

The Effect of State Capacity under Different Economic Systems

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Abstract

We examine empirically the effect of state capacity on economic development under two distinct economic systems. In 1978, China began its transition from a planned economy to a market economy. Focusing on the rural Sichuan province, we investigate if local communist party strength mattered to developmental outcomes in 1957–78 (Maoist period) and in 1978–85 (reform period). To tease out causal effects, we use the route of the Long March, a military retreat undertaken by the Red Army in 1934–35, as an instrument. We find that counties with more communist members recorded faster output growth and registered lower mortality rates during the reform period, but not before 1978. In fact, party membership numbers were positively associated with mortality rate during the Maoist period. Our findings suggest that state capacity could indeed accelerate development, but the effect is substantial and unambiguous only when the state seeks to complement the market instead of substituting it.

Key words: State Building, Development, China
JEL Codes: D70, H10, O43, P20

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1 Introduction

Recent years have seen a renewed interest in state capacity among economists. Traditionally overlooked in neoclassical economics, the role of the state in economic development has now returned to the limelight as a burgeoning literature shows that weak states are a major impediment to sustainable growth. Acemoglu (2005), Besley and Persson (2009, 2013), and other important work lay the theoretical foundation of this literature by highlighting the importance of a resilient and functioning state to support market activities through good enforcement of contracts and property rights. This theoretical work is complemented by empirical studies drawn mainly from Europe, North America, Latin America, and Africa that generally highlight successes in state building in Western Europe and North America on one hand (Dincecco and Prado, 2012; Dincecco and Katz, 2014; Acemoglu et al., 2016), and failures due to limited state capacity in Eastern Europe, Latin America, and Africa on the other hand (Cardenas, 2010; Michalopoulos and Papaioannou, 2013).¹

In this paper, we provide a rare empirical study drawn from Asia, home to 60% of the world’s population. Although Asia—and East Asia in particular—has become the world’s fastest growing region in recent decades, with sociologists and political scientists attributing its growth successes to strong and proactive states (Wade, 1990; Evans, 1995), the economics literature on state capacity has surprisingly paid scant attention to its development experience (Bardhan, 2015).² We help fill this void by offering a rigorous quantitative study on China, the world’s largest developing economy and one of Asia’s most recent economic success stories.

In addition, while existing empirical studies implicitly focus on market economies, our research setting enables an investigation of the effect of state capacity when (1) market and incentive mechanisms were in place, and (2) when these mechanisms were suppressed. Comparing the two scenarios allows us to examine whether the state can substitute the market, or whether it contributes to development by complementing the market. Furthermore, this comparison also enables us to investigate the theoretical claim made in Acemoglu (2005) that state capacity is inherently a double-edged sword and more is not always better.

¹For comprehensive reviews, see Bardhan (2015) and Johnson and Koyama (2015).

²A notable exception is Dell et al. (2015), who investigate the relationship between historical governance norms and modern economic development in Vietnam.

State capacity refers to the ability of the state to implement its policies (Besley and Persson, 2010). In this paper, we measure how this ability varies across different counties by the number of local Chinese Communist Party (CCP) members in each county. This is akin to Acemoglu et al. (2015)’s use of municipality-level bureaucrats to measure subnational variations in state capacity. It is also built upon the observation that the People’s Republic of China (PRC) was a party-state and the CCP controlled the government from within during our period of interest (Zheng, 2013).

Our analysis is based on a novel data set drawn primarily from Chinese local gazetteers. Focusing on 157 rural counties in the Chinese province of Sichuan between 1957 and 1985, we investigate whether variations in socioeconomic outcomes are associated with county-level variations in the number of CCP members, and whether the results differ between the Maoist period (1957–78), when market and incentive mechanisms were largely suppressed, and the reform period (1978–85), when these mechanisms were gradually introduced.

There are two significant benefits to focusing on Sichuan. First, given China’s size and the ensuing heterogeneity, provinces were not required by the central leadership to act in a uniform manner but were, in fact, encouraged to “do the best according to local conditions” (Goodman, 1986). Focusing on one single province helps mitigate the problem of unobserved heterogeneity, which provincial fixed effects may not fully control for. Second, to identify the causal effect of party membership numbers on the outcome variables, we use the route of the Long March, a military retreat undertaken by the Red Army in 1934–35, as an instrument.³ Sichuan was the province through which the Red Army marched the longest distance in 1934–35. Consequently, it affords us a ready and desirable instrument that (1) is correlated with communist party membership numbers and (2) is exogenous given the exigent nature of the communists’ mid-1930s military retreat.

We find contrasting effects of CCP membership on socioeconomic outcomes before and after 1978. More CCP members brought about faster per capita growth in grain output in the post-1978 reform period, but not before 1978. In fact, party membership numbers were positively associated with mortality rate during the Maoist period, while during the reform period, the effect of party membership numbers was benign and more

³See de la Rupelle and Li (2012), who study inequality persistence in China and use the Long March to identify places that experienced more intense land reform for exogenous reasons, for an antecedent.

party members brought about lower death rates.

Historical accounts suggest that the lackluster performance during the Maoist Period was not for lack of trying, as the PRC regime went to great lengths to increase agricultural output, so as to generate surpluses to fund its industrialization program. We observe this in our analysis—when we look at intermediate measures of development, including the eradication of illiteracy, the promotion of primary and secondary education, road density, intensity of agricultural mechanization as measured by farm power availability, and the use of inorganic fertilizers at the end of the Maoist Period, we find a positive association between party membership numbers and each of these outcomes.

Why did party membership matter? Unlike today, CCP members of yesteryear did not have market-determined career paths. Even though not everyone was a cadre or appointment holder, CCP members were considered the *corps d'elite* at their workplaces and served as agents of the party-state.⁴ In rural villages, they replaced the traditional Chinese gentry in providing local leadership. They held meetings at regular intervals to study new party documents, discuss village matters, and evaluate themselves as well as fellow party members (Li, 2009). Accordingly, there are at least two reasons why the number of party members should directly affect the ability of the state to influence local socioeconomic outcomes. First, local communities often resisted state policies imposed from the outside due to a lack of understanding of the policy objectives or to central-local conflicts of interest. In such situations, party members played an important role in convincing or coercing the local population into accepting these policies.⁵ Second, party members competed with one another to climb up the career ladder by demonstrating their willingness and ability to carry out policies from the top (Kung and Chen, 2011). And the number of party members had a direct influence on the intensity of competition.

Our empirical findings are consistent with the theoretical framework laid out by Acemoglu (2005), which considers production as a function of two inputs: public investment and private effort. Production suffers when the state has limited capacity to extract revenues from its citizens and invest in public goods. But a state that extracts

⁴A survey on party membership conducted in 1987 found that only 1.6% of party members worked in the private sector (Tang, 2012).

⁵See Wheelwright and McFarlane (1970, 186–90) for a discussion on how the Chinese party state was able to mobilize the countryside during the Maoist years by building “a core of Maoists” in each work team and brigade, “who, by their enthusiasm and example, can influence the remainder of their fellows [...]”

too much creates problems too, because private individuals then lose the incentive to exert effort. Therefore, when an overly extractive state take steps to moderate its excesses, the combination of a moderately strong state and an increase in private incentives to produce would give production a boost—this is exactly what we observe in post-1978 China.

If our findings work through some other (non-state-capacity) channel, the alternative mechanism must explain not only the positive associations between party membership and outputs per capita after 1978, but also the absence of such associations before 1978. Furthermore, it must also to explain why more party members simultaneously led to more deaths and promoted basic education during the Maoist period. We are unable to find an alternative explanation that would satisfy all the above criteria. Nonetheless, we consider several possible mechanisms that could be partially responsible for some of the findings. For one, we check that our results are not driven by differences in initial conditions. Neither do we find evidence of preferential treatment from higher authorities toward counties with more party members. In fact, counties with more party members experienced heavier state expropriation.

