Hours worked during workdays
	(1)	(2)	(3)
Panel A: grandchildren's generation			
Elite class	0.078***	0.595***	-0.808***
	[0.029]	[0.186]	[0.146]
Panel B: children's generation			
Elite class	0.024	0.685***	-0.393***
	[0.027]	[0.154]	[0.137]

Notes: The dependent variables report three variables about work ethics: important to become rich, hard work is critical to success, and hours worked during workdays. The independent variable is a dummy variable that indicates whether grandfather's class label is landlord or not. Panel A reports grandchilden's generation. Panel B reports parents' generation. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Sample: 1970-1990 birth cohorts; number of observations = 8,762.

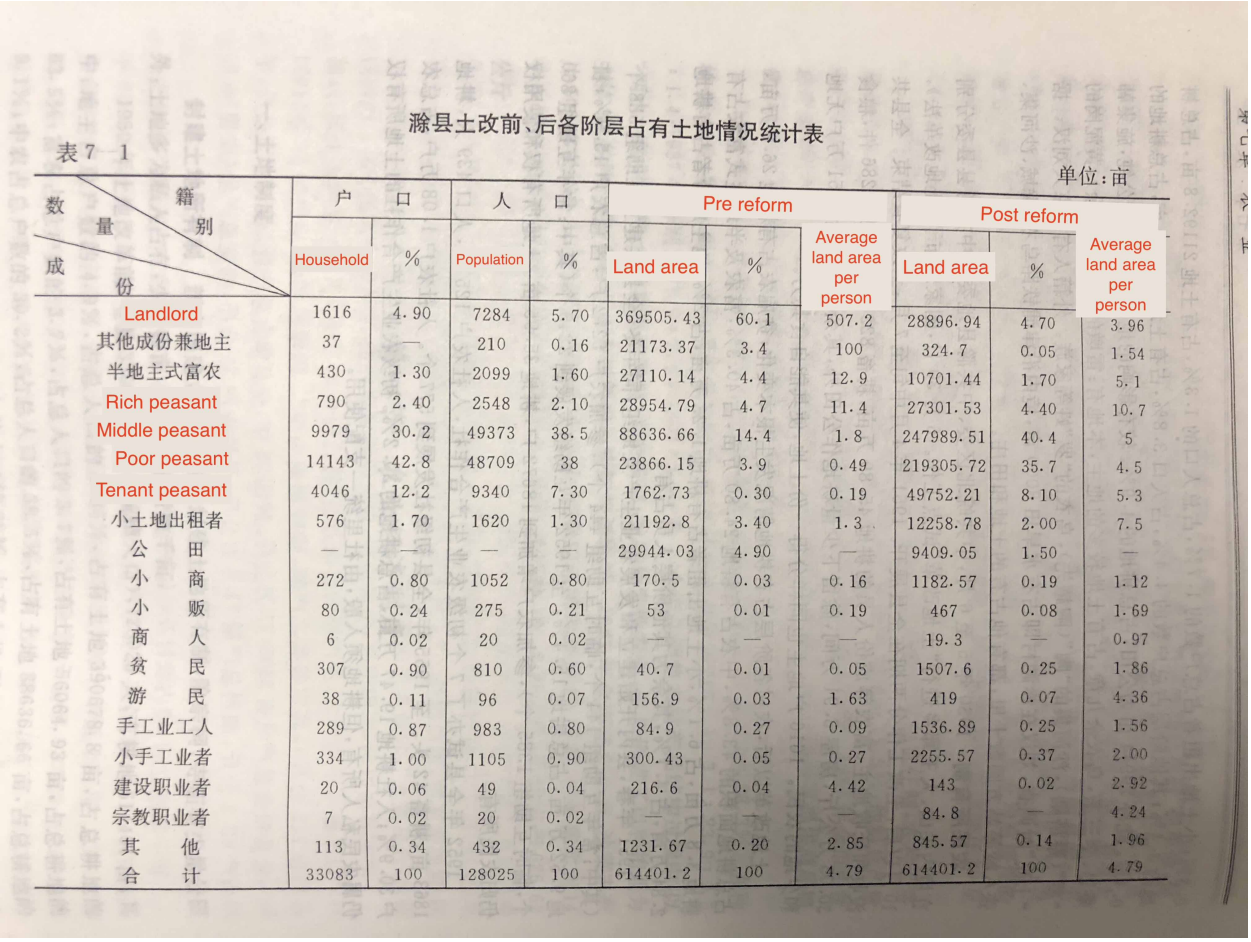
ONLINE APPENDIX (NOT FOR PUBLICATION)



Figure A.1: Measuring land during the Land Reform.



Figure A.2: Students chanting revolutionary slogans at Peking University during the Cultural Revolution.



滁县土改前、后各阶层占有土地情况统计表

表7 1

单位：亩

数量 / 籍别 / 成份	户口 Household	%	人口 Population	%	Pre reform Land area	%	Average land area per person	Post reform Land area	%	Average land area per person
Landlord	1616	4.90	7284	5.70	369505.43	60.1	507.2	28896.94	4.70	3.96
其他成份兼地主	37	—	210	0.16	21173.37	3.4	100	324.7	0.05	1.54
半地主式富农	430	1.30	2099	1.60	27110.14	4.4	12.9	10701.44	1.70	5.1
Rich peasant	790	2.40	2548	2.10	28954.79	4.7	11.4	27301.53	4.40	10.7
Middle peasant	9979	30.2	49373	38.5	88636.66	14.4	1.8	247989.51	40.4	5
Poor peasant	14143	42.8	48709	38	23866.15	3.9	0.49	219305.72	35.7	4.5
Tenant peasant	4046	12.2	9340	7.30	1762.73	0.30	0.19	49752.21	8.10	5.3
小土地出租者	576	1.70	1620	1.30	21192.8	3.40	1.3	12258.78	2.00	7.5
公田	—	—	—	—	29944.03	4.90	—	9409.05	1.50	—
小商	272	0.80	1052	0.80	170.5	0.03	0.16	1182.57	0.19	1.12
小贩	80	0.24	275	0.21	53	0.01	0.19	467	0.08	1.69
商人	6	0.02	20	0.02	—	—	—	19.3	—	0.97
贫民	307	0.90	810	0.60	40.7	0.01	0.05	1507.6	0.25	1.86
游民	38	0.11	96	0.07	156.9	0.03	1.63	419	0.07	4.36
手工业工人	289	0.87	983	0.80	84.9	0.27	0.09	1536.89	0.25	1.56
小手工业者	334	1.00	1105	0.90	300.43	0.05	0.27	2255.57	0.37	2.00
建设职业者	20	0.06	49	0.04	216.6	0.04	4.42	143	0.02	2.92
宗教职业者	7	0.02	20	0.02	—	—	—	84.8	—	4.24
其他	113	0.34	432	0.34	1231.67	0.20	2.85	845.57	0.14	1.96
合计	33083	100	128025	100	614401.2	100	4.79	614401.2	100	4.79

Figure A.3: Sample of County Gazetteer's record on land distribution before and after the Land Reform.

