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Political Science Research and Methods / Volume 2 / Issue 02 / October 2014, pp 179 - 211
DOI: 10.1017/psrm.2014.6, Published online: 24 April 2014

Political Science Research and Methods Vol 2, No. 2, 179–211 October 2014

doi:10.1017/psrm.2014.6

The Emperor Strikes Back: Political Status, Career Incentives and Grain Procurement during China's Great Leap Famine*

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Using China's Great Leap Famine as example, this article shows how political career incentives can produce disastrous outcomes under the well-intended policies of a dictator. By exploiting a regression discontinuity design, the study identifies the causal effect of membership status in the Chinese Communist Party's Central Committee—full (FM) Versus alternate members (AM)—on grain procurement. It finds that the difference in grain procurement between AMs and FMs who ranked near the discontinuity threshold is three times that between all AMs and all FMs on average. This may explain why Mao exceptionally promoted some lower-ranked but radical FMs shortly before the Leap: to create a demonstration effect in order to spur other weakly motivated FMs into action.

It has now become a widely accepted premise that political career incentives play a pivotal role in developing the economies of authoritarian regimes. China provides an exemplar of just how a one-party authoritarian state could engineer growth by carefully exploiting such incentives—specifically promotion incentives (Cai and Treisman 2006; Jia 2013; Li and Zhou 2005; Landry 2008; Xu 2011). Political career incentives can be a double-edged sword, however. In the absence of political checks and balances on the dictator, the same career incentives could be misused, as was demonstrably the case in China during the Great Leap Forward of 1958–61, which resulted in the worst man-made famine in history (Kung and Chen 2011).

A primary reason why China's Great Leap backfired and ended in a very expensive disaster is attributable to the extraordinarily powerful incentives of some provincial leaders to procure as much grain as possible to serve industrialization.[1] One explanation, championed by Kung and Chen (2011), is that excessive grain procurement[2]—a proxy for political radicalism—is correlated with the differences in membership status of the

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[1] Acemoglu, Kremer and Mian (2008) show theoretically that a disproportionate emphasis on high-powered incentives can distort the composition of effort and result in excessive signaling. While governments are typically able to refrain from doing so by limiting yardstick competition, Mao encouraged the high-powered incentives of (excessive) grain procurement during China's Great Leap Forward.

[2] A salient feature of the Great Leap Forward is that political radicalism, manifested most notably in excessive grain procurement and communal mess hall dining, was very uneven across the Chinese provinces.

provincial leaders.[3] These differences are decisive because there are vast differences in political power, status and other privileges between full members (FMs) and the lower-status alternate members (AMs) in the Central Committee of the Chinese Communist Party (CC-CCP)—China's highest congressional body. These differences radicalized the AMs' behavior.

The primary goal of this article is to test the "political career incentives" hypothesis using a more rigorous research methodology—the regression discontinuity design (RD). To see why RD is an appropriate choice, one must understand a particular feature of China's *nomenklatura* system. Membership status in the CC-CCP was exogenously determined by a predetermined cutoff value (e.g., 97) that effectively separated the CC members into two discrete membership classes based on their ranking, which in turn was premised on the number of votes they obtained at the 8th National Congress.[4] Future movements across membership categories during the remaining Congress period were on autopilot—depending on the "natural attrition" of the FMs.[5] An RD design enables me to exploit the *discontinuity* in the assignment of membership status (AM versus FM in the CC-CCP) to identify its causal effect on political radicalism.[6] In the RD setup, it was thus the lowest-ranked FMs (that is, those who were ranked just above 97) who lacked incentives to act out of character, as these provincial leaders were a long way from attaining an office in the Politburo—China's most exclusive body of political elites. Conversely, the highest-ranked AMs—those close to the threshold of the AM/FM boundary—were very unlikely to require any persuasion to act radically.

Though not a primary goal of the article, the RD analysis helps unveil an important conundrum of Chinese politics of the Great Leap; namely, why did Mao still actively engage in mobilizing the provincial leaders who he may have suspected to be the least incentivized? The autopilot feature of the promotion system, together with the differential incentives between the AMs and FMs, helps explain why Mao exceptionally promoted a few well-known zealous radicals—in one extreme case a very low-ranked FM—to the Politburo just months before the launch of the Great Leap. Doing so was possibly Mao's way of creating a powerful demonstration effect that served to stimulate into action *other* lowly ranked FMs whose incentives to fuel the Leap may otherwise be weak.

The result of our RD analysis powerfully reaffirms the "political career incentives" hypothesis. Whereas the fixed-effects estimate of political radicalism is 2.826, the RD design yields an estimate of 8.734—a magnitude more than three times the benchmark. This finding implies that the difference in political radicalism between FMs and AMs who rank near the discontinuity threshold is three times that between the entire FM group and

[3] While it is widely accepted that the political attitudes of the provincial leaders played a crucial role in accounting for the observed variations in radicalism, it remains much less consensual as to what constituted these huge variations. Conventional wisdom attributes the differences in political attitudes to ideology or the personal characteristics of the provincial leaders, or even to their relationships with Mao (Dernberger 1972; Goodman 1986; Gregor 1995, 2000; Li 1995; Liu 1980; Todd 2002). Goodman, for example, attributes Sichuan's radicalness to "the close political relationship between its leader and Mao" (1986, 20).

[4] Their political status during the Great Leap was thus determined by the votes at this particular congress.

[5] A total of 170 CC members competed for 97 places in the FM category. Those who failed to secure a place became AMs.

[6] This particular political context thus satisfies the RD requirement that, although the CC members may lobby for more votes, "precise sorting" was infeasible (Lee and Lemieux 2010).

the entire AM group on average, which supports the hypothesis that political radicalism increases *discontinuously* as the ballot ranking crosses the cutoff point of 97 and membership turns from full to alternate.

The remainder of this article proceeds as follows. In the next section I define the variables to be employed in the analyses and introduce their sources. Then I replicate the fixed-effects estimations to serve as a benchmark against which to compare the RD results. While many of the variables (and specifications) are the same as those employed by Kung and Chen (2011), some have been modified (for example, party membership density). I next provide the historical and institutional details to justify the RD design and then discuss the empirical results. To save space, I leave the robustness checks and validity testing to the Appendix. Before concluding, I explore the possible reason behind Mao's action by observing a series of promotions of some of the key actors. The final section concludes.

DATA SOURCES AND DEFINITION OF VARIABLES

Dependent Variable

Following Kung and Chen (2011), I use excessive grain procurement—which they define as the difference between normal levels of procurement during 1955–57 and actual procurement levels during 1958–65—as a proxy for political radicalism.[7] Grain procurement is chosen to proxy for political radicalism because, in a context in which Mao intended to industrialize China rapidly by moving as much agricultural surplus to the urban sector as possible, it unambiguously signaled commitment to the Great Leap, and because its variations across provinces significantly affected death tolls. Because I want to exploit the variation in the ballot outcome of the 8th National Congress (which first took place in September 1956) to examine the effect of membership status on political radicalism using the RD design,[8] I extend the study period for actual procurement levels to include the year 1957. Doing so requires me to correspondingly extend the study period for normal levels of procurement by one year to 1954–56. To also control for the period after the Great Leap, I choose the year 1965 as the final year of analysis (instead of 1966, as Kung and Chen (2011) do). I drop 1966 from analysis on the grounds that the Cultural Revolution, which broke out in May 1966, may contaminate our analysis. I plot the procurement ratio, average procurement ratio and excessive procurement ratio in Figure 1, which shows that grain procurement during the 1959–61 period was indeed excessive compared to the post-famine years.

Key Independent Variables

My main goal is to test whether AMs were more radical politically than FMs. The key independent variable of interest is therefore membership status, which is defined according to whether a provincial first party secretary was an FM, an AM or a

[7] Although the radical phase of the Great Leap Forward was 1958–61, the existing studies all employ a longer period for analysis. I will perform a robustness check later using the shorter period to make sure the results do not change with the choice of period.

[8] Unlike the other party congresses, the 8th National Congress was the only one that was held twice—once in 1956 and again in 1958 in order to effectuate the decisive change in the personnel system to permanent tenure.

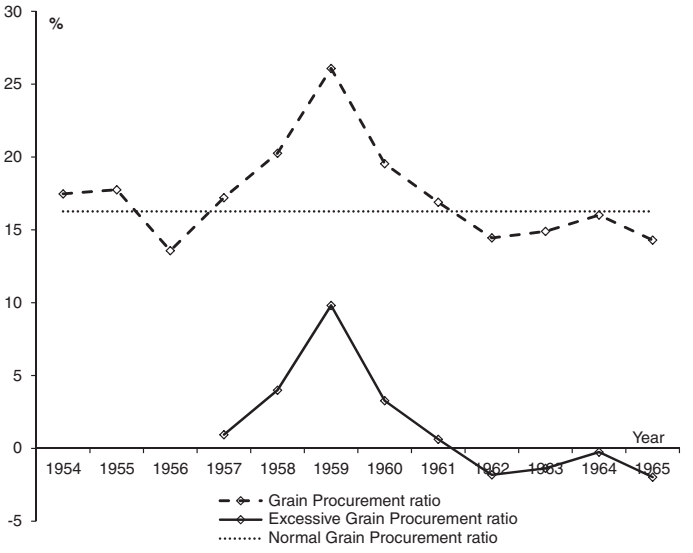


Fig. 1. Grain procurement ratios, by year

nonmember (NM), using FMs as the reference group in the analysis.[9] As complications may arise if two party secretaries were found to serve in the same province in a given year, I employ the criterion adopted by Li and Zhou (2005) and select the party secretary who served on 30 June of that year as the representative leader of that province, and use her membership status accordingly. For instance, in Liaoning Province, Huang Oudong ended his tenure as the province's first party secretary in June of 1958, with Huang Huoqing replacing him immediately in the same month. While the precise date of this turnover is not specified, what is clear is that Huang Huoqing was in charge of Liaoning Province on June 30. Going by our rule, I choose Huang Huoqing (rather than his predecessor) to be the first party secretary of Liaoning Province for the year 1958.[10]

Individual Characteristics of the First Party Secretary

Here I control for the age, years of party membership and "revolutionary credentials" (experience of the Long March is the pertinent proxy) of the provincial first party secretaries.[11] In the extension using the RD design, I also control for their education (as a measure of competence) and add a new variable, *Anti-Japanese Military and Political University* (*AJMPU*, or "Resistance University"), to check the robustness of their Long

[9] To ensure that the foregoing information is accurate, I employ three different sources: Organization Department 2000, 2004; He, Li and Xiang 1993.

[10] Huang Oudong was subsequently downgraded from first to second party secretary in Liaoning Province in fall of 1958 (Domenach 1995).

[11] Upon the suggestion of an anonymous referee, I have made a distinction of the Long March experience based on the particular route with which the provincial leaders were affiliated (more details are provided below).

March credentials.[12] Since the AJMPU was the training ground for both military and political cadres of the CCP, I consider a province's first party secretary who was affiliated with the AJMPU—in the capacity of an administrator or instructor (or even a student)—as having significantly greater (revolutionary) credentials than those without such affiliations, and I construct a dummy variable to reflect that difference.[13] In addition to being a corroborating proxy, this broader categorization of the AJMPU should also permit a more encompassing definition of revolutionary credentials than the Long March.[14]

Provincial Socio-economic Variables

Going beyond the individual level, I control for the possible effects of food availability, natural calamities, share of agriculture and GDP per capita. While I define these variables in basically the same way as Kung and Chen (2011) do, to avoid reverse causality I lag these economic variables by one year, as excessive procurement in a given year may affect these socio-economic variables in the subsequent year. As for *Party Membership Density* (a proxy for local variations), instead of defining it as the ratio of the number of party members to the total number of cadres in a province (Kung and Chen 2011), I change the denominator to a province's population, as there are simply too many missing observations based on the previous definition. Table 1 defines all the variables and data sources (see Appendix Table A1 for details of data construction).