Besides providing a rare Asian perspective to the state capacity literature, our findings also shed new light on the role of the state in China’s economic development. On the one hand, the strong state built by Mao was often credited for laying the ground for China’s modernization (Fairbank, 1992; Bramall, 2007). On the other hand, scholars have argued that China’s post-1978 growth is a classic example of change that bubbled up from below and that the Chinese economy took off not because of, but in spite of the state, which obstructed growth through excessive intervention and control (Huang, 2012; Nee and Oppen, 2012).⁶ Our findings reconcile these views by showing that state capacity did indeed accelerate China’s development, but the effect was beneficial and unambiguous only when the Chinese state paid heed to market forces and recognized the importance of private incentives.

The rest of the paper is organized as follows. Section 2 discusses the institutional and historical background and highlights three important points: (2.1) the post-1949 communist leadership built a historically unprecedented strong state around the wide-

⁶Both arguments rest on credible empirical evidence. For example, in two recent works, Xu (2012) finds that irrigation, mechanization, and human capital built in the Maoist period contributed substantially to China’s agricultural growth after 1978, while Sun and Chen (2014) find that the impact of decollectivization on agricultural development remains significantly positive after controlling for these measures of the Maoist legacy.

reaching organization of the Leninist-style party; (2.2) the strong state suppressed market and incentive mechanisms during the Maoist period; (2.3) the new leadership under Deng Xiaoping relaxed state control and reintroduced market and incentive mechanisms during the reform period. Section 3 explains our data and variables. In Section 4, we explain our empirical strategy and justify the use of the Long March route as an instrument variable. Section 5 presents our empirical findings. We then investigate the plausibility of alternative mechanisms and interpretations in Section 6. Section 7 concludes.

2 Background

2.1 State Building in Communist China

The communist takeover in 1949 brought radical changes to China. Though newly established, the CCP regime could draw upon its experience of administering the countryside during the decades of guerilla struggles against the nationalists and the Japanese. The Soviet model, too, offered some useful pointers. Armed with an extensive party network with a membership that hit 9.4 million in 1955, comprising activists among peasants, workers and students, intellectuals, soldiers of the Red Army, and former administrators of the nationalist regime, the new regime built a strong, interventionist state on a scale unprecedented in China (Zheng, 1997).

A key component of state building during the early years of the PRC was the land reform campaign, which expropriated and redistributed land from the landlords to the poor, the natural allies of the communists. Wealth redistribution was not the only objective of the campaign. By eliminating the patriarchal landlord class who traditionally controlled the lineages and exercised substantial control over the local population, land reform also helped reorientate the peasantry's allegiance and allow the new regime to extend its control directly into the village (Potter and Potter, 1990, 56).⁷ To this end, the CCP leadership also vigorously suppressed secret societies and sent out political work teams to orchestrate the violent destruction of temples, shrines, ancestral halls, and other institutions of the past that competed with the state for local

⁷The campaign involved considerable bloodshed as landlords were put through public trials and some were executed. The death estimates vary, but according to Fairbank (1992, 350), "apparently several millions of people were killed."

influence (Ruf, 1998, 66).

With land inequality reduced and local opposition weakened, the conditions were ripe for the CCP leadership to pursue a program of rural collectivization that organized peasant households into increasingly larger collective units: the establishment of mutual aid groups, each comprising several families, began in 1950; by 1956, the mutual aid groups were replaced by village-sized cooperatives; in 1958, following Mao's call for China to pursue a Great Leap Forward, the tens of thousands of cooperatives nationwide were merged into 26,000 mega communes with an average size of 5000 households or 20,000 to 30,000 individuals each (Perkins, 1998, 386).⁸

Rural collectivization enabled the regime to institutionalize its control of the villages. Traditionally, the county was the lowest level of government in China (Ch'u, 1962; Skinner, 1977). With an average population of 300,000 per county by 1850, administrative control was tenuous at the local level despite the popular image of the traditional Chinese state as an all powerful Oriental Despotism (Wittfogel, 1957). This changed fundamentally with establishment of the commune system, which now sat below the county in the administrative hierarchy. The internal organization of the commune adopted a military-like structure: households were organized into production teams, which were further grouped into brigades. A dozen or so brigades, in turn, made up a commune. Above the commune sat the county. The appointment and promotion of commune leaders were determined by the communist party committee in the county. Likewise, brigade leaders were appointed by their superiors in the commune and team leaders by their superiors in the brigade (Potter and Potter, 1990; Gao, 1999). Most appointments were held by CCP members. It was common practice to appoint the party branch secretary or the deputy secretary as the sub-national executive, and there was often no distinction between the local government office and the party branch at the same level—as exemplified by the term “one team, two signboards” (yi tao renma, liang kuai paizi). The commune-brigade-team structure consolidated the extension of state control into rural China under the communists. And the CCP party-state would rely upon this structure to administer the countryside until the first half of the 1980s. By the end of 1984, virtually all communes were restructured into townships, and all brigades into administrative villages, as the success of rural decollectivization necessi-

⁸The experience of the Great Leap Forward indicated that the communes set up in the late 1950s were oversized and administratively cumbersome. Subsequently, the communes were downsized in the 1960s and their number increased to 78,000 (Perkins and Yusuf, 1984, 78).

tated a major overhaul of the administrative system.

2.2 State over Market and Individuals in Maoist China

Mao used the party-state apparatus at his disposal to launch a state-driven modernization program that paid no heed to private incentives and did much harm to preexisting market institutions in China. Heavily influenced by the Stalinist model, Mao prioritized the development of heavy industry. The role of agriculture was one of support and self-sacrifice—Mao and his planners sought to extract the maximum surplus possible from the farms to feed the growing Chinese cities and to exchange for foreign equipment and technology (MacFarquhar, 2011, 71).

Beginning in 1953, the PRC state imposed a nationwide monopoly on the purchase and sale of grain and obliged peasants to sell their grain to the state at low fixed prices. To prevent disincentivized peasants from flocking to the cities in search of jobs, the household registration system was radically tightened in 1955, restricting population movement and confining peasants to their home settlements (Ruf, 1998).

Meanwhile, collectivization was pursued at a frenzy pace in the belief that it would lead to substantial increases in agricultural productivity and output. Like private agricultural markets, private farms disappeared almost overnight. The CCP planners were convinced that once small fragmented fields that could not be easily worked by tractors were merged into large collective farms, agricultural mechanization could be accelerated.

In the collective farms, individuals worked in teams to earn work points, which would determine each person's share of the collective surplus (collective income minus state procurement and expenses) at the end of the year (Ruf, 1998; Friedman et al., 1991; Li, 2009). While work points were meant to reflect the contribution of each worker, in practice they were rigidly awarded because the long cycle of agricultural production, the dispersed nature of farm work, and the variety of agricultural tasks made monitoring difficult (Lin, 1987). Unsurprisingly, there was little incentive for individuals to exert effort and increase productivity (Alchian and Demsetz, 1972; Lin, 1988).

However, collectivization did facilitate the mobilization of labor for the construction of roads, reservoirs, irrigation works, and other rural infrastructural projects, especially during the non-harvest months (Wheelwright and McFarlane, 1970, 182–3). The establishment of brigades and communes also allowed the state to deliver to rural residents the public services previously available only in town and cities. With encouragement

from the top, the communes and brigades operated primary and middle schools, commune hospitals, and brigade clinics for their members. Communes and brigades also used their accumulated funds to set up and run small, collectively-owned—many of them food-related—enterprises. Some studies indicate that these rural collectively-owned enterprises were well-placed to utilize the platform offered by the party-state network to seek new orders and transfer capital and technological know-how from their urban counterparts (Sigurdson, 1977; Fei, 1989). However, there were negative incentives for the communes and brigades to develop rural enterprises due to constant accusations that these enterprises were “the tails of capitalism” (Ruf, 1998, 119).

2.3 Reforms after 1978

Despite the PRC state’s relentless efforts to increase agricultural productivity, the growth of agricultural output barely kept pace with population expansion. In fact, on a per capita basis, there was slightly less food available in 1977 than in 1957 (National Bureau of Statistics of China, 1986). With China’s population rapidly approaching the one billion mark in the 1970s, the adequacy of its food supply and the stability of an overpopulated and underemployed countryside became matters of grave concern. The death of Mao in 1976 provided a timely opportunity for the CCP leadership to reconsider their policies.