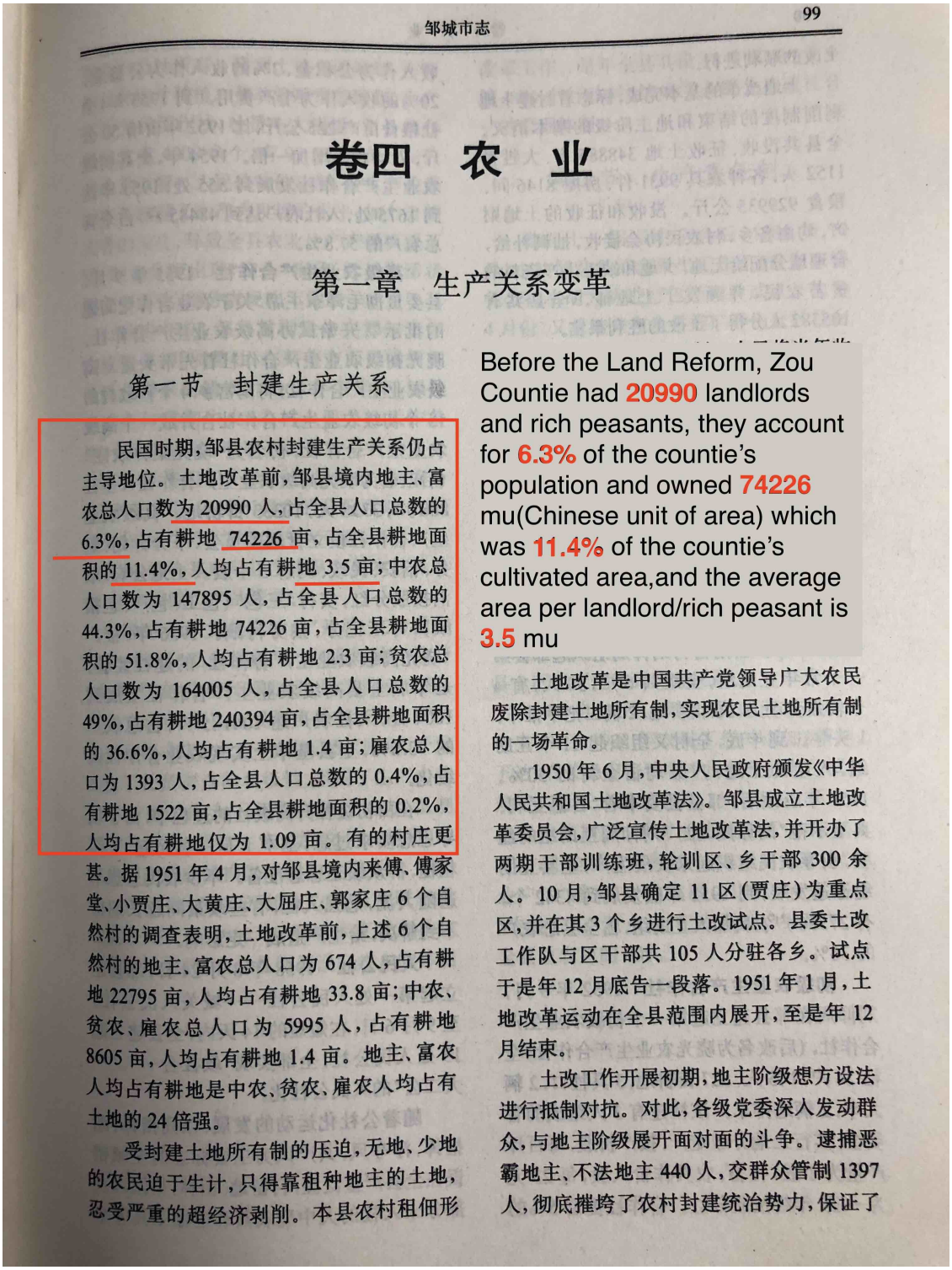


Figure A.4: Sample of County Gazetteer's record on land distribution before and after the Land Reform.