RESULTS OF FIXED-EFFECTS ESTIMATES

Although I am using essentially the same variables and data as Kung and Chen (2011) to conduct the RD analysis, I replicate their results in part because of the slight modifications made to the period under analysis (now 1957–65) and the definition of variables (for example, *Party Membership Density*), and in part to correct for some data entry errors in the dependent variable *Excessive Grain Procurement* in their work. Doing so also allows me to establish a benchmark against which to compare the RD estimates. Following their empirical strategy, I employ a two-way fixed-effects model to test the relationship between membership status and political radicalism. The latter is measured by *Excessive Grain Procurement*, which is specified as:

$$EPR_{it} = \beta_1 \cdot AM_{it} + \beta_2 \cdot NM_{it} + X_{it}\gamma + Z_{it}\rho + \alpha_i + \lambda_t + \upsilon_{it}, \quad (1)$$

where EPR_{it} represents the excessive procurement ratio, AM_{it} (or NM_{it}) is a dummy variable indicating whether a provincial first party secretary is an AM (or NM), and FMs

[12] Reorganized from the Red Army Military Affairs College, which was set up to enroll patriotic youth across the nation to fight the Japanese, the AJMPU was set up in January 1937 in Yan'an, the patriotic mecca, to train military and political cadres. Having trained more than 100,000 cadres, the AJMPU served as a major recruiting ground for the CCP. For a detailed account of the AJMPU, see Apter and Saich (1994).

[13] As with the Long March experience, the same reviewer suggested that I distinguish between those who were affiliated with the main campus and those who were affiliated with the other campuses (more details are provided below).

[14] For example, Apter and Saich (1994, 235) show that the first batch of AJMPU students was "virtually all from the Central Red Army and the Red Twenty-Fifth Army and had participated in the Long March.". Data on age and years of party membership are collected from Organization Department 2004, whereas data on education and AJMPU are obtained from Shih, Shan and Liu (2010).

TABLE 1 *Variables Definition and Data Sources*

Variable	Definition	Data sources: This study	Data sources: K&C*	N	n	T	Mean	S.D.
Excessive grain procurement ratio	Actual procurement ratio – normal procurement ratio (%)	A	A	225	25	1957–65	1.471	5.894
Membership status	Full member (FM) =1; otherwise =0.	D	D	225	25	1957–65	0.316	0.466
	Alternate member (AM) =1; otherwise =0.	D	D	225	25	1957–65	0.484	0.501
	Nonmember (NM) =1; otherwise =0.	D	D	225	25	1957–65	0.200	0.401
Age	Year: year of birth +1	D, E	D	225	25	1957–65	52.560	5.062
Years of party membership	Year: year of joining CCP +1	D, E	D	225	25	1957–65	32.262	4.382
Education	College or above =2; high school =1; below high school =0.	E	D	224	25	1957–65	1.036	0.701
Long March	Long March experience =1; 0 otherwise	E	G	225	25	1957–65	0.347	0.477
AJMPU	Anti-Japanese Military and Political University =1; 0 otherwise	E		225	25	1957–65	0.129	0.336
Ballot rank	Ranking based on votes count	D	D	160	22	1957–65	117.588	41.783
MAG	Ln(two-year moving average of grain output/rural population)	A, B, C	A	225	25	1956–64	5.662	0.412
NDS	Areas covered by natural calamities /total arable land	B, C, F	F	221	25	1956–64	23.684	18.013
Agriculture share	Ratio of agricultural to total income (%)	B	B	225	25	1956–64	44.159	11.632
GDP per capita	Ln(per capita GDP)	B, C	B	225	25	1956–64	5.157	0.371
PMD	Ratio of party members to total population (%)	G	G	223	25	1957–65	0.806	0.287

(1) N: observations; n: number of provinces; (2) Sources. A: Materials on the Agricultural Economy, 1949–83; B: Comprehensive statistical data and materials on 50 years of new China; C: Comprehensive statistical data and materials on 60 years of new China; D: A Compendium of Central Committee Members of Various Plenums, 1921–2003; E: Shih, Shan and Liu (2010); F: Report on China's Natural Disasters; G: Materials on the Organizational History of China's Central Communist Party. *Kung and Chen (2011).

are the reference group in the analysis. X_{it} represents the individual characteristics of the provincial leaders, including age and years of party membership. Z_{it} is a set of control variables, which include per capita food availability, level of natural calamities, GDP per capita, proportion of agricultural income and party member density. α_i is the time-invariant and province-specific effect for province i, λ_t is the province-invariant and time-specific effect for year t and υ_{it} is the residual error term. My analysis covers the period 1957–65. I drop the municipalities of Shanghai, Beijing and Tianjin from the analysis, given their special administrative status, whereas Tibet is excluded due to the lack of systematic information on this autonomous region.[15] My analysis thus covers a total of 25 provinces, with a panel length of nine years for each province. The provincial party secretaries and their corresponding tenure details (with information on the exact months and years of their appointments) are shown in Appendix Table A2.

Based on the specification of Equation 1, I run two sets of regressions—the first without controlling for the "personality" fixed effects and the second with this important control. The other control variables are added to the regressions gradually. In Model 1, for instance, I include only the key variable of *Membership Status*, and in Model 2 the two control variables of the individual characteristics of the party secretaries are added. In Model 3, two more variables are added to further control for the provincial differences in grain output (*Food Availability* and *Natural Disasters*), whereas Model 4 takes into account the possible influence of both the differences in levels of economic development (GDP per capita, the proportion of agricultural income) and "local variations" (using *Party Member Density* as the pertinent proxy) across the provinces.

The first set of regression results is reported in the left panel of Table 2 (Columns 1–4). The results confirm the hypothesis that the AMs are significantly more radical than the FMs when it comes to grain procurement. Compared with the variable *FM*, the variable *AM* is highly significant (at the 1 percent level of significance in the baseline result, Column 1). Although the level of significance decreases somewhat (from 1 to 5 percent) as more control variables are added to the estimations (Columns 2–4), overall the results lend firm support to the hypothesis that membership status significantly affects the behavior of the provincial party secretaries. Moreover, the magnitude becomes larger in the full model (the pertinent coefficient increases from 2.123 in Column 1 to 2.640 in Column 4). In Column 4, the full model, age becomes insignificant, and the effect of party membership—which is negatively correlated with political radicalism—becomes only marginally significant, suggesting that these two individual characteristics are not good predictors of political behavior.

The right panel of Table 2 (Columns 5–7) reports the regression results after controlling for the personal identities of provincial leaders serving as first party secretaries (each dummy variable indicates the exact identity of the first party secretary of a given province for the period under analysis). The results show that the variable *AM* remains significant

[15] For reasons that are not entirely clear, Xinjiang is always excluded from studies of the Great Leap Famine (for example, Kung and Chen 2011; Kung and Lin 2003; Lin and Yang, 2000). Unlike Tibet, however, where data are simply not available, the pertinent data on Xinjiang are complete. Moreover, given that Gansu, Inner Mongolia, Ningxia and Qinghai—all of which are remote, poverty-stricken provinces populated by ethnic minorities—are included in these studies, I see no reason why Xinjiang should be excluded. To alleviate the concern that Xinjiang is included in order to produce the intended results, I replicate both the regression and RD analyses without including this province. The results (reported in Appendix Table A3) do not differ fundamentally.

TABLE 2 *Fixed Effects Estimation of Membership Status and Personal Identities*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
AM	2.123***	2.991**	2.684**	2.640**	2.830***	3.116***	2.826**		
	(0.722)	(1.101)	(1.045)	(0.979)	(0.950)	(1.089)	(1.168)		
NM	1.692	0.735	0.467	0.908	3.099	3.427	3.306		
	(1.377)	(2.114)	(2.036)	(1.550)	(2.290)	(2.493)	(2.418)		
AM and NM								2.566**	2.707**
								(1.004)	(1.055)
Age		0.702**	0.618**	0.356				0.274	
		(0.269)	(0.281)	(0.219)				(0.242)	
Party membership (Years)		−0.567***	−0.576**	−0.418*				−0.289	
		(0.195)	(0.220)	(0.237)				(0.207)	
MAG_{-1}			1.566	1.427		1.257	1.172	1.337	1.169
			(1.894)	(1.359)		(2.322)	(1.777)	(1.282)	(1.775)
$NDCs_{-1}$			−0.003	0.013		0.004	0.021	0.013	0.021
			(0.021)	(0.023)		(0.023)	(0.024)	(0.023)	(0.024)
The share of $agriculture_{-1}$				0.232***			0.277***	0.238***	0.275***
				(0.063)			(0.098)	(0.065)	(0.096)
Ln(per capita $GDP)_{-1}$				2.673			2.682	2.807	2.687
				(5.666)			(6.150)	(5.662)	(6.141)
PMD				−5.406**			−5.902*	−5.394**	−5.959*
				(2.477)			(3.098)	(2.413)	(3.109)
Personal identity					Yes	Yes	Yes		Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	225	225	221	219	225	221	219	219	219
Number of provinces	25	25	25	25	25	25	25	25	25
R-squared	0.49	0.52	0.52	0.56	0.58	0.57	0.61	0.55	0.61

Note: robust standard errors in parentheses. *significant at 10%; **significant at 5%; ***significant at 1%. Constant terms are included but not reported.

at the conventional levels of significance ranging from 1 to 5 percent, with larger magnitudes than the previous estimates. For instance, a comparison of the two full models reveals that the coefficient of *AM* increases from 2.640 (Column 4) to 2.826 (Column 7). These results robustly reaffirm Kung and Chen's (2011) key hypothesis that political radicalism varied systematically according to the status of CC membership even after controlling for the effect of "personality."

To see if this hypothesis still holds in the event that the NMs were just as radical as the AMs (for they too may arguably be anxious to get promoted to AM and would therefore act radically), I combine NMs and AMs into the same category and compare them as a group against the FMs. Reported in Columns 8 and 9, the results show that there are still significant differences in the degree of radicalism between these different political categories.[16]

An important question, however, remains. The radical phase of the Great Leap Forward was before 1958–61, but our analysis covers also the period 1962–65. Would the analytical results change if we shorten our period of analysis? To find out, I subdivide the sample into the two shorter periods, before 1962 and after 1962, and repeat the same exercises. The results reported in Appendix Table A4 robustly show that AMs are still significantly more radical than FMs before 1962 and the magnitude is even larger (for example, 4.174, Column 4) than the baseline estimate of 2.640 (Column 4 in Table 2). By contrast, the difference is not significant in the post-Great Leap Famine period.

DETERMINANTS OF CC MEMBERSHIP RANKING AND MAO'S INFLUENCE: BASES FOR THE RD DESIGN

There are two primary reasons for employing the RD design to analyze the role of political career incentives in possibly causing excessive political radicalism during China's Great Leap Forward. First, instead of analyzing the average effect of membership status (of the AMs as a group vis-à-vis the FMs as a group) on political radicalism, our specific hypothesis entails the analysis of the *marginal* effects—those that capture the difference in the degree of radicalism between AMs and FMs who rank near the discontinuous threshold. Clearly this entails an analysis of an RD design (see section below).

The other justification for employing an RD design is premised on the well-documented evidence of Mao's conscious efforts to fuel provincial leaders' incentives to comply with the Leap's goals, as these stimuli may have changed the "personal idiosyncrasies" of these leaders either shortly before or during the Leap.[17] The RD design, which relies on exploiting the variation in the ballot-determined ranking of the CC members, should help address the concern of this possible omitted variable bias.