Now under the stewardship of the highly pragmatic Deng Xiaoping, who famously proclaimed that “it doesn’t matter if a cat is black or white provided it catches mice,” the PRC regime paid more attention the farmers’ private incentives to produce. The policies designed to extract ever-larger surpluses from the agricultural sector were replaced by initiatives aimed at improving the material wellbeing of the rural population. The new Chinese leadership sought to ease the Maoist policies that restricted factor and product mobility, to deemphasize collective ownership and extreme egalitarianism, and to reward effort and success (Bramall, 2000). One of Deng’s first endeavors was to substantially increase the procurement prices that the state paid for agricultural products, so as to stimulate production. Peasants were also encouraged to undertake sideline activities and sell their products locally to increase their private incomes. These policy changes were soon followed by the household responsibility system reform, which dismantled the collective farms and made the peasant household the residual claimant of agricultural production. In Deng’s own words, “The main purpose of the rural reform

has been to bring the peasants' initiative into full play by introducing the responsibility system and discarding the system whereby *everybody eats from the same big pot*" (Deng, 1994, Vol. 3).

The development of rural industries was also encouraged so as to increase rural income and to ease the migration pressure on large cities (Ruf, 1998, 126–130). With these and other reforms, China began its transition from a planned economy to a market-based mixed economy.

2.4 Sichuan Province

Given China's size and the large socioeconomic differences observed across its provinces, unobserved heterogeneity is a major concern in any study of this nature. To mitigate this concern, we focus on one single province—Sichuan (including the Chongqing municipality) in Southwest China.⁹ Our choice of Sichuan is also heavily influenced by the fact that it was the province in which the Red Army covered the longest distance during their Long March of 1934–35. In our empirical analysis, we exploit the Long March route as an instrument to tease out causal relationships.

For the period of our study, Sichuan was the most populous province in China. It had a population of 99.7 million and a land area of 570,400 square kilometers in 1982. For comparison, this would make it the second most populous (after Russia) and fourth largest (after Russia, Ukraine, and France) country in Europe today. Centered on the major cities of Chengdu (the provincial capital) and Chongqing (China's temporary national capital during World War Two), it comprised 157 counties (Figure 1).

Within the province, there existed significant variations in terms of topography, minority composition, and population density. Most parts of the province's eastern half belonged to the Sichuan basin, which was densely populated and dominated by Han-Chinese. Western Sichuan comprised several mountain ranges and was sparsely populated. The ratio of non-Han minority was also higher in the West, as signified by the autonomous status of the three Western prefectures of Ganzi, Aba, and Liangshan under PRC rule.

Before 1949, Sichuan was underdeveloped (Second Historical Archives of China,

⁹Chongqing was carved out of Sichuan to form a province-level municipality in 1997 to coordinate the resettlement of local people affected by the construction of the Three Gorges Dam. For the period that we study, it was an integral part of the Sichuan province, as it had been since the Yuan dynasty (1271–1368).

2010, 177–81). Politically, the state had a weak presence, and the Nanjing-based nationalist regime extended its control over Sichuan only in 1935. Economically, this inland province was predominantly rural. The Sino-Japanese War (1937–45) and the subsequent civil war destroyed the meager industrial base built during the nationalist period (Goodman, 1986; McNally, 2004). On the eve of the communist takeover, there was no intercity railway in Sichuan. More than 60% of the counties were not linked by public roads, and most of the long distance trade was still carried out using rivers (Sichuan Economic Yearbook, 1986, 6; Goodman, 1986). Socially, land inequality was severe, and tenancy terms appeared to be harsh (Yang, 1990, Vol. 1). Secret societies penetrated the society at large (Ruf, 1998; Nationalist Political Council Sichuan-Xikang Construction Inspectorate, 2012); one estimate put the proportion of Sichuan adult men who were secret society members at a staggering 70% (Wang, 2008). The illiteracy rate in rural areas was as high as 85% in the late 1940s (Tian, 2007).

3 Data and Variables

Our empirical analysis is based on a novel data set of 157 counties in Sichuan province, with observations running from 1954–1985. Our data includes various county characteristics and the historical routes of the Long March. We compile the data from multiple primary and secondary sources. A description of the nature and sources of our data and the variables used in our empirical analysis is provided below. The descriptive statistics are presented in Table 1.

[Table 1 about here]

Local state capacity. We use the number of local CCP members as a measure of local state capacity, that is, the ability of the state to implement its policies in each county. An antecedent of this interpretation can be found in Acemoglu et al. (2015), who use municipality-level bureaucrats to measure subnational variations in state capacity in Columbia. Our interpretation is also built upon the observation that China was a party-state during our period of study. To facilitate political control, the CCP apparatus made a conscious effort to permeate every state and public organization by inserting party members into these organizations or by recruiting members from those already working there (Schurmann, 1970). In fact, it is explicitly stipulated in

the CCP constitution (Chapter V, Article 29) that a party organ should be set up in all government units and other community, social, and military organizations with more than three full CCP members. In practice, this allows the party to dominate decision making in these organizations, making each of them “a loyal executor of the party’s decisions” (Shaw, 1996).

As corroborating evidence, we examine whether counties with more CCP members established cooperatives earlier following the call by Mao in the early 1950s. As Table 2 shows, we find a negative and statistically significant coefficient, suggesting faster policy implementation in counties with more CCP members and hence confirming the validity of our measurement of local state capacity.

[Table 2 about here]

We draw information on party membership from local gazetteers published in the late 1980s or early 1990s. China has a long tradition of producing gazetteers. Its oldest extant gazetteer, *The Chronicles of Huayang*, was written in as early as AD 348–354. Although the local gazetteers were produced in a decentralized manner by the counties, in modern times there exist national and provincial offices of local gazetteers to provide coordination, consultation, and basic quality control. The modern gazetteers, therefore, provide generally reliable and mutually compatible county-level information for our purpose.

In the empirical analysis, our main explanatory variable is the number of CCP members in each county in 1956. Since we are examining the effect of state capacity in 1957–85, we check the stability of our measure by plotting the numbers of CCP members in 1956 and in 1978 (See Figure 2). We find a strong correlation, which suggests that our measure of state capacity is stable and that it is acceptable to use CCP membership in 1956 to measure state capacity for the entire time span.

[Figure 2 about here]

Socioeconomic outcomes. We use a variety of indicators to measure development so as to avoid defining development in an overly narrow way. Specifically, we have two main measures of wellbeing: grain output per capita and death rate. They are supplemented by intermediate measures of development, namely educational outcomes

(illiteracy rate, ratio of primary school graduates, and ratio of junior high school graduates) and measures of infrastructural investment and agricultural modernization (road density, farm power availability, and inorganic fertilizer use intensity).

The data used to construct these variables are collected from various sources. The gazetteers provide us with grain output for each county. From *the Almanac of Sichuan Demographics (1954–87)* published in 1989 by the Sichuan Academy of Social Science, we derive the mortality rates, illiteracy rates, number of primary school graduates, and number of junior high school graduates. Lastly, from the *Sichuan Rural Economic Statistics*, we derive the data on road density, farm power availability, and inorganic fertilizer use intensity.

Other variables. For balance checks, we construct three historical outcome variables: population in 1925, the number of high schools in 1934, and the number of highways in 1933. The data are drawn from Hu (1935), the 1930 Chinese Ministry of Education’s *Report on Junior High School Education (Collection of Republican Historical Materials, 2012)*, and Ding et al. (1934) respectively. We also draw data on grain procurement in 1978 and on the year when decollectivization was first implemented in each county from the gazetteers to conduct a series of placebo tests.

Our variables on the Red Armies’ Long March are based on Yuan (1996), who documents the Red Armies’ Long March routes in Sichuan. We use a dummy variable indicating whether a county was along the Central Red Army’s route as an instrument. We also utilize the route of the Fourth Front Red Army in the placebo test. Details on the estimation strategy will be provided in the next section.

The covariates that are included in all specifications of our analysis are ethnic minority autonomous status (obtained from the gazetteers), distance to Chengdu/Chongqing, elevation, terrain ruggedness, and population in 1957 (obtained from *Almanac of Sichuan Demographics*).