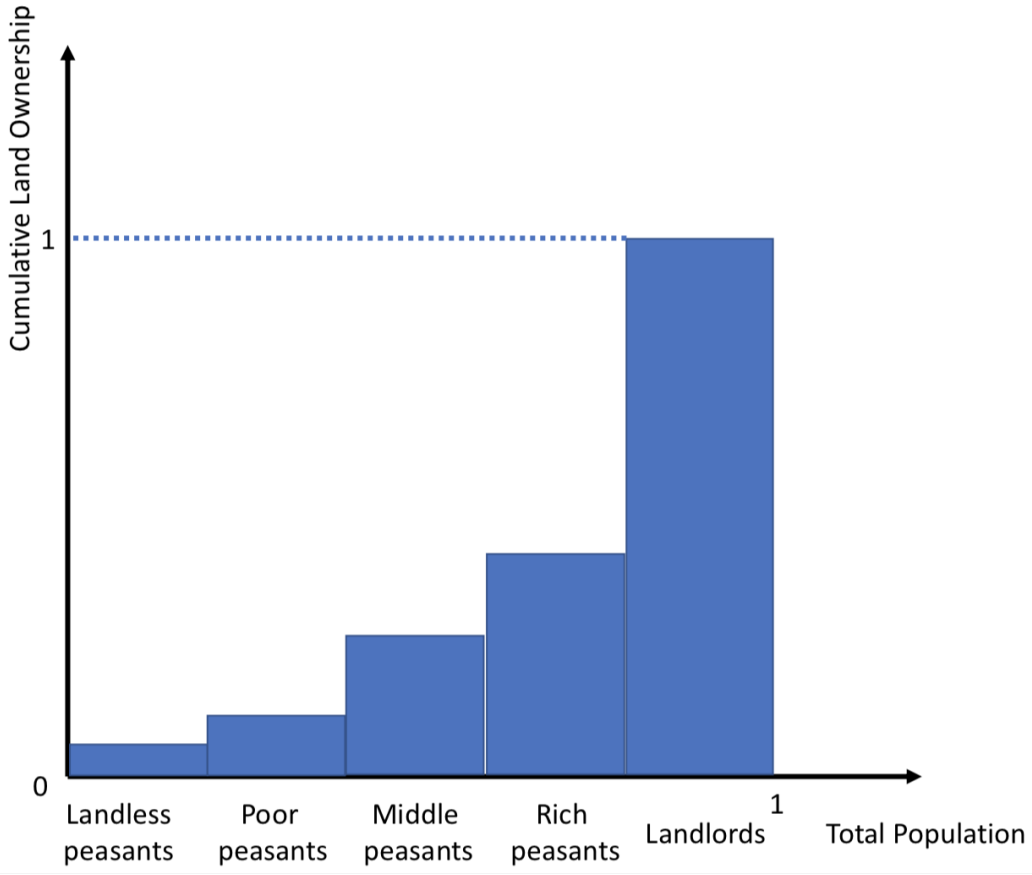


Figure A.5: This figure gives graphically illustration of the Gini coefficient calculation.

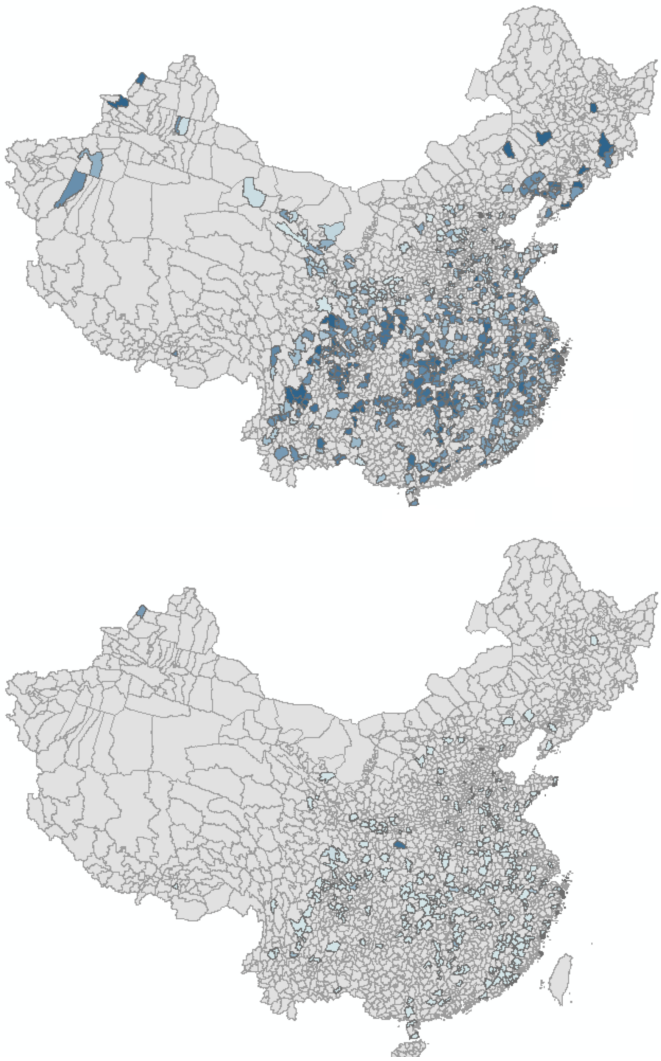


Figure A.6: Top panel: Gini coefficients in land ownership across counties, prior to the Land Reform (only counties with non-missing observations). Bottom panel: Gini coefficients in land ownership across counties, just after the Land Reform (only counties with non-missing observations). Darker color indicates higher within-county inequality; grey indicates counties with missing observations.

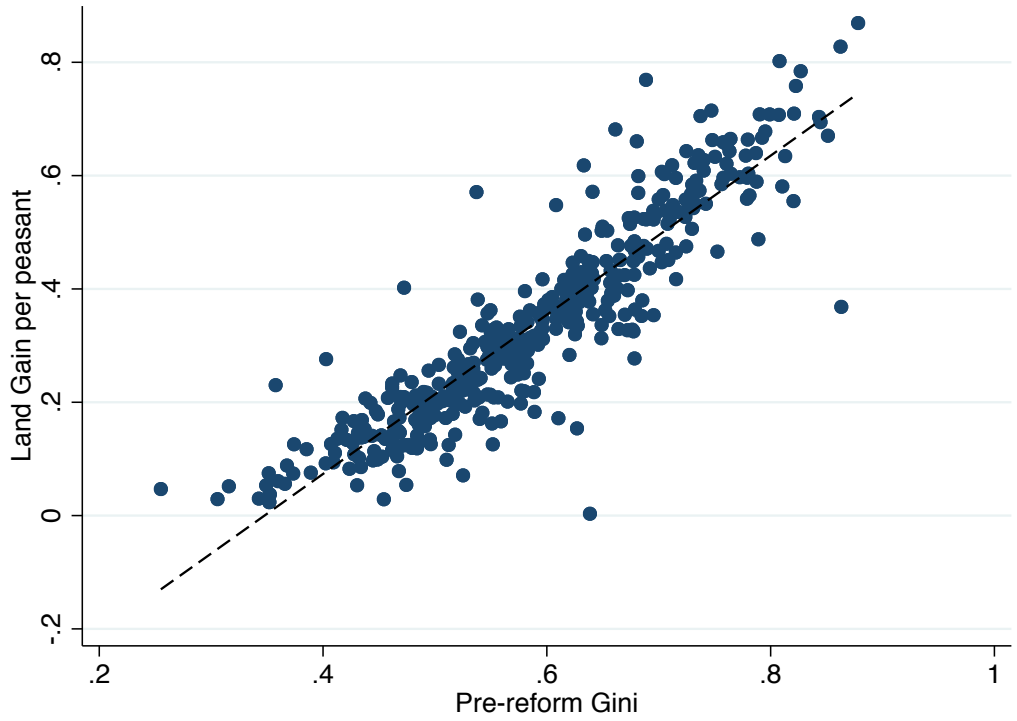


Figure A.7: This figure plots the land gain per peasant (middle or poor peasants) and the pre-reform Gini. The dashed line is the fitted line.