A Congressional Ballot Outcome and CC Membership Ranking

Just as Thistlethwaite and Campbell (1960) analyze the impact of merit awards on future academic outcomes, here I study the possible effect of CC membership status on radical political behavior—specifically excessive grain procurement. Following their central

[16] I thank an anonymous referee for this suggestion. To find out whether the NMs were as radical as the AMs, I perform a Wald test between their coefficients and do not find any significant difference (and hence the results are not reported).

[17] Although Domenach's (1995) analysis focuses only on a single province (Henan), he contends that Henan's radicalism was no different from that of the other provinces, all of which essentially represented a response to Beijing's directives.

idea—that individuals who ranked just below a certain cutoff point for an award (that is, those who just missed out on an award) serve as good comparisons for those who ranked just above the cutoff value (that is, those who just exceeded the threshold for an award)—I assume that the AMs who ranked near the cutoff point for full CC membership status were good comparisons to the FMs who also ranked near that cutoff point. To prove that this context satisfies the RD requirement that the individuals concerned were unable to precisely sort themselves around the discontinuity threshold (that is, to assign a particular membership status to themselves, say FM), I first provide a descriptive analysis of the pertinent institutional context, specifically the mechanisms for generating membership rankings. I then explain the paradox of why, in spite of this rigid institutional feature, the AMs were more radicalized by their desperate desire for promotion than the FMs, who could not hope to advance much further.

Although beginning in around the late 1950s Mao was increasingly behaving like a dictator,[18] the CCP had already developed formal political institutions governing membership, protocol, etc., as well as a set of formal rules and procedures designed to "both facilitate the exchange of information among the ruling elites and provide for an easy assessment of compliance with those rules" (Svolik 2012, 7; see also MacFarquhar 1997). Given the political importance of the CC-CCP, there was an elaborate procedure for: (1) governing membership eligibility; (2) determining, by voting, the relative rankings of those who are eligible; and (3) specifying a precise cutoff point that effectively divides the CC members into two classes—FMs and AMs. These procedures made it virtually infeasible for the eligible nominees to manipulate the voting to the extent of influencing the final ranking, which determined membership status.

In a nutshell, a total of 1,026 delegates competed for one of 170 seats on the CC.[19] The 170 finalists were chosen only after three rounds of voting. After the first round of voting, a revised list was presented to the delegates, who were then asked to conduct another round of voting. Those voted on in the second round were then presented to the delegates again for a final secret ballot, in which each of the 1,026 delegates was given a form that contained the names of the 170 nominees who made it through the first two rounds. The pertinent instruction, for these delegates, was to strike out the names of those they did not support for a place in the CC. Unless a nominee was rejected by all 1,026 delegates, his place on the CC was now assured and his ranking determined based on the outcome of this third and final round.[20]

As each eligible nominee could be voted on more than once, and although the 170 finalists would most certainly have lobbied the Congress delegates to vote for them, it is unlikely that they were able to *precisely* influence the number of votes they each received to the extent of affecting their eventual CC ranking (and accordingly, their membership status). In fact, with the sole exception of Mao, even the top leadership would have found

[18] Teiwes (2001, 79) regards Mao before 1958 as someone who "listened to interests within the system" and afterwards as someone "who overrode them." In the run-up to the Great Leap, Mao's behavior was seen as making "in essence a move to a one-man dictatorship" (Teiwes and Sun 1999, 83).

[19] These 1,026 eligible nominees represented the six geographic regions in China, government agencies and departments of the CC and the military.

[20] For election of the 97 FMs, the ballot took place on 25 September 1956; the election of the 73 AMs took place the following day. See Hinton (1957) for an account of how the CC members of the 8th National Congress were selected in 1956, a procedure that fully reflects the exceptional caution taken by the top leadership in selecting its coalition. The voting procedure of the second meeting of the 8th Party Congress, which took place in May 1958, is explained in Li (1995). See also Yang and Chen (2006).

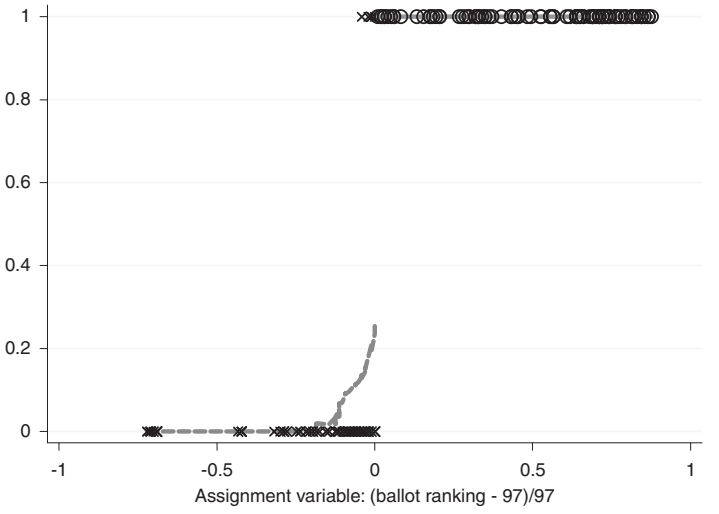


Fig. 2. The relationship between ballot ranking and membership status

it a formidable task to control the number of votes to the extent of tallying the ballot outcome with that of their own preference.[21] At least that appeared to be the case for the Politburo. For example, with the exception of Mao Zedong and Liu Shaoqi, the "internal" rankings of the other 15 Politburo members all differed from the ballot outcome (Appendix Table A5). This particular mechanism of determining CC membership ranking (and, accordingly, the assignment of members to either FM or AM status) thus prevents individual CC members from precisely sorting themselves around the discontinuity threshold; this feature importantly qualifies the analysis for an RD design.[22]

Another distinctive feature of the mechanism of determining membership ranking is that, once the members' rankings were determined by the final ballot outcome, future changes in ranking became automatic: one would automatically move up the rank upon the death of a more senior member, and would be promoted to full membership after crossing the threshold that separates FMs from AMs. A CC member would thus become an FM upon coming 97th (or higher) in the rankings. This was the case, for example, of Wang Enmao, the first party secretary of Xinjiang Province. Ranked 99th on 30 June 1957, Wang moved up two notches to rank 97th a year later and was promoted to FM, thanks to the deaths of two FMs.[23] Similarly, Ye Fe, the first party secretary of Fujian Province (who ranked 103rd in 1958) advanced six notches by 1966 to rank 97th upon the demise of six FMs during this period and was thus promoted to full membership that year.[24] The ballot results for all CC members who held the first party secretary position between 1956 and 1966 are summarized in Appendix Table A6 (and presented visually in

[21] Although the top leadership might have been able to control the list of the nominees by, for example, eliminating the unwanted and promoting the wanted, this would not have guaranteed their ranking.

[22] As Lee and Lemieux (2010, 293) put it, "precise sorting around the threshold is self-selection."

[23] This rule was strictly complied with, even during the tumultuous Cultural Revolution.

[24] The fact that "promotion" did not occur immediately in some instances invites the application of the fuzzy RD design, which I will later adopt to check the robustness of the sharp RD design.

Figure 2), which shows that a CC member indeed qualified for full membership upon coming 97th in the rankings. In short, this automatic feature of membership movement prevents individuals from rigging the votes and affecting the ranking accordingly.

Figure 2 previews the discontinuity in membership status by plotting the bivariate relationship between *Membership* for the 1957–66 period and *Ballot Ranking*—our assignment variable. The fitted values, which are obtained from nonparametric regressions using Cleveland's (1979) tricube weighting function and a bandwidth of 0.5, are estimated separately for observations on either side of the cutoff value. The fitted values may thus be considered to represent the moving average of membership status across the entire range of ballot rankings; the scattered data points (hollow squares and circles) represent the membership of individual CC members. Figure 2 clearly shows that there is a discontinuity in membership status at the thresholds.

If advancement through the ranks was mechanically determined by what was essentially the natural attrition of the FMs, does it not contradict our central thesis regarding the differential incentives between AMs and FMs whose rank was close to the discontinuity threshold? The answer is no. The differential incentives between the two membership statuses stem from the fundamental fact that the probability that an AM will acquire the higher status of FM at the next congressional meeting is smaller than the probability that an FM will retain the same status. This difference thus provided sharp enough incentives for the AMs to exert greater efforts during the Leap in the hope of gaining more votes at the next congressional ballot. Moreover, the fact that nobody knew just when the next congressional session would take place helped create the expectation (illusion) that promotion could come sooner than the "constitutional" rule dictated.[25]

Mao's Influences and Possible Omitted Variable Bias

While Kung and Chen (2011) controlled for the omitted variable of personal identities in their fixed-effects estimations, the "personalities" or political dispositions of provincial leaders may change over time in response to Mao's persuasions. As Mao became increasingly impatient with the slow pace of economic development (for which he blamed the cautiously "expert" approach of the planners),[26] he took a number of carefully orchestrated steps to persuade the provincial leaders—the actors Mao relied upon the most to spur the Leap—to increase production targets. For instance, at a number of ad hoc conferences that Mao set up and enlisted the unprecedented participation of the provincial leaders,[27] he attended only those sessions presided by the local leaders (Teiwes and Sun 1999). Moreover, of the dozen or so provincial party secretaries who accompanied Mao during his campaign tours in 1958, half were FMs; as many as four of them ranked just above 97 in the CC and one was exceptionally inducted into the Politburo in the same year (see below).[28]

[25] The duration of China's National Party Congress only became regularized to a five-year interval after 1978—when China embarked on a sweeping reform. Before then, the 10th and 11th Congresses lasted for only four years, whereas the 8th and the 9th lasted for 11 and 13 years, respectively.

[26] The desire for greater speed in economic construction was clearly articulated at a number of additional campaign planning meetings, during which metaphors such as "one day was the equivalent of 20 years" and "racing against time with imperialism" were thrown around (Teiwes and Sun 1999, 89, 91).

[27] These conferences included the ones in Nanning (Guangxi Province), Chengdu (Sichuan Province), Guangzhou (Guangdong Province) and Wuhan (Hubei Province).

[28] They were Li Jingquan (89), Tao Zhu (93), Wu Zhipu (89) and Zeng Xisheng (94). Li was inducted into the Politburo, whereas Wu was promoted from governor to party secretary of Henan Province. I thank an anonymous reviewer for this observation.

As long as some provincial leaders responded to this deliberate act of Mao in the way he intended, the fixed-effects estimation would fail to account for the effect of this possible influence—one that potentially affects both career incentives and political radicalism simultaneously. By exploiting the variation in CC membership ranking determined by congressional ballot—which is uncorrelated with personality but which can affect membership status, the RD design serves to identify the latter's causal effect on political radicalism, thereby correcting for the possible omitted variable bias (of "personality change") arising from the provincial leaders' interactions with, and their differential responses to, Mao in the fixed-effects model.