4 Empirical Strategy

4.1 Empirical Framework

To investigate the effect of state capacity on economic development under different economic systems, we look at a variety of socioeconomic outcomes in the Maoist period

and in the reform period. Specifically, we estimate the following equation:

$$Y_i = \alpha + \beta \cdot \#PartyMember_i + \gamma \cdot X_i + \epsilon_i, \quad (4.1)$$

where Y_i is a set of socioeconomic outcomes in county i in 1957–1985 (or a subperiod within this duration) including grain output per capita, death rate, and other intermediate measures of development (educational and infrastructural/agricultural-modernization outcomes); $\#PartyMember_i$ is the logarithm of the number of CCP members in county i in 1956;¹⁰ X_i is a set of control variables (ethnic minority autonomous status, distance to Chengdu/Chongqing, elevation, terrain ruggedness, and population in 1957); and ϵ_i is the error term. We use the White-robust standard errors to deal with potential heteroskedasticity.

The identifying assumption in Equation 4.1 requires that conditional on X_i , our regressor of interest $\#PartyMember_i$ is orthogonal to the error term. However, there are good reasons to doubt that this condition is satisfied. For example, it may be the case that residents in counties with more CCP members were temperamentally more submissive, making it easier for the state to execute policies in these counties. Hence, to obtain unbiased estimates of the effect of state capacity, we need to extract and utilize the exogenous component in our regressor of interest. To this end, we exploit the Long March of 1934–35 as a quasi-natural experiment and make use of the exogenous variations in CCP membership that the event produced.

The Long March began as a strategic retreat undertaken by the Central Red Army in October 1934, when the communists abandoned their base in Jiangxi province in an attempt to escape the encirclement of the nationalist forces led by Generalissimo Chiang Kai-shek. When the attempt to join forces with the Second Front Red Army in neighboring Hunan was thwarted by the pursuing nationalist forces, the Central Red Army moved further westward in a circling retreat to escape their determined pursuers. The survivors—by now under the leadership of Mao Zedong—arrived in Yan’an of Shaanxi province in October 1935 and would be joined by the Second and Fourth Front Armies a year later (Figure 3).¹¹

¹⁰It would not make a difference if we replace log number of CCP members with log share of CCP members in the population as the main explanatory variable. The results are similar because log population in 1957 is already included in Equation 4.1 as a control variable.

¹¹In 1936, under nationwide popular pressure Chiang set aside his plans to destroy the communists and redeployed the nationalist forces to confront Japanese aggression. This granted the communists

[Figure 3 about here]

We construct a dummy variable indicating whether a county was along the path of the Central Red Army during the Long March as an instrument for CCP membership. For this instrument to be valid, two conditions have to be met: 1) post-1949 CCP membership was higher in counties along the route of the Central Red Army (the relevance condition); 2) the route of the Central Red Army was (conditionally) exogenous and hence, it does not affect our outcomes through channels other than CCP membership (the exclusion restriction condition). We provide the rationale for the relevance condition and discuss the conditional exogeneity of our instrument in the following two subsections, respectively,

4.2 Relevance of the Instrument

There are several reasons why counties along the path of the Central Red Army during the Long March had more CCP members in the post-1949 period. First, the communist party used the Long March as a propaganda program for introducing and promoting communism. In Mao's own words (Dec 27, 1935):

“Speaking of the Long March, one may ask, ‘What is its significance?’

We answer that the Long March is the first of its kind in the annals of history, that it is a manifesto, a propaganda force, a seeding-machine.

[...]The Long March is also a propaganda force. It has announced to some 200 million people in eleven provinces that the road of the Red Army is their only road to liberation. Without the Long March, how could the broad masses have learned so quickly about the existence of the great truth which the Red Army embodies?

The Long March is also a seeding-machine. In the eleven provinces it has sown many seeds which will sprout, leaf, blossom, and bear fruit, and will yield a harvest in the future.”

Importantly, the Long March and non-Long March counties received differential exposure to the nationalists' and the communists' propaganda. When the Long March

an extended period of recuperation until civil war broke out again in 1946–49.

was taking place, the nationalists mounted a negative propaganda campaign against the communists by promoting the idea that the communists were fanatical and heterodox bandits who, for example, shared wives (Young, 2001, 122).¹² Meanwhile the communists, as the underdogs in the struggle, eagerly promoted themselves as servants of the oppressed masses and defenders of China's national interests. In areas through which they passed, they promoted popular policies such as land redistribution and minority self-determination (Zhou, 2003). Anecdotal evidence also suggests that the communists were well-disciplined by the standards of their day. Rudolf Bosshardt, a Christian missionary who was captured by the Red Army in 1934 and held as a hostage for eighteen months, afterwards described his captors as brave and full of idealism (Bosshardt, 1938). Liu Dongyan, a nationalist official who had conducted interviews in communist-affected areas, spoke worryingly that the rural population viewed the well-disciplined communist "bandits" far more favorably than they did the nationalist soldiers (Liu, 1935, 61).¹³

A second reason why counties along the path of the Long March had more CCP members was that the communists recruited new soldiers from the peasants and the poor as they marched through Sichuan. This was likely to generate greater support for the CCP and higher party membership along the Long March route, especially when demobilized soldiers returned home after the civil war.¹⁴

Third, the Central Red Army was 86,000 strong when they left Jiangxi, but only 7,000 reached Yan'an. Not all who did not make it to Yan'an were killed. Many were left behind due to injury or other reasons, and some were reinstated into the party after 1949 (*The Long March in Sichuan*, 1986).¹⁵

Three Red Armies passed through Sichuan during the Long March: the Central, Second Front, and Fourth Front Armies. Also known as the First Front Army, the Central Red Army was led by Mao Zedong as well as Zhu De, Zhou Enlai, and others

¹²Liu (1935) reported that the fear of an impending communist attack led to a flurry of marriages in the Sichuan county of Nanchuan in 1934. Girls, some as young as ten years old, were hastily married off by their parents, who feared that their daughters could be abused by the communists and therefore become "unmarriageable."

¹³It appears that the communists obtained their supplies mostly through blackmailing and extorting the rich and—as in the case of Rudolf Bosshardt—foreign. This reduced their need to harass the local population (Liu 1935; *The Long March in Sichuan*, 1986).

¹⁴Official accounts indicate that the Red Army recruited at least 45,000 soldiers while in Sichuan (*The Long March in Sichuan*, 1986).

¹⁵"Old" cadres (who joined the CCP for a substantial number of years) and demobilized soldiers made up a significant proportion of CCP cadres in the early 1950s (Zheng, 1997, 80).

who would hold the highest offices in China after the establishment of the People’s Republic in 1949. As column (a) of Table 3 shows, there is a strong and statistically significant correlation between the route of the Central Red Army and our regressor of interest.

[Table 3 about here]

We are unable to utilize the paths of the Second and Fourth Front Army as instrument variables because they fail to satisfy the conditional exogeneity and relevance conditions respectively. The Second Front Army entered Sichuan in April 1936 with the clear objective of marching to Shaanxi, where the Central Red Army had settled down seven months earlier. Meanwhile, the correlation between party membership and the Fourth Army route is weak or non-existent (Table 3 column b). This is unsurprising, as the CCP’s recruitment process was designed to favor the faction in power: New members were recruited on a case-by-case basis, and every new application required the referrals of two existing party members and the approval of the county-level party apparatus or above (CCP Constitution, 2001).¹⁶ Although the Fourth Front Army was comparable to the Central Red Army in strength, and its commander, Zhang Guotao, was in a strong position to contest Mao’s leadership during the Long March, its influence in the party waned dramatically after it suffered a crushing defeat in Gansu and Zhang defected to the nationalists in 1937–38 (Sun, 2006).

4.3 Conditional Exogeneity of the IV

For the route of the Central Red Army’s Long March to be a valid instrument, it needs to be (conditionally) exogenous and not correlated with initial socioeconomic conditions across rural Sichuan. Historical evidence and local interviews that we conducted suggest that the Long March route in Sichuan was likely to be influenced by (i) terrain and (ii) the presence of minority tribes. To avoid attacks, the Central Red Army preferred to pass through rugged terrains and areas where the nationalists and their allies did not have a stronghold. In our empirical exercise, we explicitly include these factors in the control variables X . Specifically, we control for ethnic minority

¹⁶We verified that this practice was long in place from a CCP Organization Member handbook issued by the CCP Sichuan Province Committee Organization Department in October 1965.

autonomous status, average elevation, terrain ruggedness, and minimum distance to the two megacities of Chengdu and Chongqing (as well as population in 1957).