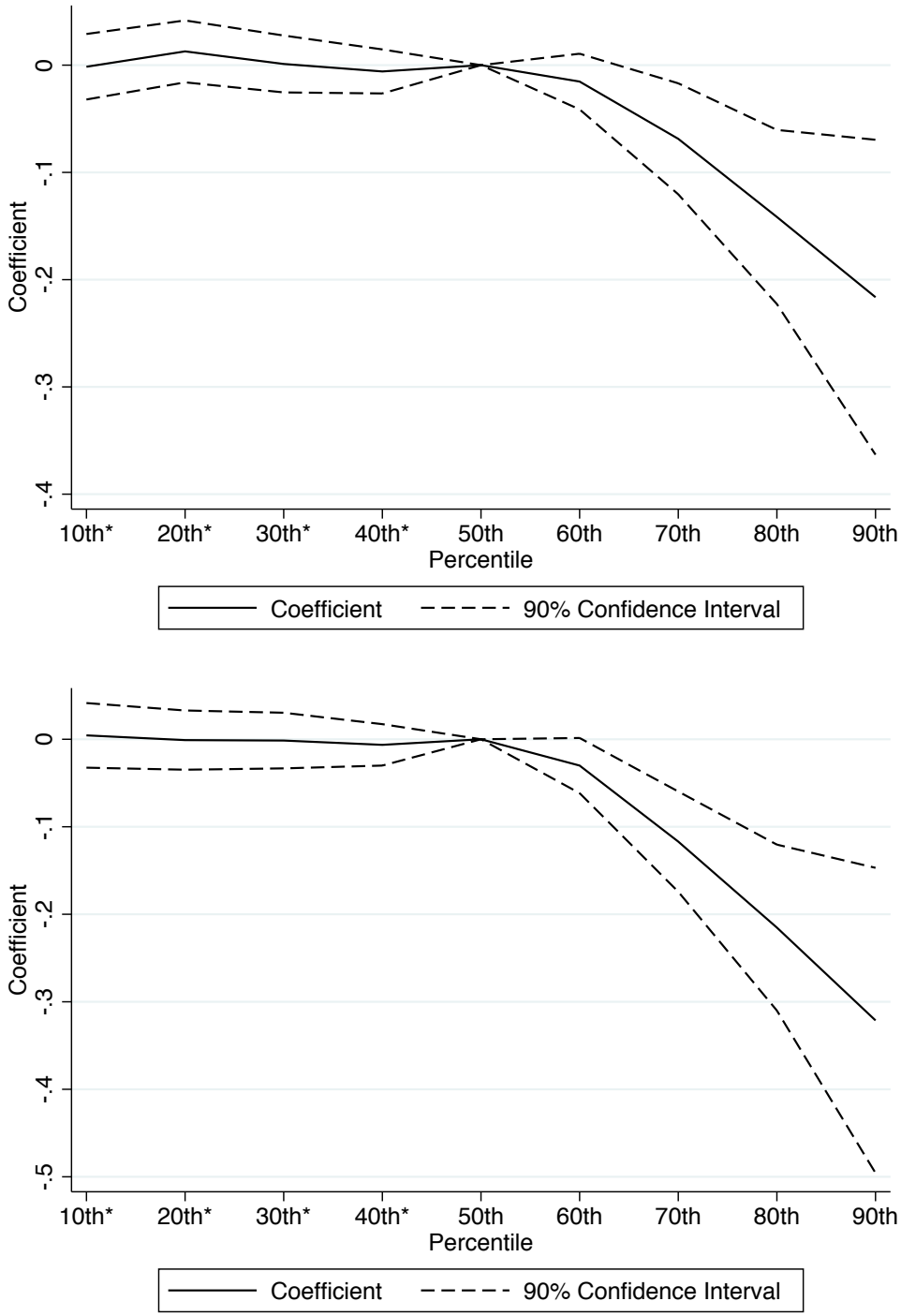


Figure A.8: These two figures plot the coefficients as in Figure 6 but with different samples. Top figure is estimated from counties with more than 50 households in our micro-sample Census 2000. Bottom figure is based on counties with more than 100 households reported.

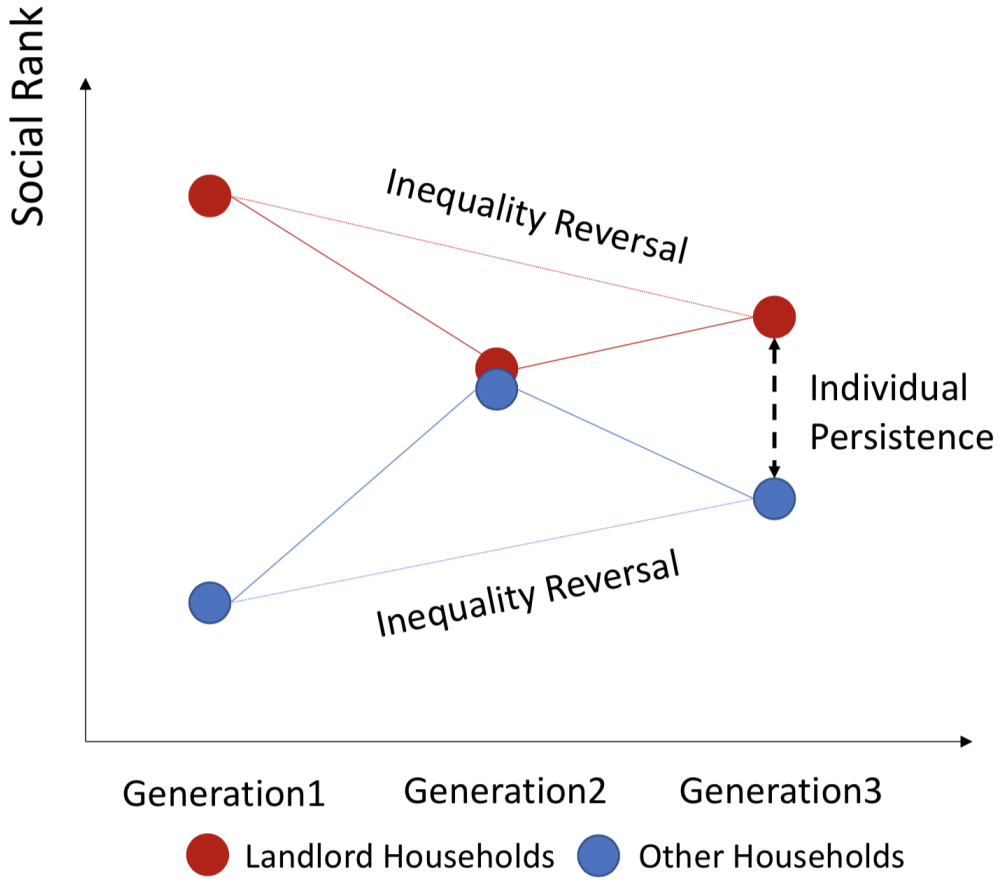


Figure A.9: This figure reconciles the individual-level persistence and county-level reversal with a graphical illustration.