A REGRESSION DISCONTINUITY DESIGN

Model Specifications

Given that membership status (AM_{it}) is automatically determined (discontinuously) by a member's ranking (R_{it}), I employ the sharp RD design to exploit its effect on political radicalism, conditional upon ranking (R_{it}). Specifically, given that the discontinuous jump in the status of CC membership occurs at the cutoff point c of 97, we have

$$AM_{it} = \begin{cases} 1 & \text{if } R_{it} > c \\ 0 & \text{if } R_{it} \leq c \end{cases}.$$

To allow for an easier interpretation of the empirical results, I normalize ranking as a function of $r_{it} = \frac{R_{it} - c}{c}$, which allows the function of membership status to be written as:

$$AM_{it} = \begin{cases} 1 & \text{if } r_{it} > 0 \\ 0 & \text{if } r_{it} \leq 0 \end{cases} \tag{2}$$

and the RD estimates to be constructed as:

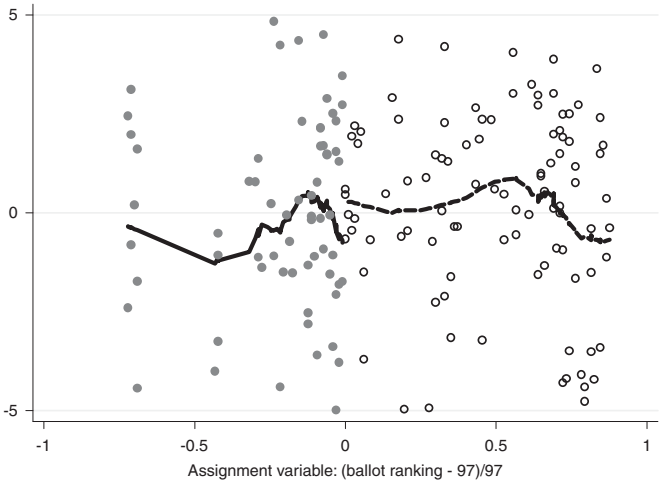
$$\begin{aligned} EPR_{it} &= AM_{it}EPR_{it}(1) + (1 - AM_{it})EPR_{it}(0) \\ &= \begin{cases} EPR_{it}(1) \\ EPR_{it}(0) \end{cases} = \begin{cases} \beta \cdot 1 + f_1(r_{it}) + X_{it}\gamma + Z_{it}\rho + \alpha_i + \lambda_t + \upsilon_{it} & \text{if } r_i > 0 \\ \beta \cdot 0 + f_0(r_{it}) + X_{it}\gamma + Z_{it}\rho + \alpha_i + \lambda_t + \upsilon_{it} & \text{if } r_i \leq 0 \end{cases}. \end{aligned} \tag{3}$$

Assuming that $f_0(r_{it})$ and $f_1(r_{it})$ are continuous in the neighborhood of zero (a standard assumption of the RD design), we can also rewrite Equation 3 as:

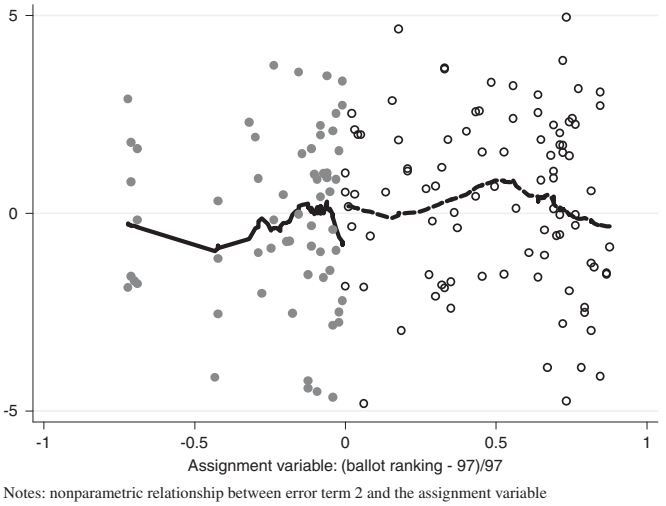
$$EPR_{it} = \beta \cdot AM_{it} + f_1(r_{it}) + [f_1(r_{it}) - f_0(r_{it})] \cdot AM_{it} + X_{it}\gamma + Z_{it}\rho + \alpha_i + \lambda_t + \upsilon_{it}.$$

Figure 3 visually previews the RD results by plotting the bivariate relationship between the degree of radicalism for the period 1957–65 and ballot ranking. As explained earlier, the fitted values are obtained from nonparametric regressions using Cleveland's (1979) tricube weighting function and a bandwidth of 0.5 estimated separately for observations on either side of the cutoff value.[29] The fitted values thus represent the moving average of excessive grain procurement across the entire range of ballot rankings; the scattered data points represent the various levels of political radicalism of individual CC members.

[29] This is done by first running a regression of the specification $EPR_{it} = X_{it}\gamma + Z_{it}\rho + \alpha_i + \lambda_t + \upsilon_{it}$ to obtain the error term.



Notes: nonparametric relationship between error term 1 and the assignment variable



Notes: nonparametric relationship between error term 2 and the assignment variable

Fig. 3. The relationship between ballot ranking and excessive grain procurement ratio

Figure 3 presents clear evidence that the AMs tended to procure more grain.[30] An especially convincing feature of the graph is that it provides clear evidence of a *discontinuous* increase in grain procurement at the juncture r_i=0. This jump is meaningful, as it seems improbable for other determinants of grain procurement to change as suddenly at the cutoff point as membership status.[31]

[30] One should not attribute this systematic difference to the argument that, because of their lower status the AMs were unable to accurately assess the correct amount of grain output (and, accordingly, procurement). While they may differ in their CC membership status, both FMs and AMs were first party secretaries of provinces, and thus had the same access to information pertaining to grain production.

[31] In the Appendix, I compare the nonparametric and parametric estimations.

Now turning to the estimations, although nonparametric techniques are advantageous in that they do not rely on the assumption of functional forms, the small size of our sample obligates us to employ parametric estimations instead. As Lee and Lemieux (2010) suggest, a simple way of relaxing the linearity assumption in parametric estimations when the true functional form is unknown is to "include polynomial functions of X in the regression model" (316). We thus model f_0 (r_{it}) and f_1 (r_{it}) as functions with varying degrees of polynomials, and rewrite Equation 3 as:

$$\begin{aligned} E(EPR_{it}|AM_{it}=0) &= \psi_{01}r_i + \psi_{02}r_i^2 + \cdots + \psi_{0p}r_i^p + X_{it}\gamma + Z_{it}\rho + \alpha_i + \lambda_t + \upsilon_{it} \\ E(EPR_{it}|AM_{it}=1) &= \psi_{11}r_i + \psi_{12}r_i^2 + \cdots + \psi_{1p}r_i^p + X_{it}\gamma + Z_{it}\rho + \alpha_i + \lambda_t + \upsilon_{it} \end{aligned} \tag{4}$$

and the regression model as:

$$EPR_{it}=\beta \cdot AM_{it} + \sum_{j=1}^{P}(\kappa_{0j}r_{it}^j + \kappa_j^* r_{it}^j AM_{it}) + X_{it}\gamma + Z_{it}\rho + \alpha_i + \lambda_t + \upsilon_{it}, \tag{5}$$

where $\kappa_{0j}=\psi_{0j}$ and $\kappa_j^* = \psi_{1j} - \psi_{0j}$. In the case of polynomial regressions, the key question concerns the choice of the order of the polynomial regressions, which can be decided using the Akaike information criterion (AIC) of model selection. In the RD context, AIC is given by $nln(\widehat{\sigma}^2)+2(P+1)$, where $\widehat{\sigma}$ is the mean squared error of the regression and P is the number of parameters in the regression model (order of the polynomial) (Lee and Lemieux 2010). The AIC can be minimized by choosing P.

Empirical Results

Baseline results. Model 1 of Table 3 (the upper panel) examines the robustness of the polynomial r_{it} by means of six specifications. Columns 1–6 report the results that include AM_{it}, the first through to the sixth-order polynomials of r_{it}, and the interactions between AM_{it} and the polynomials of various orders—linear ($P=1$), quadratic ($P=2$), cubic ($P=3$) and so on. We also report the AIC statistics for all the specifications. The optimal order of polynomial, which can be decided by minimizing the AIC, is four, implying that it is necessary to control for the quartic polynomial and its interactions with AM_{it}. That the fourth-order polynomial is optimal can easily be seen from the fact that the AIC that controls for the cubic polynomials and their interactions with AM_{it} (Column 3) is only trivially larger (by implication of the AIC) than the one controlling for a higher-order polynomial (Column 4), and that the estimated effects of AM_{it} are strikingly similar between these two specifications. Conversely, the models with lower-order polynomials are suboptimal because they result in significantly smaller estimates and larger AICs (Columns 1 and 2). Overall, the robustness of our estimations is borne out by the fact that AM_{it} continues to exhibit a highly significant and positive effect on the excessive grain procurement ratio even in estimations that include higher-order polynomials and their interactions with AM_{it} (Columns 5–6), suggesting that our results are not sensitive to the order of the polynomial. In terms of magnitude, the RD estimate yields a coefficient of 8.734 (Column 4, Table 3)—more than three times the estimate of the fixed-effects model (2.826, Column 7, Table 2). To verify that these results are not confounded by the individual characteristics of the provincial leaders, I dropped all the personal characteristics in Model 2 (Table 3), and found that the results changed only trivially (compare, for example, the coefficient of 8.986 with 8.734 in Column 4 of the two models)—the former is larger by a mere 0.25.

TABLE 3 *Regression Discontinuity Estimations of Alternate Members' Political Radicalism*

	(1)	(2)	(3)	(4)	(5)	(6)
Model 1:						
AM	3.561**	4.158**	8.532***	8.734***	8.508***	8.206***
	(1.405)	(1.709)	(2.548)	(2.816)	(2.366)	(2.289)
Personal characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Provincial characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	176	176	176	176	176	176
No. of provinces	22	22	22	22	22	22
R-squared	0.58	0.58	0.60	0.60	0.60	0.61
AIC	946.09	947.39	940.37	940.31	941.99	940.76
Model 2:						
AM	3.419**	4.344**	8.008***	8.986***	8.736***	8.289***
	(1.627)	(1.608)	(2.056)	(2.587)	(2.226)	(2.068)
Personal characteristics	No	No	No	No	No	No
Provincial characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	176	176	176	176	176	176
No. of provinces	22	22	22	22	22	22
R-squared	0.57	0.58	0.60	0.60	0.60	0.61
Assign.	Yes	Yes	Yes	Yes	Yes	Yes
Assign.2		Yes	Yes	Yes	Yes	Yes
Assign.3			Yes	Yes	Yes	Yes
Assign.4				Yes	Yes	Yes
Assign.5					Yes	Yes
Assign.6						Yes
AM*All polynomials of assign.	Yes	Yes	Yes	Yes	Yes	Yes

Note: robust standard errors in parentheses. *significant at 10%; **significant at 5%; ***significant at 1%. Constant terms are included but not reported. Control variables include all control variables in Column 4 of Table 2.

Given that the RD results may be sensitive to the choice of bandwidth, I replicate our estimations using different bandwidths to ensure that our baseline results are robust.[32] I do so by using the alternative bandwidths of (−0.4,0.4), (−0.5,0.5), (−0.6,0.6), (−0.7,0.7) and (−0.8,0.8), based on the specification in Column 4 of Table 3 (Model 1). These checks show that the estimates do not change systematically with the change in bandwidth. In particular, compared with the estimates based on the whole sample (8.734 in Column 4 of Table 3), the magnitudes of the coefficient (of AM) fall within a remarkably close range of that using the original bandwidth (see Appendix Table A7 for details).