Since the Central Red Army's objective in the Long March was to flee from the nationalists, once these geographical characteristics have been taken into account, the Long March route becomes largely exogenous. In the remainder of this section, we provide both qualitative and quantitative evidence to argue that this identifying assumption is satisfied in our research setting.

Anecdotal evidence. Importantly, instead of following some grand plan, the Red Army chose their route based on contingency. According to Zhou Enlai, who later became the first Premier of the PRC, Mao convinced other CCP leaders in the early stages of the Long March (before entering Sichuan) that the Red Army “should define the direction that they are heading very broadly so as to remain nimble” (*History of the Red Army's Long March*, 2006). Outnumbered and incapable of targeting rich Sichuan counties to build a new base, the Central Red Army moved quickly to avoid encirclement and in a largely northward direction in the hope of establishing a future base close to the USSR. Their lack of interest in establishing a long term presence in Sichuan is also reflected in the absence of large-scale military engagement between the antagonists and the relatively short duration of their stay in Sichuan (2,100 kilometers by foot in 131 days, or 16 kilometers per day; Yuan 1996).

[Table 4 about here]

As Table 4 illustrates, the Central Red Army's target destination, determined in top-level meetings held intermittently during the campaign, changed eight times in less than a year. In fact, the CCP leaders did not plan to go to Yan'an until they had moved out of Sichuan and arrived in Hadapu in Gansu province (Figure 3). There, Mao found some nationalist newspapers and learned that there was a communist base in Yan'an of northern Shaanxi. Subsequently, he and his commanders made plans to join forces with their comrades there (Salisbury, 1985, 286). While in Sichuan, Mao allegedly admitted in private that the Red Army's future was unclear, and they might have to march over the Tibetan plateau into Xinjiang to seek help from the USSR (Salisbury, 1985, 192).

Further evidence of the Long March's exigent nature can be found in the statements made by the leader of the opposing camp. In the words of Generalissimo Chiang Kai-shek, the nationalists' strategy was “to pursue the Red bandits if they flee and to

encircle them if they try to settle down.” In the midst of the campaign, he observed that because of the nationalists’ efforts, “[the communists] do not have a moment to rest, to settle down. They do not even have the chance to harass the people” (Academia Historica, 2005). On several occasions, he warned his troops to be mentally prepared for a prolonged struggle that could lead them to unexpected places (Academia Historica, 2005). In a speech made in July 1935, Chiang told his men,

“It is your responsibility as soldiers to chase down the red bandits. Today we reach Chengdu [...] Perhaps one day we have to go to Gansu or Qinghai. Who knows” (Academia Historica, 2005, v. 35, p. 85).

Personal recollections of members of the Red Army reflected a similar mood, a female soldier recalled that,

“Every day we marched. The enemy was behind us. They were intercepting us in the front, surrounding us from two sides and their planes were flying over us. You were lucky if you escaped because otherwise you’d be killed. I knew the reason we marched every day was because we were heading for a good place, but where that good place was, I didn’t know. I just walked with the Red Army, simple-mindedly. We were revolutionaries. To be a revolutionary is to go and look for a good place” (Young, 2001, 106).

Quantitative evidence. We also conduct checks to verify our identifying assumption. Specifically, we check whether, conditional on X , there were pre-existing differences among the counties before the Long March took place in 1934–5. In Table 5, we use, respectively, the log county population size in 1925, the number of high schools in 1934, and the number of highways in 1933 as dependent variables for the IV regressions. In all cases, the estimated coefficients are economically and statistically insignificant, suggesting no conditional selection by the Central Red Army during the Long March and hence confirming the validity of our research design.

[Table 5 about here]

As an additional check on the validity of our instrument, we conduct a placebo test in which we randomize whether a county was along the route of the Central Red Army during the Long March. The details are explained in Section 5.3.

5 Empirical Findings

5.1 Effects on Economic Wellbeing

We first examine the effect of party membership on agricultural productivity. As Table 6 column (a) shows, we find that party membership has a positive and significant effect on grain output per capita for the period 1957–85. Every 1% increase in party membership is expected to increase per capita grain output growth rate by 1.45 percentage points. In columns (b) and (c), we break down the 28 years covered in column (a) into the two constituent sub-periods—the Maoist period from 1957–78 and the reform period from 1978–85 era. We find that it is only in the reform years that we observe a positive effect of party membership on grain output per capita is observed.¹⁷

[Table 6 about here]

Next, we examine the effect of party membership on an alternative measure of wellbeing—mortality rate. We interpret mortality rate as a measure of public health.¹⁸ The results are presented in Table 7. Strikingly, we find that counties with more party members witnessed more deaths in 1957–77 (column a). Every 1% increase in party membership is expected to increase the annual mortality rate by 0.53 percentage points. During the reform period, the effect is reversed and party membership had a benign influence on mortality rates (column b).

If we breakdown the Maoist period into five constituent subperiods, we find that it is only during the Great Leap Forward and its immediate aftermath (1958–62) that we witness party membership driving up mortality rates (columns c, d, and e).

[Table 7 about here]

An established literature has attributed the nationwide famine of 1959–61 to (1) a sharp decline in grain output during the Great Leap Forward as the state diverted

¹⁷There were 157 counties, but the maximum number of observations in the regressions is 127. This is largely because of missing data on party membership in some counties. The missing data raise a concern of sample attrition. To check if they skew the results, we estimate Equation 4.1 using a dummy variable indicating the availability of party membership information in 1956 (0: data unavailable; 1: data available) as the dependent variable. As Table 15 shows, we find a small and statistically insignificant coefficient, suggesting that sample attrition does not bias the results.

¹⁸Due to data limitations, we are unable to use infant mortality rate, which is generally regarded as a better measure of public health.

resources from agriculture to industry, and (2) excessive procurement of grain from the countryside to the coastal cities in the aftermath of the campaign as the state sought to maintain the facade of tranquility and prevent its foreign enemies from detecting signs of domestic instability (Li and Yang, 2005; Shen, 2009; Meng et al., 2015).¹⁹ Our findings provide further evidence to show that political radicalism and the state played important roles in the famine, one of the greatest peacetime tragedies of the last century, costing an estimated 30 million lives (Kung and Chen, 2011).

5.2 Effects on Intermediate Measures of Development

Moving on to educational attainment, Tables 8–10 examine the effects of party membership on illiteracy rates and ratios of primary school and junior high school graduates. We find that counties with more party members had higher ratios of primary school and junior high school graduates and lower illiteracy rates in 1964. Since party membership has no effect on the number of high schools in 1934 (Table 5 column b), this divergence plausibly reflects the accumulated effects of CCP rule during the earlier half of the Maoist period (i.e., before 1964). In line with the general consensus that the Cultural Revolution (1966–1976) caused major disruptions to formal education but continued to promote the eradication of illiteracy, we find that party membership continued to exert a beneficial effect on illiteracy eradication in 1964–82 (Table 8 column c) but not on primary school education (Table 9 column c).²⁰ For junior high school education, the effect of party membership is negative and significant (Table 10 column c). Every 1% increase in party membership is expected to decrease the ratios of illiterates, primary school graduates, and junior high school graduates in the population by 0.64, 0.18, and 1.7 percentage points per year, respectively, between 1964 and 1982. For the Maoist period as a whole, our evidence suggests that party membership had a positive effect on the promotion of basic education (Columns b of Tables 8–10).

¹⁹Between 1958–60, Sichuan transferred 5.87 million tons of grain to the central government despite suffering a significant fall in grain production. State procurement rates were 48.9%, 46.2%, and 38.8% of grain production in 1959, 1960, and 1961 respectively (Yang, 1990, Vol. 1, 104). Ruf (1998, 106) cited interviews with local residents in Sichuan, who remarked that “[The authorities] will tell you that there was no grain shortage here. In a way, they were correct. The famine was human-made (*renzaode*). We had grain, but the state took it away. They redistributed only a little back [...] Most of it went to feed the cities.”

²⁰The literacy campaign adapted to the changing political environment during the Cultural Revolution by making illiterate farmers attend “political night schools,” where they were taught how to read and write through studying political slogans and quotations from Mao (Li, 2009, 162).