Table A.1: County level summary statistics and balance table

Panel A: Summary Statistics

	Sample 1: Counties with sufficient data			Sample 2: Counties with insufficient data			Sample 3: County with no data		
Variable	Mean	SD	Obs	Mean	SD	Obs	Mean	SD	Obs
Distance to Shore	5.229	4.883	609	5.455	3.99	298	5.596	4.869	422
Longtitude	112.359	6.907	609	112.276	6.649	298	111.593	8.783	422
Latitude	31.12	4.904	609	32.923	5.814	298	33.155	7.175	422
GDP per capita	5335.281	4263.565	558	4700.998	3333.568	271	4637.448	3273.53	382
Avg. Nightlight	2.722	5.32	609	3.282	6.616	298	2.944	6.454	422
Avg. Yeas of Educ	6.926	0.902	609	7.049	0.984	298	6.957	1.206	422
Medium Years of Edu	6.973	0.966	609	7.079	1.038	298	6.947	1.392	422
Avg. Yeas of Edu	4.35	1.182	609	4.434	1.328	298	4.346	1.515	422
Medium Housing Area	24.385	7.258	609	21.671	5.48	298	21.262	5.488	422
Medium Adj. Housing Area	30.3	10.032	609	26.566	7.225	298	26.132	7.672	422
Housing Gini	0.647	0.028	609	0.643	0.028	298	0.639	0.03	422

Panel B: Balanced Test

	Sample 1= Sample 2			Sample1 = Sample 2+ Sample 3			Sample1 + Sample 2 = Sample 3		
	Dif	SE	p-value	Dif	SE	p-value	Dif	SE	p-value
Distance to Shore	0.025	0.091	0.783	0.050	0.077	0.517	0.066	0.083	0.422
Longtitude	-0.058	0.120	0.632	0.042	0.100	0.673	0.129	0.107	0.230
Latitude	-0.133	0.092	0.149	-0.059	0.077	0.448	0.036	0.083	0.661
GDP per capita	-21.954	251.761	0.931	170.445	194.137	0.38	281.929	208.824	0.177
Avg. Nightlight	-0.930	0.354	0.009	-0.526	0.322	0.103	-0.050	0.346	0.886
Avg. Yeas of Edu	-0.083	0.058	0.149	0.018	0.052	0.725	0.099	0.055	0.073
Medium Years of Edu	-0.040	0.059	0.496	0.071	0.054	0.189	0.132	0.058	0.022
Avg. Yeas of Edu	-0.003	0.078	0.969	0.099	0.067	0.139	0.156	0.071	0.030
Medium Housing Area	0.757	0.392	0.054	0.933	0.303	0.002	0.666	0.326	0.041
Medium Adj. Housing Area	0.923	0.533	0.084	1.207	0.414	0.004	0.936	0.444	0.035
Housing Gini	0.001	0.002	0.506	0.002	0.001	0.308	0.002	0.002	0.266

Notes: This table checks potential county selection bias in data collection procedure. Panel A reports summary statistics for three samples: Counties with complete data (Sample 1), Counties with incomplete data (Sample 2), and County with no data (Sample 3). Counties with Full Data. Panel B executes three balanced tests: Sample 1= Sample 2, Sample1 = Sample 2+ Sample 3, Sample1 + Sample 2 = Sample 3. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.2: Robustness: county level inequality persistence with different sampling criteria

Panel A: Household > 50						
	Gini (Amenity-adjusted Housing Area per capita)					
	(1)	(2)	(3)	(4)	(5)	(6)
Gini	-0.014**	-0.011*	-0.012**	-0.012**	-0.012*	-0.0098
	(0.0061)	(0.0060)	(0.0059)	(0.0059)	(0.0062)	(0.0060)
2000 GDP pc		-0.0088***				
		(0.0019)				
2000 Avg. Nightlight			-0.0016***	-0.0017***		-0.0015***
			(0.00025)	(0.00027)		(0.00028)
Avg. Edu of Old Cohorts				0.0011		0.0017
				(0.0011)		(0.0011)
Obs.	502	460	502	502	502	502
Panel B: Household > 80						
	Gini (Amenity-adjusted Housing Area per capita)					
	(1)	(2)	(3)	(4)	(5)	(6)
Gini	-0.04***	-0.018***	-0.020***	-0.020***	-0.022***	-0.019***
	(0.0065)	(0.0063)	(0.0062)	(0.0062)	(0.0066)	(0.0064)
2000 GDP pc		-0.0087***				
		(0.0018)				
2000 Avg. Nightlight			-0.0016***	-0.0015***		-0.0014***
			(0.00024)	(0.00026)		(0.00027)
Avg. Edu of Old Cohorts				-0.0018		-0.0015
				(0.0012)		(0.0013)
Obs.	410	371	410	410	410	410
Panel B: Household > 100						
	Gini (Amenity-adjusted Housing Area per capita)					
	(1)	(2)	(3)	(4)	(5)	(6)
Gini	-0.028***	-0.019***	-0.023***	-0.022***	-0.027***	-0.022***
	(0.0071)	(0.0068)	(0.0067)	(0.0067)	(0.0072)	(0.0069)
2000 GDP pc		-0.0084***				
		(0.0020)				
2000 Avg. Nightlight			-0.0016***	-0.0015***		-0.0013***
			(0.00024)	(0.00026)		(0.00027)
Avg. Edu of Old Cohorts				-0.0015		-0.0014
				(0.0013)		(0.0014)
Geographical Features	No	No	No	No	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	348	309	348	348	348	348

Notes: Panel A, B and C report estimated with the county samples including more than 50, 80 and 100 households respectively (the benchmark in Table 2 is more than 80 households). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.3: Robustness: county level inequality persistence with imputed Gini coefficients