Robustness check. A concern arises, however, if the probability of receiving the treatment does not change from 0 to 1 at the threshold, in which case we need a design

[32] Given that the optimal bandwidth is highly sensitive to the selection of the polynomials' order, the small size of our sample precludes us from adhering closely to the methods of selecting the optimal bandwidth as discussed in Imbens and Lemieux (2008). As a compromise, I use a range of different bandwidths to check the robustness of my results instead.

that allows for a smaller jump in the probability at the threshold (Imbens and Lemieux 2007). Table A6 indeed shows that "compliance" with the institutional rules and mechanisms is less than perfect—that is, while some AMs were already ranked 97th before 1966 (for example, Wei Guoqing in 1961 and Ye Fei in 1965), they did not officially become FMs until August 1966 (the 9th National Congress). This time lag before an individual was granted full membership implies that the treatment in question is less than 1 ($r_i \leq 0$), which suggests that it is necessary to check the robustness of our previous estimates using the fuzzy RD design.[33] We thus assume in this context that the probability of being an AM is smaller than 1, as specified in Equation 6:

$$P(AM_{it}) = \begin{cases} 1 & \text{if } r_{it} > 0 \\ F & \text{if } r_{it} \leq 0 \end{cases}. \tag{6}$$

We also assume that alternate membership can be written as:

$$E(AM_{it}) = \phi \cdot D_{it} + \sum_{j=1}^{P} (\varphi_{0j} r_{it}^{j} + \varphi_{j}^{*} r_{it}^{j} D_{it}) + X_{it}\Omega + Z_{it}\theta + \alpha_i + \lambda_t, \tag{7}$$

where D_{it} is a dummy variable indicating a ranking lower than the cutoff value, namely $r_i > 0$. The most straightforward method of estimating Equation 7 is to regress AM_{it} on D_{it} and a set of control variables first, followed by regressing the excessive procurement ratio on the predicted values of AM_{it} and the same set of control variables. The results are reported in Table 4. Specifically, AM_{it} remains significant after controlling for the cubic and quartic polynomials and their interactions with AM_{it} (Columns 1 and 2). Their magnitudes, which are bound between 7.911 and 7.985, are only slightly smaller than the baseline results of 8.532 and 8.734 (Columns 3 and 4 in Table 3). As Ye Fei and Wei Guoqing were not promoted until several years after they reached the threshold (see Table A6), to ensure that our results are not driven by these two special cases I dropped them from the analysis. Columns 3 and 4 of Table 4, which reports these alternative results, show that the effect of AM_{it} now becomes 8.638, which is strikingly similar to the pertinent coefficient of 8.734 in Table 3 (Column 4). The result of the fuzzy RD estimation thus confidently reaffirms the baseline results.

The RD approach requires the identifying assumption that, except for the assignment variable, all outcomes must vary smoothly at the cutoff point (that is, they have to be continuous). Suppose W^1 and W^0 represent the potential outcomes in the two groups with $AM_{it}=1$ and $AM_{it}=0$, respectively. Then $E(W^1 \mid x,Z)$ and $E(W^0 \mid x,Z)$ must be continuous at the cutoff point. I evaluate this assumption in the Appendix, and find that AM_{it} is uncorrelated with any of the control variables including *Age*, *Years of Party Membership*, *Education* (a proxy for competence), and *Long March Experience* and *AJMPU* (proxies for revolutionary credentials) (see Table A8). Moreover, even with the inclusion of *Education*, *Long March Experience* and *AJMPU*, the effect of AM_{it} remains highly significant (see Appendix Table A9).[34]

[33] For a detailed discussion of the two kinds of RD design, see Imbens and Lemieux (2007) and Lee and Lemieux (2010).

[34] In Appendix Table A8, I also divide the provincial leaders with Long March experience into three groups—depending on their affiliation during the March (First Front, Second Front or Fourth Front Army), as the political status ultimately bestowed on them differed according to this affiliation. Likewise, given that some provincial leaders worked or studied at the main campus of Yan'an of the AJMPU, whereas others did so at other (less prestigious) campuses, we also distinguish between the two. The results

TABLE 4 *Regression Discontinuity Estimations: Robustness Checks*

	Two-stage Least Squares		Drop Special Cases	
	(1)	(2)	(3)	(4)
Model 1:				
AM	7.911*	7.985*	8.487***	8.638***
	(3.961)	(4.700)	(2.705)	(2.781)
Personal characteristics	Yes	Yes	Yes	Yes
Provincial characteristics	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Observations	176	176	171	171
No. of provinces	22	22	22	22
R-squared		0.73	0.60	0.60
Model 2:				
AM	8.135**	7.921**	8.209***	8.818***
	(3.861)	(3.661)	(2.287)	(2.606)
Personal characteristics	Yes	Yes	No	No
Provincial characteristics	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes
Observations	176	176	171	171
No. of provinces	22	22	22	22
R-squared	0.73	0.73	0.60	0.60
Assign.	Yes	Yes	Yes	Yes
Assign.2	Yes	Yes	Yes	Yes
Assign.3	Yes	Yes	Yes	Yes
Assign.4		Yes		Yes
AM*All polynomials of assign.	Yes	Yes	Yes	Yes

Note: robust standard errors in parentheses. *significant at 10%; **significant at 5%; ***significant at 1%. Constant terms are included but not reported. Control variables include all control variables in Column 4 of Table 2.

Placebo test. Although the above robustness check confirms that membership status has no significant effect on W_i (comprising age, years of party membership, and education and revolutionary credentials), and that it remains significant even after controlling for these variables, there may still be other unobserved changes around the cutoff value. To rule out this possibility, I perform a placebo test by changing the discontinuity threshold.[35] If doing so does not alter our previous results, we can be more confident of our RD estimates. We assume, for instance, that the discontinuous jump in the status of CC membership occurs at points other than 97. We then have

$$C_{it} = \begin{cases} 1 & \text{if } R_{it} > c \\ 0 & \text{if } R_{it} \leq c \end{cases},$$

(F'note continued)
of fine-tuning these control variables are the same as those for which the same distinctions have not been made: AM is still not significantly correlated with any of these controls.

[35] I thank Gary King for this suggestion.

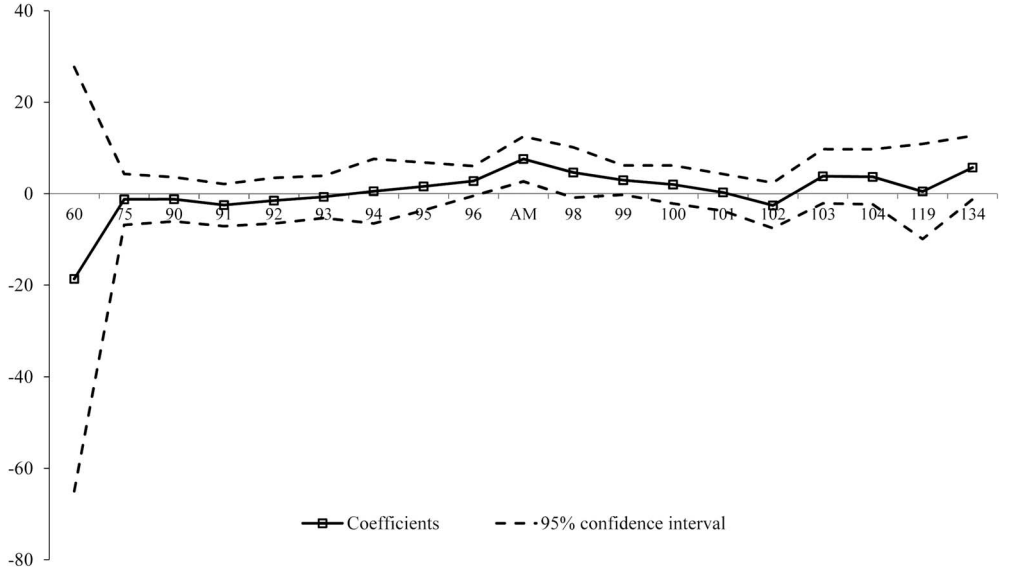


Fig. 4. Placebo test: effect of changing the discontinuity threshold

in which I assume that c=90,93,…96 and 98,99, …104. Similarly, I normalize ranking as a function of $r_{it} = \frac{R_{it}-c}{c}$, which allows the function of membership status to be written as

$$C_{it} = \begin{cases} 1 & \text{if } r_{it} > 0 \\ 0 & \text{if } r_{it} \leq 0 \end{cases}$$

and the RD estimates to be constructed as

$$EPR_{it} = \beta \cdot C_{it} + \sum_{j=1}^{P}(\kappa_{0j} r_{it}^{j} + \kappa_{j}^{*} r_{it}^{j} C_{it}) + X_{it}\gamma + Z_{it}\rho + \alpha_i + \lambda_t + \upsilon_{it}. \quad (8)$$

I plot the estimates of β in Figure 4 along the x-axis according to different thresholds. The results show that the effect of other cutoff values is not significant: only discontinuity at the cutoff point of 97 has a significant effect on grain procurement, which suggests that the RD approach does capture the effect of the membership assignment rule instead of other unobserved changes. To check the robustness of this result, I further assume that c takes on other, more extreme, values—specifically 60, 75, 119 and 134. The results show that the effects of these arbitrary cutoff values are not significant. Moreover, for cutoff values that are substantially smaller than 97 (for example, 60), the standard deviation becomes considerably larger due to the drastically reduced number of observations around this cutoff value.

EFFECTS OF CAREER INCENTIVES ON THOSE RANKING NEAR THE THRESHOLD

The Discontinuous Jump in Political Radicalism between AMs and FMs

A unique feature of the RD design is that, instead of measuring the average effect of the explanatory variable on the dependent variable, it measures the marginal effects, because

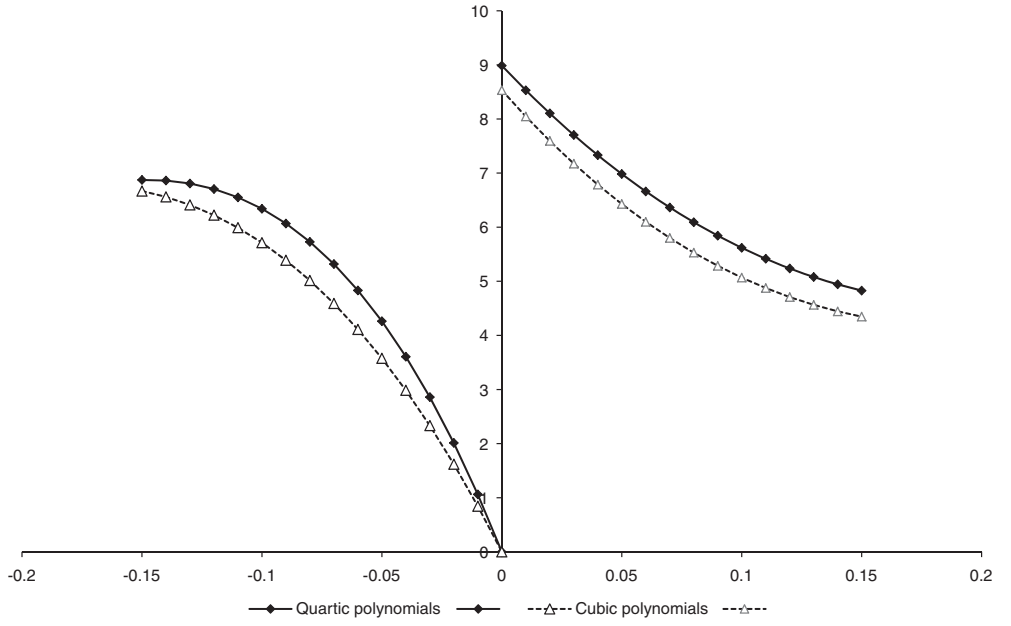


Fig. 5. Degree of political radicalism, by ballot ranking

RD is concerned with the effects of only those values lying around the discontinuous threshold. This can be illustrated by Equation 9, which is rewritten from Equation 5:

$$\begin{aligned} EPR_{it} &= \overline{\beta} \cdot AM_{it} + \sum_{j=1}^{P} \kappa_{0j} r_{it}^{j} + X_{it}\gamma + Z_{it}\rho + \alpha_i + \lambda_t + \upsilon_{it} \\ &= \left(\beta + \sum_{j=1}^{P} \kappa_j^{*} r_{it}^{j} \right) AM_{it} + \sum_{j=1}^{P} \kappa_{0j} r_{it}^{j} + X_{it}\gamma + Z_{it}\rho + \alpha_i + \lambda_t + \upsilon_{it} \end{aligned} . \quad (9)$$

While the fixed-effects model (first line in Equation 9) estimates $\bar{\beta}$ without controlling for any polynomials of the assignment variable,[36] the RD measures, in this instance, the effect of membership status (allocated on the basis of ballot ranking) around the threshold that separates the AMs from the FMs, β, on excessive grain procurement (second line in Equation 9). This explains why the magnitude of AM_{it}, according to the RD estimate (8.734, Column 4, Table 3), is so much larger than the fixed-effects estimate (2.826, Column 7, Table 2).