[Table 8 about here]

[Table 9 about here]

[Table 10 about here]

These findings are consistent with the general consensus that basic education (as opposed to higher education) in China improved substantially under CCP rule, especially in rural regions, where communes provided the institutional structure for the state to deliver public services to the countryside.²¹ Our findings also provide empirical support to Galor et al. (2009), who argue that a strong state is often the key to overcoming powerful landlords' traditional resistance to education expansion in a rural economy.

Finally, we examine the effect of party membership on measures of infrastructural investment and agricultural modernization. Because of the paucity of pre-1978 county-level data on these measures—and since the results in Table 5 indicate that the initial differences in county conditions have been controlled for in our estimation—we interpret the 1978 data as reflective of the accumulated changes under CCP rule. As Table 11 shows, party membership had a positive and statistically significant effect on log highway density (column a) and on log inorganic fertilizer use intensity (column b) in 1978. The estimated coefficient of party membership on log farm power availability is statistically insignificant (column c) but economically meaningful. Every 1% increase in party membership is expected to increase log farm power availability by 1.02%.

[Table 11 about here]

5.3 Placebo Test

The validity of our empirical estimation hinges on the assumption that our instrument, the route taken by the Central Red Army during the Long March, is exogenous conditional on various controls. In Section 4.3, we have already provided both anecdotal and quantitative evidence to verify this identifying assumption. We now conduct a placebo test for further verification. Specifically, we construct a false instrumental variable by randomly assigning the counties along the Central Red Army's Long March route. Since our false "instrument" is generated randomly, it should not be correlated

²¹Nationally, the illiteracy rate fell from around 80% in the early 1950s to 54.8% in 1964 to 22.8% in 1982 (UNESCO, 2000).

to CCP membership in 1956 and should therefore have no effect on the various outcomes; anything else is an indication that Equation 4.1 may be misspecified. In each round, we repeat this random process 1,000 times to increase the power of the placebo test (i.e., to ensure that rare events do not exercise undue influence).

The distributions of 1,000 estimates for various outcomes are plotted in Figure 4, along with the true estimates. Indeed, we find that all the distributions are centered around 0, indicating negligible effects of the false instrument variable. Meanwhile, for those effects identified as significant in Tables 4-9, our true estimates are visibly outliers in the distributions of the false estimates. This suggests that the effects identified are truly present. In sum, these results imply that our identification strategy is reasonably valid.

[Figure 4 about here]

5.4 Interpretation

Why did state capacity affect different measures so differently and how can its qualitative effect on output differ before and after 1978? Despite the appearance that our findings may be self-contradictory, they are be holistically and consistently addressed using the framework laid out by Acemoglu (2005).

According to this framework, production requires two inputs: public investment, which is financed by extracting resources from private citizens, and private investment of effort. When the state is weak and has limited capacity to extract from private citizens, production suffers because of too little public investment. However, if the state extracts too much, private citizens lose the incentive to exert effort, and production suffers for the opposite reason. Production is maximized only when the state is strong and yet it does not take away private incentive to exert effort.

Our estimation results in sections 5.1 and 5.2 show that party membership was associated with higher mortality rates and greater investment in education and agriculture during the Maoist years. This supports the prediction in Acemoglu (2005) that a stronger state extracts more (hence causing more deaths in the Great Leap Forward years) and provides more public goods. Meanwhile, the land reform campaign, radical collectivization, state monopolization of agriculture, and the pursuit of extreme egalitarianism destroyed private incentives and initiatives. As such, it is unsurprising that state capacity did not bring growth to Maoist China. The positive relationship

between party membership and growth after the rise to supreme power of Deng Xiaoping, who increased the peasants' private incentives to produce by reviving private rural markets and permitting decollectivization, also fits the theoretical predictions in Acemoglu (2005).

In fact, this interpretation helps reconcile the debate on whether it was the strong PRC state or market liberalization that made possible China's economic takeoff after 1978. Both factors mattered. Contrary to the popular perception of imperial China as an Oriental despotism in which an omnipresent state dominated all aspects of daily life, the traditional Chinese state did not penetrate deeply into society, and its economy was largely private and market-based (Feuerwerker, 1976; Pomeranz, 2000; Zelin, 2004; Rosenthal and Wong, 2011). With the rise of the CCP, China built a strong state that was capable of imposing collective agriculture upon more than 500 million peasants after just a few years in power (Unger, 1989). However, the pre-1949 problem of state weakness, which some scholars saw as a major impediment to China's development (Perkins, 1967; Feuerwerker, 1984), was over-corrected as the strong Maoist state stifled markets and private initiatives. Deng's reforms mitigated the imbalance by relaxing the party-state's tight control and allowing the market to play a greater role in resource allocation. This helps to explain why the Chinese economy took off after 1978, not 1878, when the economy was predominantly private, or 1958, when a strong state was already in place.

6 Alternative Mechanisms

Could our findings be driven by some other mechanism instead of state capacity? Should this be the case, the alternative mechanism must simultaneously explain the favorable associations between party membership and the wellbeing measures after 1978, and the lack thereof before 1978. In addition, it must also explain why party membership is associated with both positive and negative outcomes during the Maoist period (e.g., higher death rates, but lower illiteracy rates). We can think of no obvious candidate that would meet these stringent requirements. Nonetheless, in this section we examine a few plausible alternative explanations that might have driven *some* of the observed patterns.

6.1 Favoritism

We first examine whether the Chinese party-state displayed systematic favoritism and channeled more resources to counties with more party members. If indeed favoritism was a significant factor throughout the period of our study, and the party-state consistently extracted less from counties with more party members, we should observe lower death rates in counties with a stronger CCP presence in times of crisis. Instead, we observe the opposite—death rates were high in CCP strongholds during the Great Leap Forward and its aftermath (Table 7 columns a and c).

As an additional check, we directly examine county-level state grain procurement rates in 1978. During the period of our study, rural areas were “taxed” through grain procurement, which mandated peasants to sell their grain to the state at low fixed prices. If the CCP leadership gave preferential treatment to counties with high party membership, we should observe lower procurement rates in these counties. As Table 12 shows, we find that grain procurement rates were in fact higher in counties with more party members.

[Table 12 about here]

6.2 War

One may worry that the results so far reflect the consequences of war. A number of studies have emphasized the positive consequences of warfare on investment in state capacity (Tilly, 1990; Gennaioli and Voth, 2013). Warfare could also affect the outcomes in our study through other, non-state-capacity related channels. For example, the Long March might have brought destruction to the counties along the paths of the Red Armies and stunted economic growth in these counties temporarily—until the late 1970s. If this was the case, the faster output growth that we observe in counties with more party members after 1978 would merely reflect catch-up growth in the counties adversely affected by the Long March.

Historically speaking, there was little fighting along the Central Red Army’s Long March route as Mao deliberately avoided military engagement with the nationalists (1) to preserve the Red Army’s strength and (2) because he did not seek to establish a foothold in Sichuan. Interestingly, some researchers now believe that the most famous battle fought by the Central Red Army in Sichuan, the so-called “Battle of

Luding Bridge,” was no more than a skirmish with no deaths and that Mao dramatized the event in his interview with the American journalist Edgar Snow for propaganda purposes.²²

To investigate further, we compare the economic performance of the counties along the routes of the Central and Fourth Front Red Armies. If indeed our above findings using the route of the Central Red Army as an instrument reflect the effects of war, it is likely that we would observe qualitatively similar results when we replace the Central Red Army with the Fourth Front Army in our analysis.

Since the instrument variable created using the route of the Fourth Army does not pass the first-stage F-test, we apply simple OLS analysis on the specification in Equation 4.1 but replace the main explanatory variable *#PartyMember* with the dummy variables *Red1* and *Red4*, respectively. If the effect of war is the main driver of our findings, the estimated coefficients of *Red1* and *Red4* are likely to be similar. However, as Table 13 illustrates, we only observe faster grain output growth in counties along the path of the Central Red Army.