Panel A: Household > 50						
	Gini (Amenity-adjusted Housing Area per capita)					
	(1)	(2)	(3)	(4)	(5)	(6)
Imputed Gini	-0.015***	-0.011**	-0.014***	-0.014***	-0.016***	-0.013***
	(0.0051)	(0.0052)	(0.0049)	(0.0050)	(0.0052)	(0.0051)
2000 GDP pc		-0.0083***				
		(0.0012)				
2000 Avg. Nightlight			-0.0015***	-0.0015***		-0.0015***
			(0.00015)	(0.00016)		(0.00016)
Avg. Edu of Old Cohorts				0.00068		0.00077
				(0.00068)		(0.00071)
Obs.	1443	1311	1443	1443	1443	1443
Panel B: Household > 80						
	Gini (Amenity-adjusted Housing Area per capita)					
	(1)	(2)	(3)	(4)	(5)	(6)
Imputed Gini	-0.034***	-0.02***	-0.031***	-0.031***	-0.035***	-0.027***
	(0.0081)	(0.0082)	(0.0077)	(0.0077)	(0.0082)	(0.0083)
2000 GDP pc		-0.0093***				
		(0.0012)				
2000 Avg. Nightlight			-0.0014***	-0.0014***		-0.0014***
			(0.00016)	(0.00017)		(0.00018)
Avg. Edu of Old Cohorts				0.00015		0.00022
				(0.00081)		(0.00084)
Obs.	1164	1047	1164	1164	1164	1164
Panel C: Household > 100						
	Gini (Amenity-adjusted Housing Area per capita)					
	(1)	(2)	(3)	(4)	(5)	(6)
Imputed Gini	-0.033***	-0.026***	-0.029***	-0.029***	-0.034***	-0.029***
	(0.0062)	(0.0062)	(0.0058)	(0.0058)	(0.0062)	(0.0060)
2000 GDP pc		-0.0093***				
		(0.0013)				
2000 Avg. Nightlight			-0.0017***	-0.0017***		-0.0016***
			(0.00015)	(0.00017)		(0.00017)
Avg. Edu of Old Cohorts				-0.00029		-0.00029
				(0.00089)		(0.00091)
Geographical Features	No	No	No	No	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	964	860	964	964	964	964

Notes: The imputed Gini is defined as the average Gini in neighborhood counties within longitude-latitude 1×1 square area. Panel A, B, and C report estimated with the county samples including more than 50, 80, and 100 households respectively (the benchmark in Table 2 is more than 80 households). *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.4: Robustness: county level inequality persistence with urbanization control

Panel A: Full specification of Table 2						
	Gini (Amenity-adjusted Housing Area per capita)					
	(1)	(2)	(3)	(4)	(5)	(6)
Gini	-0.04***	-0.018***	-0.020***	-0.020***	-0.022***	-0.019***
	(0.0065)	(0.0063)	(0.0062)	(0.0062)	(0.0066)	(0.0064)
2000 GDP pc		-0.0087***				
		(0.0018)				
2000 Avg. Nightlight			-0.0016***	-0.0015***		-0.0014***
			(0.00024)	(0.00026)		(0.00027)
Avg. Edu of Old Cohorts				-0.0018		-0.0015
				(0.0012)		(0.0013)
Obs.	410	371	410	410	410	410
Panel B: Raw Gini with urbanization rate control						
	Gini (Amenity-adjusted Housing Area per capita)					
	(1)	(2)	(3)	(4)	(5)	(6)
Gini	-0.024***	-0.018***	-0.020***	-0.020***	-0.022***	-0.019***
	(0.0065)	(0.0063)	(0.0062)	(0.0062)	(0.0066)	(0.0064)
Urban Hukou Percentage	-0.061***	-0.012	-0.02*	-0.022	-0.055***	-0.022
	(0.011)	(0.018)	(0.014)	(0.014)	(0.011)	(0.015)
2000 GDP pc		-0.0087***				
		(0.0018)				
2000 Avg. Nightlight			-0.0016***	-0.0015***		-0.0014***
		(0.00024)	(0.00026)		(0.00027)	
Avg. Edu of Old Cohorts				-0.0018		-0.0015
				(0.0012)		(0.0013)
Obs.	410	371	410	410	410	410
Panel C: Imputed Gini urbanization rate control						
	Gini (Amenity-adjusted Housing Area per capita)					
	(1)	(2)	(3)	(4)	(5)	(6)
Imputed Gini	-0.024***	-0.019***	-0.023***	-0.023***	-0.025***	-0.024***
	(0.0054)	(0.0056)	(0.0053)	(0.0053)	(0.0055)	(0.0054)
Urban Hukou Percentage	-0.050***	-0.016	-0.021**	-0.021**	-0.047***	-0.021**
	(0.0075)	(0.011)	(0.0080)	(0.0084)	(0.0076)	(0.0084)
2000 GDP pc		-0.0083***				
		(0.0014)				
2000 Avg. Nightlight			-0.0014***	-0.0014***		-0.0014***
			(0.00016)	(0.00017)		(0.00018)
Avg. Edu of Old Cohorts				0.00015		0.000022
				(0.00081)		(0.00084)
Obs.	1164	1047	1164	1164	1164	1164

Notes: This table provides robustness with urbanization rate control. The urbanization is defined as population percentage with urban Hukou in county. Panel A reports the full specification of Table 2, Panel B reports the regressions with the urbanization control, and Panel C reports the specification with imputed Gini. All three panels estimate with the county samples including more than 80 households. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.5: Breakdown Ineqality into Deciles

	Amenity-adjusted Gini	$10^{th}/50^{th}$	$20^{th}/50^{th}$	$30^{th}/50^{th}$	$40^{th}/50^{th}$	$60^{th}/50^{th}$	$70^{th}/50^{th}$	$80^{th}/50^{th}$	$90^{th}/50^{th}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Panel A: Counties with actual Gini Coefficients									
	Counties with more than 50 households								
Gini	-0.015*	-0.011	0.014	0.002	-0.0003	-0.025	-0.114***	-0.215***	-0.334***
	(0.009)	(0.026)	(0.025)	(0.023)	(0.017)	(0.022)	(0.044)	(0.070)	(0.127)
	Counties with more than 80 households								
Gini	-0.027***	-0.029	-0.014	-0.003	0.0002	-0.065***	-0.204***	-0.350***	-0.547***
	(0.009)	(0.028)	(0.026)	(0.024)	(0.019)	(0.024)	(0.044)	(0.073)	(0.134)
	Counties with more than 100 households								
Gini	-0.031***	-0.015	-0.011	-0.005	-0.004	-0.044*	-0.184***	-0.316***	-0.458***
	(0.010)	(0.031)	(0.028)	(0.026)	(0.019)	(0.026)	(0.047)	(0.078)	(0.146)
Panel B: Counties with imputed Gini Coefficients									
	Amenity-adjusted Gini	$10^{th}/50^{th}$	$20^{th}/50^{th}$	$30^{th}/50^{th}$	$40^{th}/50^{th}$	$60^{th}/50^{th}$	$70^{th}/50^{th}$	$80^{th}/50^{th}$	$90^{th}/50^{th}$
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Counties with more than 50 households								
Imputed Gini	-0.020***	-0.017	-0.0002	-0.016	-0.013	-0.017	-0.078**	-0.138***	-0.224**
	(0.008)	(0.022)	(0.020)	(0.018)	(0.015)	(0.033)	(0.034)	(0.053)	(0.102)
	Counties with more than 80 households								
Imputed Gini	-0.034***	-0.026	-0.010	-0.008	-0.009	-0.047	-0.149***	-0.277***	-0.456***
	(0.008)	(0.024)	(0.021)	(0.018)	(0.015)	(0.032)	(0.035)	(0.057)	(0.108)
	Counties with more than 100 households								
Imputed Gini	-0.042***	-0.027	-0.017	-0.012	-0.017	-0.040	-0.144***	-0.258***	-0.390***
	(0.009)	(0.026)	(0.023)	(0.020)	(0.016)	(0.037)	(0.037)	(0.061)	(0.117)