To illustrate this unique property of the RD design in our context of interest, I plot the coefficients of the term $\left(\left(\beta + \sum_{j=1}^{P} \rho \kappa_j^{*} r_{it}^{j} \right) AM_{it} + \sum_{j=1}^{P} \kappa_{0j}^{*} r_{it}^{j} \right)$ in Figure 5 based on the results in Table 3 (Column 4). The x-axis measures the ballot ranking of the CC members using the normalized term $\frac{R_{it} - c}{c}$, whereas the y-axis measures the degree of radicalism. The solid, vertical line in the middle represents the cutoff point that separates AMs and FMs;

[36] I ran a regression based on $EPR_{it} = \overline{\beta} \cdot AM_{it} + \sum_{j=1}^{P} \kappa_{0j} r_{it}^{j} + X_{it}\gamma + Z_{it}\rho + \alpha_i + \lambda_t + \upsilon_{it}$, and found that the effect of the variable AM is 2.774, which is similar to the baseline result of 2.826 (Column 7, Table 2).

specifically, it represents the degree of radicalism of the AMs to the right and the degree of radicalism of the FMs to the left. A striking feature of Figure 5 is that political radicalism experiences a discontinuous jump as the ballot ranking turns from positive (to the right of the vertical line) to negative (to the left)—a feature that confirms that the difference in the degree of political radicalism between FMs and AMs is driven by the difference in membership status.[37]

Specifically, Figure 5 reveals that, in the case of AMs, those who came closest to the cutoff point (of 97) are indeed the most radical. Being on the verge of promotion, these CC members hardly needed any persuasion from Mao to toe his line. But radicalism declines in tandem with the decrease in ranking (reflected in the increase in ballot ranking), suggesting that those with significantly lower rankings saw little hope of promotion. In sharp contrast to the highest-ranked AMs, FMs who only just made it are the least radical, for they must have anticipated only a small likelihood of promotion to the Politburo and so had distinctly weaker incentives to procure more grain. Consistent with the logic discussed earlier, however, radicalism rises in tandem with ranking. These patterns of relationship are highly robust: the shapes of the curves are strikingly similar regardless of the order of the polynomials (cubic and quartic) used.

Countering Political Complacency: Mao Strikes Back

Our findings so far are seemingly inconsistent with the fact that the best-known Leap radicals (the so-called four radical kings: Li Jingquan (ranked 89 in 1958) of Sichuan Province, Ke Qingshi (35, an exception to being a lowly ranked FM) of Shanghai, Wu Zhipu (90) of Henan Province and Zeng Xisheng (94) of Anhui Province—were all FMs.[38] Moreover, while these "radical kings" were indeed ranked just above the cutoff point in 1958, they were anything but passive watchers of the Leap. Yet it takes more than half a dozen zealous provincial leaders to fire all the cylinders of the Leap. Realizing that many of these leaders, if left to themselves, would likely have rested on their laurels, Mao exercised his exceptional authority and bent the rules of the promotion system in order to more effectively influence and manage the political incentives of China's provincial leaders.[39]

Take Li Jingquan of Sichuan Province, for instance. Although Li managed to climb up the rankings from 91st in 1956 to 89th two years later (by dint of the autopilot mechanism), he was nowhere near the rankings normally needed to be considered for promotion to the Politburo. Li was promoted in May 1958 in part to reward his past efforts and loyalty, but perhaps more importantly because Mao, who had the power to exceptionally promote zealous officials regardless of their ranking, wanted to motivate other lowly ranked FMs to pull their acts together. More importantly, Li's promotion

[37] As the cutoff value of 97 is set equal to zero in Figure 5, ballot ranking below 97 falls into negative territory according to $\frac{R_{it}-c}{c}$.

[38] Of course the number of radicals was by no means limited to four, but these are the household names. The other better-known ones, a notable example being Tao Zhu of Guangdong Province, were also FMs (Tao was ranked 93rd in the CC) (Chen 1998).

[39] Not everyone agrees with the political career incentives story, however. Shih, Adolph and Liu (2012, 167), for example, find no evidence that provinces' exceptional economic performance significantly changed the status of the responsible chiefs in the party's internal hierarchy. They claim, instead, that China's top leaders used promotion to "maintain cadres' human capital" and "cultivate factions." Their claim, however, may not apply to the Chinese political context of the 1950s, as it was a powerful dictator instead of an oligarchy of independent power centers that dominated the political landscape during that period.

was not done in isolation, but arranged jointly with two other radicals—Ke Qingshi (ranked 35th) and Tan Zhenlin (ranked 69th)—which would have sent a loud and clear message to the less-motivated FMs that loyalty to Mao would be duly rewarded. The importance of promoting Li was also noted outside of Sichuan Province, because, in addition to being the first party secretary of Sichuan, he was also in charge of the Southwest bureau apparatus (*Xinan Ju*), which included the provinces of Yunnan and Guizhou. Li's extraordinarily radical behavior in spearheading the Leap had likely put enormous pressure on the leaders of the other two provinces to keep up.[40]

Wu Zhipu of Henan Province is another case in point. Although Wu, who ranked 90th in 1958 (just behind Li), was not as lucky as his Sichuan counterpart, he was still "promoted" from second (i.e., governor) to first party secretary, similarly shortly before the launching of the Great Leap. His otherwise trivial political ascendancy takes on unusual importance in the Leap's context, because Mao had designated Henan Province the "national model" province against which all other Chinese provinces should compare themselves.[41]

CONCLUSION

A distinguishing hallmark of China's Great Leap Famine, the worst man-made famine in history, is that excess death rates were highly correlated with the political attitudes of the provincial leaders, which varied enormously across the country. Recent work suggests that, instead of attributing such variations to personal idiosyncrasies, a more fruitful approach is to make sense of the observed variations in political radicalism by examining the varying strengths of career incentives embedded in the structure of China's *nomenklatura* system (Kung and Chen 2011). By exploiting the discontinuity in the assignment of AM vs. FM membership status to identify its causal effect on political radicalism using an RD design, I showed that the fixed-effects model grossly underestimated the effect of membership status by more than three times. This enormous difference can be attributed to the fact that the RD estimator measures only the differences in political radicalism between those AMs and FMs who ranked close to the discontinuous threshold, and thus captures the marginal rather than average effects between the two discrete groups. The RD results do show that there is a sudden jump in political radicalism as the ballot ranking crosses the cutoff value, or as membership changes from AM to FM.

Although my finding that the lowest-ranked FMs were the least radical may contradict the fact that the best-known radicals belonged to just such a category, I pointed out the lesser-known fact that at least one of the four best-known radicals had been exceptionally promoted to the Politburo in spite of his low ranking. A reasonable conjecture of this important decision is that Mao may have used these unusual promotions to counteract

[40] In fact, the two leaders would have felt enormous pressure indeed. Zhou Lin of Guizhou Province was ranked 12th and Xie Fuzhi of Yunnan Province was ranked 8th in 1959. Moreover, unlike Sichuan, a province with extremely fertile land (at least in the Chengdu plain) and which, historically, had been China's main grain producer, Guizhou had disproportionately little cultivable land and was essentially a poor and backward border area before 1949 (and even today)—features that rendered Guizhou unlikely to pursue political radicalism. For a detailed comparison of the two provinces before and during the Great Leap Forward, see Goodman (1986).

[41] The symbolic significance of Henan is clearly evident in the growing intensity of visits that Mao and many central dignitaries paid to this province a few months before the Great Leap was officially launched (Domenach 1995).

the rigid autopilot mechanism of the promotion system so that FMs who otherwise had little expectation of promotion (and, accordingly, weak incentives to fuel the Leap) could be stimulated into action. Moreover, given that the variation in the ballot ranking of the CC members is uncorrelated with "personality" (while clearly correlated with membership status), the RD design also helps to correct for the omitted variable bias resulting from the dictator's intended influence on the political dispositions of some local leaders.

In a context in which the Leap's success crucially depended on the efforts of the provincial leaders, and where the most powerful tool at the dictator's disposal to spur the leaders on was promotion and other high-powered incentives, it is difficult to imagine how political career incentives were not an important cause of the extraordinary political radicalism witnessed during this politically tumultuous episode of an authoritarian China (just as they were a primary determinant of the extraordinary economic performance during the last 30 years).

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APPENDIX

TABLE A1 *Construction of Dataset*

Subject	Source
Grain output	*Materials on the Agricultural Economy, 1949–1983*
Total Grain Procurement	Ibid.
Resale Grain to rural areas	Ibid.
First Party Secretary	*Materials on the Organizational History of China's Central Communist Party* *Gazetteer of the Government Officials of the People's Republic of China* *A Compendium of Central Committee Members of Various Plenums, 1921–2003*
Tenure	Ibid.
Personal information	*A Compendium of Central Committee Members of Various Plenums, 1921–2003*; Shih, Shan and Liu (2010)
Votes ranking	Ibid.
Total population	*Comprehensive Statistical Data and Materials on 50 years of New China* Note: some required values on the population of Sichuan Province are missing in the above source, hence I supplement it with *Comprehensive Statistical Data and Materials on 60 years of New China*
Rural population	Ibid. Note: values for Sichuan and Neimenggu are interpolated based on linear trends since they are missing.
Total arable land	Ibid. Note: the data of Hubei and Sichuan are collected from *Comprehensive Statistical Data and Materials on 60 years of New China*
Areas covered by natural calamities	Ibid.
Total GDP	Ibid.
Total GDP: primary industry	Ibid.
Per Capita GDP	Ibid.
Total Party members	*Materials on the Organizational History of China's Central Communist Party*, by province For Yunnan and Gansu provinces, the numbers of party members are collected from the fifth volume of *Materials on the Organizational History of China's Central Communist Party* Notes: Values for the provinces of Heilongjiang (1962), Shandong (1960–61), Henan (1957–64), Yunan (1957–64), Gansu (1955–59; 1961–63), and Ningxia (1955–57) are interpolated based on linear trends since they are missing.