[Table 13 about here]

6.3 Unintended Consequences of Great Leap Forward

Table 7 shows that counties with more party members experienced higher mortality rates during the Great Leap Famine. Could the bad experience of famine turn the local population resentful toward Maoist policies, so that they were more ready to embrace decollectivization once it became an option? In Table 14, we check if the observed faster growth in counties with higher party memberships could be driven by a greater desire for decollectivization in rural areas that suffered the worst of the Maoist policies. In column (a), we find some supporting evidence that, indeed, counties that witnessed more deaths during the 1959–61 Great Leap Famine implemented decollectivization earlier (endogeneity concerns notwithstanding). However, there is no evidence suggesting that earlier implementation of decollectivization led to larger overall grain output growth

²²See Snow (1937) for Mao’s account of the event and Chang and Halliday (2005) and Sun (2006) for claims that the “battle” never took place. According to the former US National Security Advisor Zbigniew Brzezinski, Deng Xiaoping told him in a conversation that the battle was a myth and “that’s the way it’s presented in our [the CCP] propaganda. We needed that to express the fighting spirit of our forces. In fact, it was a very easy military operation. There wasn’t really much to it” (Brzezinski, 2005).

during 1978–85 (column b). In fact, higher mortality rates during 1958–62 are associated with lower grain output growth during the reform years (column c), suggesting that it was higher state capacity instead of earlier decollectivization that drove faster grain output growth.

[Table 14 about here]

7 Conclusion

During imperial times, the Chinese state and emperor exercised weak control over the population and economy (Ch’u, 1962; Watt, 1977; Feuerwerker, 1976). The lowest level of formal government was the county, headed by a magistrate who was the only imperial official in charge of a large area with an average population of more than 200,000 in the 1800s. Living in the walled administrative city, the magistrate was “cut off from the countryside, where the great majority of people lived” (Watt, 1977, 356). Consequently, the state lacked the ability to intervene bureaucratically in the village.

This changed in the twentieth century with the triumph of the communists, who rose to power from the countryside. By utilizing the CCP organization to control cadres and maintain administrative discipline, the PRC state was able to extend its reach to the village through the establishment of the commune–brigade–team below the original administrative structure.

However, China did not reap immediate benefits from its political transformation. We find that, while state capacity did accelerate agricultural modernization, infrastructural investment, and the accumulation of human capital during the Maoist period, it did not deliver a clear improvement to the economic wellbeing of the rural population as measured by grain output per capita and crude mortality rate. The improvement would arrive after 1978. We find that, after the communist regime abandoned its collectivist agenda and embraced market-based reforms, counties where more party members resided experienced faster output growth and lower death rates.

The economic takeoff of China in recent decades has prompted intense debate. Some see it as the result of strong government leadership. Others argue that it is a triumph of the market over the state. Our findings help reconcile the two opposing viewpoints. We find that state capacity matters, but it is a double-edged sword and may deliver negative consequences if mismanaged. The positive developmental effect of state capacity is

substantial and unambiguous only if the state seeks to complement the market, not to replace it.

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Figure 1: The Province of Sichuan in Southwest China.



Figure 2: High persistence in CCP membership between 1956 and 1978.

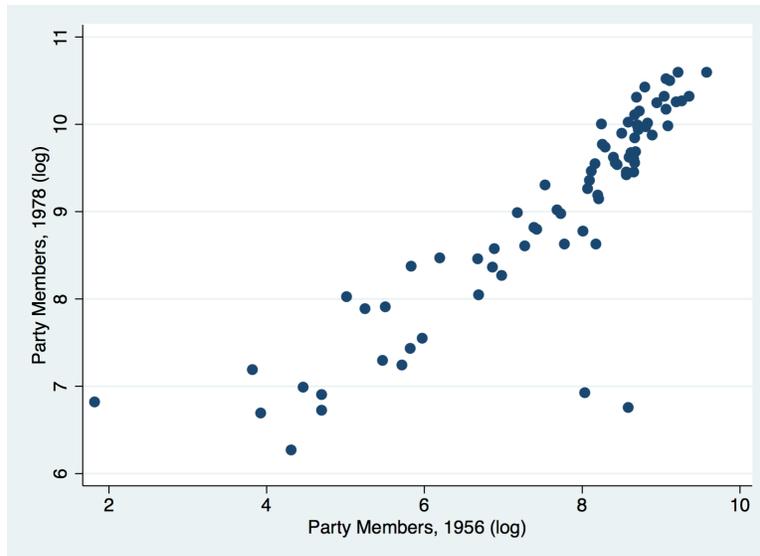
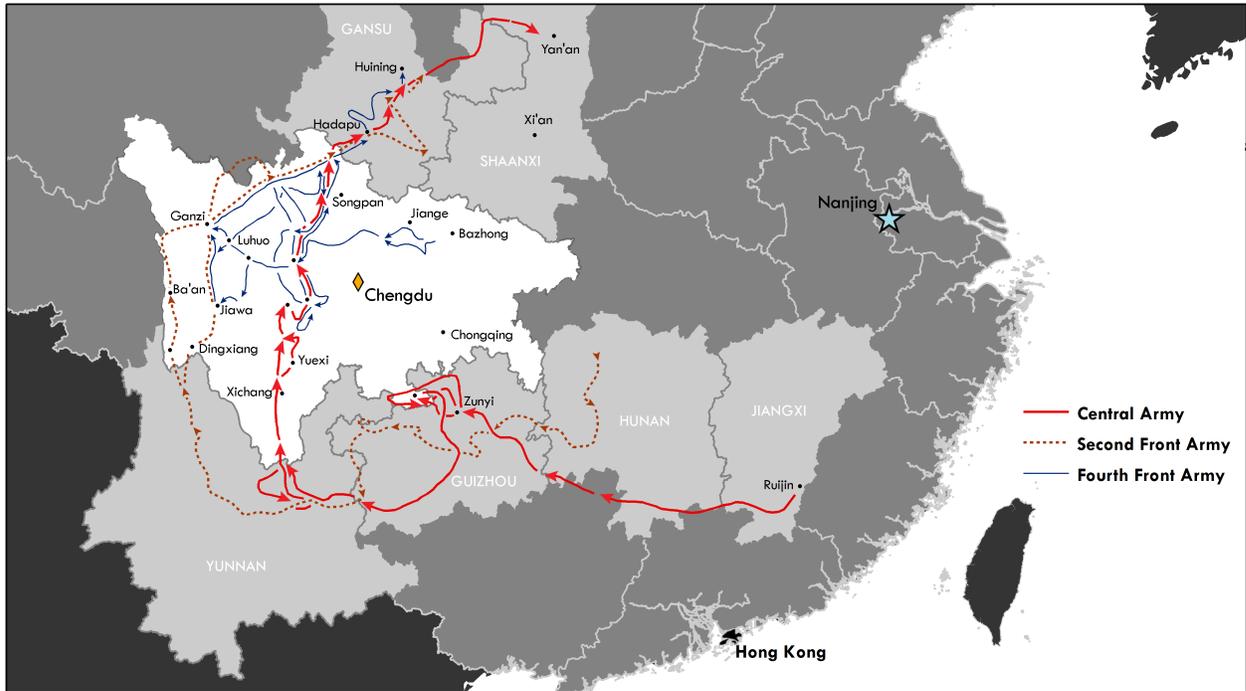


Figure 3: The Communist Long March (1934–35).



Adapted from *An Encyclopedia of the Long March* (1996).