Notes: Panel A reports corresponding coefficients in Figure 6 and Appendix Figure A.6. Panel B reports a parallel set of coefficients with imputed Gini coefficients. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Panel A Actual Gini Sample: Obs $>$ 50 535, Obs $>$ 80: 442 Obs $>$ 100: 377. Panel B Imputed Gini Sample: Obs $>$ 50 1452, Obs $>$ 80: 1172, Obs $>$ 100: 972.

Table A.6: Education Inequality

	Avg. Edu (Top 20 percentile minus Bottom 20 percentile)					
	(1)	(2)	(3)	(4)	(5)	(6)
	Panel A: Grandparents' Generation					
Gini	0.827	0.190	0.579	0.339	0.678	0.402
	(0.630)	(0.591)	(0.581)	(0.485)	(0.638)	(0.500)
	Panel B: Parents' Generation					
Gini	-0.342	-0.253	-0.330	-0.096	-0.245	-0.253
	(0.692)	(0.716)	(0.694)	(0.620)	(0.708)	(0.638)
	Panel C: Grandchildren's Generation					
Gini	1.021*	0.998*	0.937*	0.985*	1.058*	0.943*
	(0.537)	(0.553)	(0.532)	(0.529)	(0.552)	(0.542)
2000 Log(GDP pc)	No	Yes	No	No	No	No
2000 Avg. Nightlight	No	No	Yes	Yes	No	Yes
Avg. Edu of Old Cohorts	No	No	No	Yes	No	Yes
Geographical Features	No	No	No	No	Yes	Yes
Province FE	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	442	397	442	442	442	442

Notes: The dependent variables gap in average education attainment between the most-educated 20 percentile and least-educated 20 percentile. Panel A reports the grandparents' generation, Panel B reports the parents' generation, and Panel C reports the grandchildren's generation. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. Counties with more than 80 households in the 2000 Census.

Table A.7: Income difference among grandchildren generation: upper and upper-middle class

	Annual labor income	total household income
	(1)	(2)
Landlords	1581.2	2922.1***
	[1281.9]	[981.2]
Rich peasants	1929.4*	1428.3*
	[1104.3]	[756.7]

Notes: The dependent variable is the total annual income in 2010, measured by CFPS. Landlords and rich peasants are class labels assigned to the grandparents' generation prior to the Communist Revolution. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.8: Violence during the Land Reform

	Dummy variables			Violence victims	
	Death	Struggle	Any Violence	Death	Struggle
	(1)	(2)	(3)	(4)	(5)
Pre-reform landlord share	0.0013	-0.0003	0.00056	0.0036	0.0008
	[0.002]	[0.002]	[0.0024]	[0.0016]	[0.0027]
Pre-reform gini	-0.009	-0.070	-0.020	-0.069	0.109
	[0.051]	[0.075]	[0.079]	[0.083]	[0.071]

Notes: The dependent variables are the casualty of Culture Revolution and violence victims as percentages of total population. Columns (2) and (4) report the regression coefficients after imputing missing values as zeros. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.9: Violence and revolutionary intensities in 1960s

	Revolutionary casualties		Violence victims	
	(1)	(2)	(3)	(4)
Pre-reform landlord share	0.037	0.020	0.013	0.008
	[0.043]	[0.043]	[0.048]	[0.047]
Pre-reform gini	0.009	0.012	-0.063	-0.077
	[0.045]	[0.044]	[0.050]	[0.049]
Impute zeros	No	Yes	No	Yes

Notes: The dependent variables are the reported violence towards landlords during the Land Reform. Independent variables in columns (1)-(3) are dummy variables whether the county gazetteer documents the violence to landlords. Columns (4) and (5) report the regression coefficients conditional on the reported statistics on violence. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table A.10: Land ownership inequality: 1930s vs. 1950s

Panel A: pre-Land Reform					
	Share of land area per landlord (pre-Land Reform)				
	(1)	(2)	(3)	(4)	(5)
Share of land area per owner (1930)	0.077**	0.072*	0.072*	0.072**	0.062
	[0.036]	[0.039]	[0.040]	[0.038]	[0.037]
# observations	52	52	52	52	43
Panel B: contemporary					
	Gini in 2000 (Amenity-adjusted housing area per capita)				
	(1)	(2)	(3)	(4)	(5)
Average rent (1930)	-0.040	-0.051**	-0.037	-0.037	-0.046
	[0.026]	[0.025]	[0.027]	[0.027]	[0.032]
# observations	123	123	123	123	94
Control for geographic attributes	No	Yes	Yes	Yes	Yes
Control for region FEs	No	No	Yes	Yes	Yes
Control for night light level	No	No	No	Yes	Yes
Control for 2000 GDP	No	No	No	No	Yes

Notes: The land ownership data in 1930 is based on Buck's agricultural survey. Panel A correlates the share of land area per landlord reported in gazetteers to the share of land area per landowner reported in Buck's survey. Panel B correlates the amenity-adjusted housing Gini in 2000 to the average rent collected by land owners in 1930. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Appendix A Measures of intergenerational mobility: transition matrix

A.1 Theoretical derivation: the correspondence from transition matrix to regression coefficients

For a transitional matrix,

	Young Top X	Young Bottom 1-X
Old Top X	a	b
Old Bottom 1-X	c	d

We solve b, c, d as functions of a and X first.

$$b = 1 - a$$
$$c = \frac{(1-a)X}{1-X}$$
$$d = 1 - \frac{(1-a)X}{1-X}$$

Consider the following two regressions linking the rank of the young generation to the social status of the old generation.