TABLE A2 *The First Party Secretaries of the Sample Provinces*

Province	From		To		First Party Secretary	Province	From		To		First Party Secretary
	Year	Month	Year	Month			Year	Month	Year	Month	
Hebei	1949	7	1966	8	Lin Tie	Guangdong	1955	7	1965	2	Tao Zhu
Shanxi	1952	12	1965	8	Tao Lujia	Guangdong	1965	2	1966	n/a	Zhao Ziyang
Shanxi	1965	8	1967	1	Wei Heng	Guangxi	1953	5	1957	6	Chen Manyuan
Neimenggu	1949	11	1966	8	Wu Lanfu	Guangxi	1957	6	1960	4	Liu Jianxun
Liaoning	1954	8	1958	6	Huang Oudong	Guangxi	1960	4	1960	10	Wei Guoqing
Liaoning	1958	6	1967	1	Huang Huoqing	Guangxi	1960	10	1961	7	Liu Jianxun
Jilin	1955	3	1966	6	Wu De	Guangxi	1961	7	1966	8	Wei Guoqing
Jilin	1966	6	1971	3	Zhao Lin	Sichuan	1954	12	1965	2	Li Jingquan
Heilongjinag	1954	7	1965	10	Ouyang Qin	Sichuan	1965	2	1967	1	Liao Zhigao
Heilongjinag	1965	10	1967	1	Pan Fusheng	Guizhou	1954	12	1964	10	Zhou Lin
Jiangsu	1954	8	1957	1	Jiang Weiqing	Guizhou	1964	11	1965	4	Li Dazhang
Jiangsu	1957	1	1962	12	Liu Shunyuan	Guizhou	1965	4	1967	11	Jia Qiyun
Jiangsu	1962	12	1970	12	Jiang Weiqing	Yunan	1952	7	1959	8	Xie Fuzhi
Zhejiang	1954	5	1971	1	Jiang Hua	Yunan	1959	8	1967	1	Yan Hongyan
Anhui	1952	1	1962	2	Zeng Xisheng	Shaanxi	1954	10	1964	11	Zhang Desheng
Anhui	1962	2	1971	1	Li Baohua	Shaanxi	1964	11	1965	10	Hu Yaobang
Fujian	1954	10	1967	5	Ye Fei	Shaanxi	1965	10	1967	1	Huo Shilian
Jiangxi	1952	11	1967	n/a	Yang Shangkui	Gansu	1954	6	1961	1	Zhang Zhongliang
Shandong	1954	8	1960	10	Shu Tong	Gansu	1961	1	1967	2	Wang Feng
Shandong	1960	11	1961	4	Zeng Xisheng	Qinghai	1954	7	1961	8	Gao Feng
Shandong	1961	4	1966	5	Pan Qilong	Qinghai	1961	8	1962	11	Wang Zhao
Henan	1952	11	1958	8	Pan Fusheng	Qinghai	1962	11	1966	12	Yang Zhilin
Henan	1958	8	1961	7	Wu Zhipu	Ningxia	1952	12	1954	7	Li Jinglin
Henan	1961	7	1966	9	Liu Jianxun	Ningxia	1954	7	1958	3	Zhang Zhongliang
Hubei	1954	5	1966	5	Wang Renzhong	Ningxia	1958	3	1961	1	Wang Feng
Hunan	1953	11	1959	9	Zhou Xiaozhou	Ningxia	1961	1	1966	n/a	Yang Jingren
Hunan	1959	9	1967	8	Zhang Pinghua	Xinjiang	1949	10	1956	5	Wang Zhen
Guangdong	1949	8	1955	7	Ye Jianying	Xinjiang	1956	5	1971	5	Wang Enmao

TABLE A3 *Robustness Check (Excluding Xinjiang Province)*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
AM	2.210**	3.108**	2.662**	2.680**		9.824***	11.597**
	(0.837)	(1.231)	(1.197)	(1.173)		(3.061)	(5.228)
NM	1.759	0.802	0.424	0.971			
	(1.432)	(2.180)	(2.118)	(1.625)			
AM and NM					2.553**		
					(1.202)		
Age		0.690**	0.603**	0.317	0.234		0.356
		(0.273)	(0.288)	(0.224)	(0.242)		(0.448)
Party membership (Years)		−0.565***	−0.578**	−0.401	−0.276		−0.116
		(0.193)	(0.224)	(0.243)	(0.210)		(0.293)
MAG_{-1}			1.692	1.365	1.282	1.791*	1.689
			(2.112)	(1.398)	(1.321)	(1.030)	(1.252)
$NDCs_{-1}$			−0.004	0.013	0.012	0.023	0.020
			(0.021)	(0.024)	(0.023)	(0.029)	(0.028)
The share of $agriculture_{-1}$				0.244***	0.251***	0.343***	0.323***
				(0.066)	(0.068)	(0.092)	(0.097)
$Ln(per\ capita\ GDP)_{-1}$				2.884	3.000	4.478	3.464
				(5.803)	(5.803)	(5.484)	(6.090)
PMD				−5.534**	−5.502**	−2.928	−2.412
				(2.598)	(2.534)	(3.174)	(3.096)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	216	216	212	210	210	167	167
Number of provinces	24	24	24	24	24	21	21
R-squared	0.50	0.52	0.52	0.56	0.56	0.61	0.61

Note: robust standard errors in parentheses. Constant terms are included but not reported.
*significant at 10%; **significant at 5%; ***significant at 1%.

TABLE A4 *Robustness Check: Subdividing the Sample between 1958–61 and 1962–65*

	1958–61				1962–65			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
AM	3.666**	4.869***	4.505***	4.174***	0.042	−2.372	−1.782	−2.261
	(1.671)	(0.493)	(0.501)	(0.795)	(0.661)	(1.809)	(2.102)	(1.985)
NM	5.537*	5.939***	5.482**	4.817**	0.734	−21.924	−18.413	−18.381
	(2.691)	(1.898)	(1.983)	(2.109)	(0.808)	(14.408)	(16.095)	(14.565)
Age		1.049***	0.931***	0.765***		2.320*	2.048	2.060
		(0.192)	(0.245)	(0.258)		(1.301)	(1.448)	(1.288)
Party membership (Years)		−0.711***	−0.862***	−0.907***		−3.718	−3.149	−3.095
		(0.151)	(0.122)	(0.159)		(2.329)	(2.601)	(2.353)
MAG_{-1}			2.895*	4.535***			6.540	3.683
			(1.477)	(1.304)			(5.457)	(5.659)
$NDCs_{-1}$			−0.004	0.005			0.051*	0.058**
			(0.031)	(0.032)			(0.025)	(0.027)
The share of $agriculture_{-1}$				0.389***				0.123
				(0.128)				(0.112)
$Ln(per\ capita\ GDP)_{-1}$				−10.956*				3.356
				(5.702)				(5.240)
PMD				−10.265**				−11.289
				(4.074)				(6.619)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	125	125	123	123	100	100	98	96
Number of provinces	25	25	25	25	25	25	25	25
R-squared	0.50	0.54	0.55	0.65	0.07	0.16	0.20	0.25

Note: robust standard errors in parentheses. Constant terms are included but not reported.
*significant at 10%; **significant at 5%; ***significant at 1%.

TABLE A5 *Rankings of Politburo Members, Internally Ranked Versus Ballot Ranked*

	Ranked by FMs	Ranked by Ballot
Mao Zedong	1	1
Liu Shaoqi	2	2
Zhou Enlai	3	6
Zhu De	4	5
Chen Yun	5	8
Deng Xiaoping	6	4
Lin Biao	7	9
Lin Boqu	8	3
Dong Biwu	9	7
Chen Yi	10	21
Luo Ronghuan	11	14
Li Fuchun	12	13
Peng Zhen	13	29
Peng Dehuai	14	22
He Long	15	37
Liu Bocheng	16	20
Li Xiannian	17	24

Source: Organization Department 2004.

TABLE A6 *Rankings (Based on Ballot) of the Provincial Leaders in the Central Committee of the Chinese Communist Party, 1956–66*

					Year of Ballot Ranking							
	1957		1958		1959	1960	1961	1962	1963	1964	1965	
Name		Membership in 1957		Membership in 1958								Membership in 1966
Wu Lanfu	30	FM	30	FM	30	29	28	28	28	27	27	FM
Shu Tong	56	FM	56	FM	56	55	54	53	53	52	51	FM
Li Baohua	73	FM	72	FM	72	71	70	69	69	68	66	FM
Lin Tie	77	FM	76	FM	76	75	74	73	73	72	70	FM
Hu Yaobang	81	FM	80	FM	80	79	78	77	77	76	74	FM
Ouyang Qin	83	FM	82	FM	82	81	80	79	79	78	76	FM
Xie Fuzhi	86	FM	85	FM	85	84	83	82	82	81	79	FM
Li Jingquan	91	FM	89	FM	89	88	87	86	86	85	83	FM
Wu Zhipu	92	FM	90	FM	90	89	88	87	87	86	84	FM
Tao Zhu	95	FM	93	FM	93	92	91	90	90	89	87	FM
Zeng Xisheng	96	FM	94	FM	94	93	92	91	91	90	88	FM
Wang Enmao	99	AM	97	FM	97	96	95	94	94	93	91	FM
Wei Guoqing	101	AM	99	AM	99	98	97	96	96	95	93	FM
Ye Fei	105	AM	103	AM	103	102	101	100	100	99	97	FM
Huang Huoqing	119	AM	117	AM	117	116	115	114	114	112	110	AM
Huang Oudong	124	AM	122	AM	122	121	120	119	119	117	115	AM
Wu De	131	AM	129	AM	129	128	127	126	126	123	121	AM
Zhang Desheng	133	AM	131	AM	131	130	129	128	128	125		AM
Yan Hongyan	145	AM	143	AM	142	141	140	139	139	136	132	AM
Jiang Weiqing	154	AM	152	AM	151	150	149	148	148	145	141	AM
Tan Qilong	157	AM	155	AM	154	153	152	151	151	148	144	AM
Pan Fusheng	164	AM	162	AM	160	159	158	157	157	154	150	AM
Jiang Hua	166	AM	164	AM	162	161	160	159	159	156	152	AM
Wang Renzhong			169	AM	167	166	165	164	164	161	157	AM
Zhang Zhongliang			170	AM	168	167	166	165	165	162	158	AM
Tao Lujia			171	AM	169	168	167	166	166	163	159	AM
Liu Jianxun			173	AM	171	170	169	167	167	164	160	AM
Wang Feng			180	AM	178	177	176	174	174	171	167	AM
Zhou Xiaozhou			181	AM	179	178	177	175	175	172	168	AM
Zhang Pinghua			185	AM	183	182	181	179	179	176	172	AM

TABLE A6 *(Continued)*

Liao Zhigao	189	AM	187	186	185	183	183	180	176	AM
Yang Zhilin										
Zhou Lin										
Liu Shunyuan										
Gao Feng										
Yang Jingren										
Jia Qiyun										
Yang Shangkui										
Wang Zhao										
Zhao Ziyang										

Note: votes are listed from highest to lowest.