Figure 4: Random generation of “Long March” variable

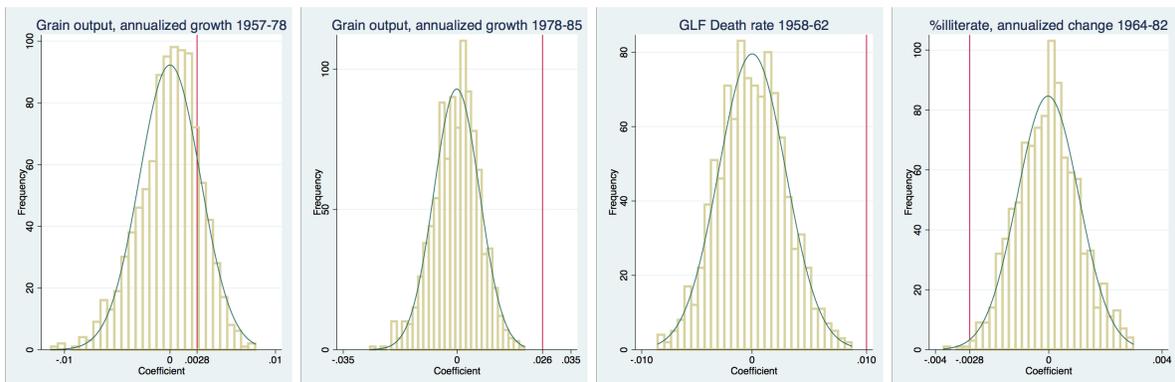


Table 1: Descriptive Statistics

	Variables	Mean	SD
<i>State capacity</i>	CCP (1956)	3,717	3,286
	<i>Red1</i> (dummy)	0.13	0.34
	<i>Red4</i> (dummy)	0.25	0.44
<i>Economic growth</i>	Grain 1957-85 (% Annualized growth)	0.88	1.23
<i>Public health</i>	Mortality 1957-78 (% Average)	1.60	0.35
	Mortality 1958-62 (% Average)	3.22	1.37
	Mortality 1978-85 (% Average)	0.77	0.24
<i>Education</i>	Illiteracy rate 1964 (%)	45.43	12.78
	Illiteracy rate 1982 (%)	29.12	9.86
	Primary school graduates 1964 (%)	24.15	9.12
	Primary school graduates 1982 (%)	36.49	10.89
	Junior high school graduates 1964 (%)	3.01	1.22
	Junior high school graduates 1982 (%)	12.83	4.41
<i>Intermediate Factors</i>	Road density 1978 (road network in km/county size in km ²)	0.19	0.11
	Farm power availability intensity 1978 (10kw/km ²)	1.33	1.42
	Inorganic fertilizer use intensity 1978 (ton/km ²)	3.57	6.26
<i>Initial Conditions</i>	Population 1925 ('000)	307	307
	Number of high schools 1934	1.28	2.05
	Number of highways 1933	0.32	0.56
<i>Covariates</i>	Elevation (m)	1,460	1,344
	Distance to Chengdu/Chongqing (km)	206.3	126.2
	Autonomous status (dummy)	0.31	0.46
	Ruggedness index	10.58	7.879
	Population 1957 ('000)	356.8	298.9
<i>Others</i>	Year of cooperativization	1955.5	2.1
	Year of decollectivization	1980.9	0.9
	State procurement rate 1978	0.13	0.05

Table 2: Formation of Cooperatives

	Year of Formation
CCP(1956, log)	-2.893** (1.329)
Controls	Yes
F on excluded instrument	19.35
Observations	127
Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.	

Table 3: Party Membership, Long March Counties (*Red1*, *Red4*)

	CCP Membership (log) 1956	
<i>Red1</i>	.427*** (.097)	
<i>Red4</i>		.025 (.095)
Grain output per capita 1957	.318*** (.134)	.353** (.143)
Autonomous status	-.320*** (.113)	-.343*** (.137)
Elevation	-.101 (.135)	.021 (.141)
Distance to Chengdu/Chongqing	.030 (.075)	.027 (.079)
Ruggedness	.035 (.056)	.038 (.058)
Population 1957	1.09*** (.075)	1.14*** (.080)
Observations	127	127
R-squared	0.95	0.94
Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.		

Table 4: Target Destination of The Central Red Army in the Long March

	Location	Date	Target Destination
1	Jiangxi	Oct 1934	West Hunan
2	Liping (Guizhou)	Dec 1934	Sichuan-Guizhou
3	Zunyi (Guizhou)	Jan 1935	West of Chengdu
4	Zaxi (Yunnan)	Feb 1935	Sichuan-Guizhou-Yunnan
5	Huili (Sichuan)	May 1935	Southwest/Northwest Sichuan
6	Lianghekou (Sichuan)	June 1935	South Gansu
7	Ejie (Gansu)	Sep 1935	Toward USSR
8	Hadapu (Gansu)	Sep 1935	North Shaanxi

Source: CCP Party History Press Research Office (2006).

Table 5: Balance Checks

	Population (log) 1925 (a)	High Schools 1934 (b)	Highways 1933 (c)
CCP(1956, log)	0.033 (0.350)	0.101 (0.566)	0.005 (0.273)
Controls	Yes	Yes	Yes
F on excl. instrument	24.53	19.35	19.35
Observations	115	127	127

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

Table 6: Output Per Capita, Annualized Growth

	Grain 1957–85 (a)	Grain 1957–78 (b)	Grain 1978–85 (c)
CCP(1956, log)	0.0145*** (0.0050)	0.0005 (0.0045)	0.0570*** (0.0201)
Controls	Yes	Yes	Yes
F on excl. instrument	17.78	17.12	16.04
Observations	123	102	98

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

Table 7: Mortality Rate

	1957–77 (a)	1978–85 (b)	1958–62 (c)	1963–70 (d)	1971–77 (e)
CCP(1956, log)	0.0053** (0.0025)	-0.0026** (0.0011)	0.0273*** (0.0102)	-0.0005 (0.0017)	-0.0028* (0.0015)
Controls	Yes	Yes	Yes	Yes	Yes
F on excl. instrument	19.40	19.40	19.40	19.40	19.40
Observations	126	126	126	126	126

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

Table 8: Illiteracy Rate

	%Illiterate 1964 (a)	%Illiterate 1982 (b)	Annualized Change 1964–82 (c)
CCP(1956, log)	-0.1159*** (0.0360)	-0.1237*** (0.0317)	-0.0064** (0.0028)
Controls	Yes	Yes	Yes
F on excl. instrument	19.15	19.15	19.15
Observations	124	124	124

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

Table 9: Percentage of Primary School Graduates

	%PriSch 1964 (a)	%PriSch 1982 (b)	Annualized growth 1964–82 (c)
CCP(1956, log)	0.0792*** (0.0300)	0.1045*** (0.0250)	-0.0018 (0.0068)
Controls	Yes	Yes	Yes
F on excl. instrument	19.80	19.80	19.80
Observations	124	124	124

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

Table 10: Percentage of Junior High School Graduates

	%JHSch 1964 (a)	%JHSch 1982 (b)	Annualized Change 1964–82 (c)
CCP(1956, log)	0.0249*** (0.0090)	0.0618*** (0.0174)	-0.0170* (0.0090)
Controls	Yes	Yes	Yes
F on excl. instrument	19.71	19.71	19.71
Observations	125	125	125

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

Table 11: Infrastructural Investment and Agricultural Modernization

	Road density (log) 1978 (a)	Inorganic fertilizer use intensity (log) 1978 (b)	Farm power availability (log) 1978 (c)
CCP(1956, log)	0.953** (0.399)	2.486*** (.794)	1.022 (0.647)
Controls	Yes	Yes	Yes
F on excl. instrument	18.59	19.72	19.35
Observations	125	125	127

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

Table 12: State Grain Procurement, 1978

	$\frac{\text{Grain procurement}}{\text{Grain output}}$ (log) 1978
CCP(1956, log)	0.789* (0.454)
Controls	Yes
F on excluded instrument	16.47
Observations	101

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

Table 13: Output Per Capita, Annualized Growth (OLS)

	Grain 1957–78 (a)		Grain 1978–85 (b)	
<i>Red1</i>	.003 (.002)		.026*** (.007)	
<i>Red4</i>		.001 (0.002)		.005 (.005)
Controls	Yes	Yes	Yes	Yes
Observations	114	114	110	110
R-squared	0.47	0.46	0.42	0.35

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

Table 14: Great Leap Famine's Deaths and Decollectivization

	Decollectivization start-year (a)	Grain 1978–85 (b)	Grain 1978–85 (c)
CCP(1956, log)	-0.753 (0.482)	0.059*** (0.022)	0.067*** (0.024)
Mortality Rate 1958–62	-8.34 (6.87)	-	-0.481*** (0.168)
Decollectivization start-year	-	0.001 (0.003)	-
Controls	Yes	Yes	Yes
F on excl. instrument	13.11	14.40	14.09
Observations	108	92	97

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.

8 Appendix

Table 15: Check on missing data (OLS)

	CCP (1956, dummy) (=1 if data available)
<i>Red1</i>	-0.095 (0.103)
Controls	Yes
Observations	145

Standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1.