Regression 1: Regress the dummy of being in the top X of the young generation on the dummy of being in the top X of the old generation.

$$D_{young}(Top\ X) = \beta_1 D_{old}(Top\ X) + c + \epsilon$$

The coefficient is the expectation of probability difference of entering in the top X rank.

$$\beta_1 = a - \frac{X}{1-X}(1-a) = \frac{a-X}{1-X}$$

Regression 2: Regress the rank of young generation on the dummy of being in the top X of the old generation.

$$Rank_{young}(TopX) = \beta_2 D_{old}(TopX) + c + \epsilon$$

The coefficient β_2 is the expectation of rank difference. The cohort from top X of the old generation:$a(1-\frac{X}{2}) + (1-a)\frac{1-X}{2} = \frac{1+a-X}{2}$. The cohort from the bottom $1-X$: $\frac{(1-a)X}{1-X} \times (1 - \frac{X}{2}) + (1 - \frac{(1-a)X}{1-X})\frac{1-X}{2} = \frac{1-X+\frac{X(1-a)}{1-X}}{2}$.

The coefficient

$$\beta_2 = \frac{a - \frac{X(1-a)}{1-X}}{2} = \frac{a-X}{2(1-X)}$$

A.2 Empirical implementation

We try to compare our individual-level persistence with the US and Canada. We compute the three-generation decile by decile transition matrix in the US and Canada. There is no data captur-

ing the persistence from grandparents to grandchildren. Thus, we compute the three-generation transition matrix from the parent-child transition matrix.

In the US, we compute the decile by decile parent-child matrix based on the 100×100 matrix provided by Chetty et al. (2014).[1] Corak and Heisz (1998) report the decile by decile transition matrix with Canadian income tax data.

We further assume that the transmission are independent from generation to generation. Thus, the three-generation matrix M_3 would be simply the squared parent-child matrix M_2:

$$M_3 = M_2^2$$

We reproduce below the three-generation transmission matrix in the US, estimated by Chetty et al. (2014):

	Dec.1	*Dec*.2	*Dec*.3	*Dec*.4	*Dec*.5	*Dec*.6	*Dec*.7	*Dec*.8	*Dec*.9	*Dec*.10
Dec.1	0.1406	0.1191	0.111	0.1055	0.0988	0.0923	0.0871	0.0821	0.0818	0.0815
Dec.2	0.1264	0.1149	0.1095	0.1054	0.1006	0.0955	0.0911	0.0863	0.0856	0.0847
Dec.3	0.1172	0.1112	0.1076	0.1047	0.1013	0.0974	0.0938	0.0898	0.0891	0.0880
Dec.4	0.1094	0.1074	0.1054	0.1036	0.1015	0.0990	0.0964	0.0932	0.0926	0.0916
Dec.5	0.1022	0.1034	0.1029	0.1022	0.1014	0.1002	0.0988	0.0969	0.0964	0.0956
Dec.6	0.0953	0.0991	0.1001	0.1005	0.1010	0.1013	0.1012	0.1008	0.1006	0.1001
Dec.7	0.0882	0.0943	0.0968	0.0985	0.1004	0.1023	0.1038	0.1051	0.1052	0.1053
Dec.8	0.0806	0.0890	0.0930	0.0961	0.0996	0.1033	0.1066	0.1100	0.1105	0.1111
Dec.9	0.0738	0.0839	0.0893	0.0936	0.0986	0.1041	0.1092	0.1148	0.1157	0.1169
Dec.10	0.0663	0.0776	0.0843	0.0900	0.0967	0.1044	0.1120	0.1209	0.1226	0.1252

We reproduce below the three-generation transmission matrix in Canada, estimated by Corak and Heisz (1998):

	Dec.1	*Dec*.2	*Dec*.3	*Dec*.4	*Dec*.5	*Dec*.6	*Dec*.7	*Dec*.8	*Dec*.9	*Dec*.10
Dec.1	0.1117	0.1059	0.1031	0.1003	0.0989	0.0972	0.0963	0.0963	0.0964	0.0967
Dec.2	0.1083	0.1045	0.1025	0.1004	0.0994	0.0979	0.0971	0.0970	0.0968	0.0968
Dec.3	0.1055	0.1035	0.1023	0.1008	0.1000	0.0986	0.098	0.0978	0.0973	0.0970
Dec.4	0.1032	0.1023	0.1017	0.1009	0.1004	0.0995	0.0991	0.0989	0.0985	0.0982
Dec.5	0.1007	0.1009	0.1009	0.1006	0.1004	0.0998	0.0995	0.0994	0.0988	0.0985
Dec.6	0.0988	0.0999	0.1004	0.1006	0.1008	0.1006	0.1005	0.1004	0.0999	0.0998
Dec.7	0.0960	0.0983	0.0995	0.1005	0.1011	0.1013	0.1016	0.1015	0.1011	0.1009
Dec.8	0.0939	0.0967	0.0985	0.1001	0.1011	0.1018	0.1024	0.1025	0.1023	0.1024
Dec.9	0.0911	0.0945	0.0967	0.0991	0.1006	0.1021	0.1034	0.1036	0.1041	0.1045
Dec.10	0.0916	0.0941	0.096	0.0984	0.1001	0.102	0.1038	0.1042	0.1056	0.1069

In the context of rural China and pre-revolution elites, $X = 10\%$, $a_{Canada,X=10} = 0.1117$ and $a_{US,X=10\%} = 0.1406$. In the US data, we also compute $X = 5$

$$\beta_{1,Canada,X=10\%} = \frac{0.01117}{0.9} = 0.0124$$

[1]The 100 by 100 transition matrix can be downloaded from the data library of Opportunity Insights. See: *https://opportunityinsights.org/data/*

$$\beta_{2,Canada,X=10\%} = \frac{0.01117}{1.8} = 0.0062$$

$$\beta_{1,US,X=10\%} = \frac{0.01406}{0.9} = 0.0156$$

$$\beta_{2,US,X=10\%} = \frac{0.01406}{1.8} = 0.0078$$

$$\beta_{1,US,X=5\%} = \frac{0.0810}{0.95} = 0.0853$$

$$\beta_{2,US,X=5\%} = \frac{0.0117}{1.9} = 0.0426$$