Comparing Nonparametric and Parametric Estimations

The sharply larger coefficient obtained from the parametric estimations raises the concern that this result may be driven by functional form assumptions, even though I have already controlled for varying degrees of polynomials. One plausible reason for the large difference is that the province- and time-specific effects have not been controlled for in the nonparametric estimations. To see whether that is indeed the case, I replace the excessive procurement ratio with the predicted error term based on Equation 1 (that is, without the inclusion of *AM*) and regress it on the membership status of *AM*, the quartic and cubic polynomials (which have the smallest AIC), and their interactions as in the following equation:

$$Error_{it} = \beta \cdot AM_{it} + \sum_{j=1}^{P} (\kappa_{0j} r_{it}^{j} + \kappa_{j}^{*} r_{it}^{j} AM_{it}) + \upsilon_{it}. \tag{10}$$

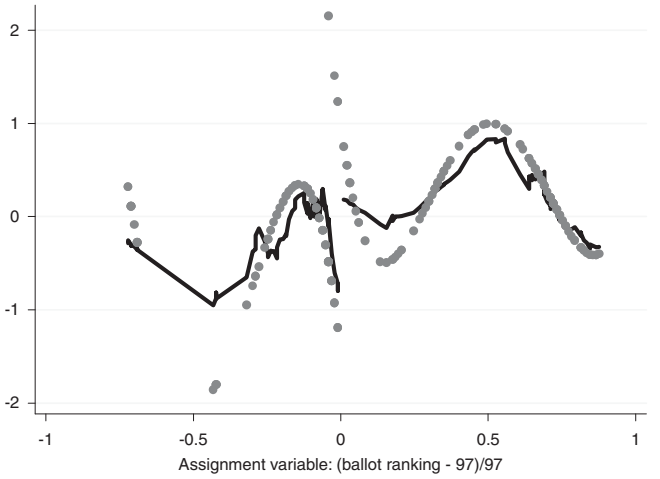
The effect of *AM* is 2.461 in the case of the quartic polynomials and 2.065 in the case of the cubic polynomials, which is much smaller than the results in which province- and time-specific effects are controlled for (Columns 3 and 4 in Table 2). The pertinent coefficient becomes sharply lower with such controls, because some provinces are likely more important than others, and in these provinces the first party secretaries tended to be FMs. Hence including the fixed effects drastically alters the size of *AM*'s coefficient. To prove that there is no major difference between the nonparametric and parametric estimation results, I plot the predicted $Error_{it}$ term (the grey dotted line) over the nonparametric results (the solid black line in Figure 3) in Figure A1.

Bandwidth Selection

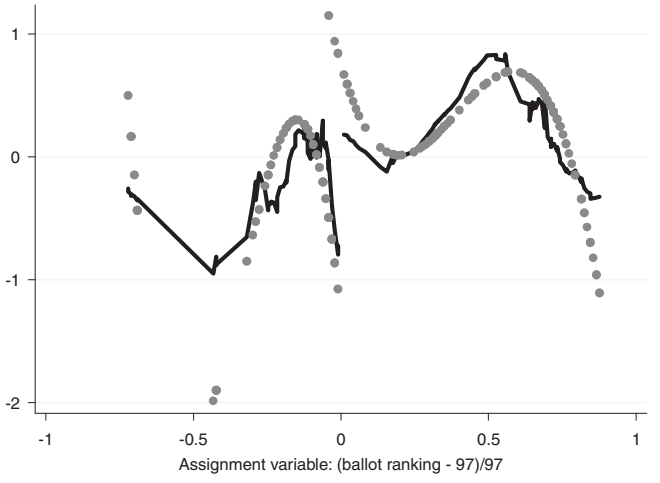
Reported in Columns 1 to 5 of Table A7, the robustness checks begin with a relatively narrow bandwidth to one that covers nearly the entire range. While estimates based on very wide bandwidths (0.7 or 0.8) are larger than those that rely on the narrowest bandwidth (0.4), they are smaller than the ones that use bandwidths in the middle (0.5 or 0.6), suggesting that the estimates do not change systematically with the change in bandwidth. More importantly, compared with the estimates based on the whole sample (8.734 in Column 4 of Table 3), the magnitude of the coefficient (of AM) does not change significantly (ranging from 7.473 to 9.310) across the various bandwidths. As I have shown in Table 3, I am able to confirm that the results remain stable even when I omit the personal characteristics (Model 2)—they are strikingly similar to those of Model 1. Together, these robustness checks show that the baseline results are not sensitive to bandwidth selection.

Testing the Validity of the RD Design

Suppose W^1 and W^0 represent the potential outcomes in the two groups with $AM_{it} = 1$ and $AM_{it} = 0$, respectively, then $E(W^1 \mid x, Z)$ and $E(W^0 \mid x, Z)$ must be continuous at the cutoff point.



Notes: nonparametric relationship between error term 2 and the assignment variable, with quartic polynomials.



Notes: nonparametric relationship between error term 2 and the assignment variable, with cubic polynomials.

Fig. A1. Nonparametric Versus parametric estimations of the relationship between ballot ranking and excessive grain procurement ratio

To evaluate this assumption, I examine a number of variables that may affect promotion based on the following equation:

$$W_{it}=\beta \cdot AM_{it}+\sum_{j=1}^{P}(\varphi_{0j}r_{it}^{j}+\varphi_{j}^{*}r_{it}^{j}AM_{it})+X_{it}\gamma+Z_{it}\rho+\alpha_i+\lambda_t+\upsilon_{it}, \tag{11}$$

where W_i includes *Age*, *Years of Party Membership*, *Education* (a proxy for competence), and *Long March Experience* and *AJMPU* (proxies for revolutionary credentials). Reported in Table A8, the results show that AM_{it} is insignificant in all the specifications, suggesting that it is indeed uncorrelated with any of the controlled variables.

Perhaps a more intuitive check of the robustness of our estimations is to include these competence and credentials variables on the right-hand side of the RD regressions to see if they have any effect

TABLE A7 *Robustness Check: Regression Discontinuity Estimations Using Different Bandwidths*

	(1) (−0.4, 0.4)	(2) (−0.5, 0.5)	(3) (−0.6, 0.6)	(4) (−0.7, 0.7)	(5) (−0.8, 0.8)
Model 1:					
AM	7.473*	9.310**	9.259**	8.827**	8.665***
	(3.431)	(3.867)	(3.737)	(3.263)	(2.933)
Personal characteristics	Yes	Yes	Yes	Yes	Yes
Provincial characteristics	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes
Observations	99	111	116	135	165
No. of provinces	13	15	15	19	21
R-squared	0.59	0.56	0.55	0.56	0.60
Model 2:					
AM	8.346**	9.581**	9.536**	9.499**	9.139***
	(3.095)	(3.971)	(3.866)	(3.794)	(2.725)
Personal characteristics	No	No	No	No	No
Provincial characteristics	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes
Observations	99	111	116	135	165
No. of provinces	13	15	15	19	21
R-squared	0.58	0.56	0.55	0.55	0.60
Assign.	Yes	Yes	Yes	Yes	Yes
Assign.2	Yes	Yes	Yes	Yes	Yes
Assign.3	Yes	Yes	Yes	Yes	Yes
Assign.4	Yes	Yes	Yes	Yes	Yes
AM × All polynomials of assign.	Yes	Yes	Yes	Yes	Yes

Note: robust standard errors in parentheses. *significant at 10%; **significant at 5%; ***significant at 1%. Constant terms are included but not reported. Control variables include all control variables in Column 4 of Table 2.

TABLE A8 *Testing RD Validity*

	(1)	(2)	(3)	(4)	(5)	(6)
Model 1: Effect on Education (competence)						
AM	−0.153	−0.135	−0.292	−0.277	−0.257	−0.265
	(0.212)	(0.143)	(0.181)	(0.177)	(0.165)	(0.164)
Personal characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Provincial characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	176	176	176	176	176	176
No. of provinces	22	22	22	22	22	22
R-squared	0.31	0.31	0.50	0.61	0.62	0.63
Model 2: Effect on Long March Experience						
AM	−0.283	−0.106	0.095	0.199	0.163	0.174
	(0.400)	(0.198)	(0.215)	(0.145)	(0.155)	(0.152)
Personal characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Provincial characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes

TABLE A8 *(Continued)*

	(1)	(2)	(3)	(4)	(5)	(6)
Observations	176	176	176	176	176	176
No. of provinces	22	22	22	22	22	22
R-squared	0.46	0.64	0.74	0.80	0.82	0.82
Model 2.1: Effect on Long March Experience (1st Front Army)						
AM	0.049	−0.186	−0.131	0.054	0.015	0.039
	(0.371)	(0.270)	(0.260)	(0.172)	(0.169)	(0.156)
Personal characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Provincial characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	176	176	176	176	176	176
No. of provinces	22	22	22	22	22	22
R-squared	0.37	0.57	0.63	0.69	0.71	0.73
Model 2.2: Effect on Long March Experience (2nd Front Army)						
AM	−0.059	0.086	0.201	0.115	0.121	0.121
	(0.105)	(0.083)	(0.147)	(0.088)	(0.081)	(0.084)
Personal characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Provincial characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	176	176	176	176	176	176
No. of provinces	22	22	22	22	22	22
R-squared	0.36	0.42	0.52	0.69	0.70	0.70
Model 2.3: Effect on Long March Experience (4th Front Army)						
AM	−0.273	−0.006	0.026	0.030	0.027	0.014
	(0.182)	(0.118)	(0.103)	(0.064)	(0.072)	(0.069)
Personal characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Provincial characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	176	176	176	176	176	176
No. of provinces	22	22	22	22	22	22
R-squared	0.54	0.64	0.64	0.71	0.72	0.73
Model 3: Effect on Anti-Japanese Military and Political University Experience						
AM	−0.421	−0.444	−0.201	−0.053	−0.094	−0.085
	(0.288)	(0.286)	(0.269)	(0.180)	(0.175)	(0.174)
Personal characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Provincial characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	176	176	176	176	176	176
No. of provinces	22	22	22	22	22	22
R-squared	0.61	0.65	0.72	0.76	0.77	0.77
Model 3.1: Effect on Anti-Japanese Military and Political University Experience (Other Campuses)						
AM	0.112	−0.071	−0.016	0.125	0.102	0.102
	(0.249)	(0.202)	(0.167)	(0.124)	(0.123)	(0.125)
Personal characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Provincial characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	176	176	176	176	176	176
No. of provinces	22	22	22	22	22	22
R-squared	0.49	0.63	0.65	0.72	0.73	0.73

TABLE A8 *(Continued)*

Assign.	Yes	Yes	Yes	Yes	Yes	Yes
Assign.2		Yes	Yes	Yes	Yes	Yes
Assign.3			Yes	Yes	Yes	Yes
Assign.4				Yes	Yes	Yes
Assign.5					Yes	Yes
Assign.6						Yes
D × All polynomials of assign.	Yes	Yes	Yes	Yes	Yes	Yes

Note: robust standard errors in parentheses. *significant at 10%; **significant at 5%; ***significant at 1%. Constant terms are included but not reported.

TABLE A9 *Controlling for Competence and Revolutionary Credentials*

	Quartic Terms of the Assignment Variable						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
AM	6.857***	7.163***	7.800***	8.871***	8.875***	8.614***	9.340***
	(2.311)	(2.150)	(2.581)	(2.935)	(2.947)	(2.733)	(3.102)
Education	−7.244**	−7.829**	−3.375				
	(3.380)	(3.029)	(2.005)				
Long March	−1.687	5.899		−0.684	−0.680		
	(2.231)	(3.885)		(2.403)	(2.419)		
Long March: 4th Front		−16.235**			−0.161		
		(6.129)			(2.131)		
AJMPU	−3.946	−5.108				−2.277	0.806
	(3.052)	(3.514)				(2.536)	(3.998)
AJMPU: other campuses		−12.432**					−4.504
		(4.489)					(4.645)
Assign. polynomials	Yes	Yes	Yes	Yes	Yes	Yes	Yes
AM × Assign. polynomials	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Control Var.	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	176	176	176	176	176	176	176
No. of provinces	22	22	22	22	22	22	22
R-squared	0.62	0.63	0.61	0.60	0.60	0.61	0.61

Note: robust standard errors in parentheses. *significant at 10%; **significant at 5%; ***significant at 1%. Constant terms are included but not reported. AJMPU=Anti-Japanese Military and Politics University.

on AM_{it}. Reported in Table A9, the results show that the effect of AM_{it} remains highly significant in all the specifications, even with the inclusion of these three additional variables. Moreover, it deserves mentioning that both the competence and revolutionary credentials variables are significant in some of the specifications, suggesting that the more educated provincial leaders (those with a college education) and those with greater revolutionary credentials tended to be distinctly less radical in procuring grain.