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The Anti-Corruption Campaign and the Inter-Generational Transmission of Working in Bureaucracy: Evidence from China*

Shuai Chen[†] Erqi Ge[‡]

Abstract

There is a clear and persistent inequality of bureaucratic employment between individuals with a bureaucrat parent and those without. Using the recent anti-corruption campaign in China as a quasi-experiment, we investigate how endeavors for counter-corruption affect inequality and potential cronyism in bureaucratic employment through inter-generational transmission. First, we conduct a difference-in-differences analysis to compare changes in the probability of working in bureaucracy after the campaign came into effect in different provincial administrative divisions of mainland China, between individuals with a bureaucrat parent and those without. We find that before the campaign, bureaucrats' children were over 13 percentage points more likely to work in bureaucracy, and that the positive selection on human capital can explain only 12–25 percent of this advantage of bureaucrats' children. However, after the campaign took effect, this premium significantly reduced by more than 5 percentage points. Moreover, we explore potential mechanisms through which anti-corruption efforts have diminished the inter-generational transmission of bureaucratic employment. We provide evidence that the campaign decreased the economic attractiveness of bureaucratic jobs, and that better outside options are more likely to explain the reduced inter-generational transmission. We do not find evidence supporting other two alternative channels: the insider information of bureaucrat parents on the campaign, or changes in perceptions of bureaucracy.

Keywords: Anti-corruption, Bureaucracy, Inter-generational transmission, Inequality

JEL-codes: D73, H83, O12, P35, D63

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1 Introduction

In many countries, working in bureaucracy (i.e., government or public institutions) yields secure employment, a steady income, and opportunities for rent-seeking. It is thus a preferred occupation for large numbers of people. Individuals with a cadre parent are significantly more likely to also work in bureaucracy (Jia et al., 2021). Moreover, anecdotal evidence suggests that having a bureaucrat parent translates into a lower barrier to entering bureaucracy, and a higher likelihood of being promoted.¹ These phenomena show a clear and persistent inequality of bureaucratic employment—an advantageous and preferred occupation—between individuals with a bureaucrat parent and those without.

The current paper studies the effect of anti-corruption measures on the dynamics of bureaucracy and its inequality, especially in the dimension of inter-generational transmission: the children of bureaucrats also work in bureaucracy. Corruption and cronyism lead to the misallocation of economic resources and talent, and hence are inefficient and unfair (Finan and Mazzocco, 2021). This has resulted in official endeavors to fight against them in many countries. Economists have provided plenty of evidence about how anti-corruption measures may change firms’ behavior and bureaucrats’ performance (e.g., Avis et al. (2018), Ferraz and Finan (2008), and Olken (2007)) to improve economic outcomes. However, existing economics literature has overlooked the impact of such campaigns on the inter-generational transmission of bureaucratic employment. This study aims to fill in this gap.

It remains unclear how counter-corruption measures can affect the inter-generational transmission of working in bureaucracy and hence this inequality of employment in the field. First, these measures may directly curb bureaucrat parents from securing the preferred bureaucratic jobs for their children, through their networks. Second, the measures are likely to deter the potential rent-seeking of bureaucrats, and render working in bureaucracy less economically attractive. Children with a bureaucrat parent may then secure work in occupations other than bureaucracy through better outside options, owing to their family’s superior networks. They could nevertheless also be convinced by the anti-corruption campaign to devote themselves to public service if they are more pro-social.² A better understanding of how the dynamics of bureaucracy and its inequality respond

¹Bureaucratic recruitment may explicitly or implicitly favor bureaucrats’ children. For example, in the announcement of job vacancies at a local district’s Department of Finance in Huaihua of Hunan Province in 2010, a prerequisite was stated: “Parent(s) work in the local government or public institutions.”

²A few studies claim that bureaucrats are deemed more pro-social by virtue of their tasks (e.g., Ashraf and Bandiera (2018), Besley et al. (2021)). These traits may be transmitted to their offspring.

to the campaign is also necessary, to obtain a larger picture of the economic effects of anti-corruption, in that the economic performance relies on both the participants—that is, *individuals and firms*—and the watchdogs, namely *bureaucrats*.

This study investigates how endeavors for counter-corruption impact on inequality and potential cronyism in employment in bureaucracy, through inter-generational transmission. The recent anti-corruption campaign in China provides a quasi-experimental setting to answer this question. In late 2012, Xi Jinping, the General Secretary of the Chinese Communist Party (CCP) and later the President of China, launched a campaign to fight against corruption.³ This campaign is considered as more intense, extensive, and long-lasting than previous endeavors (Chen and Kung, 2019). No advance notice was given for the time when the Central Inspection Team (CIT) investigated each provincial administrative division of mainland China, and it remained unknown until the Central Commission for Discipline Inspection (CCDI) disclosed the relevant information on their website later.

We employ the difference-in-differences (DiD) framework to examine changes in the probability of working in bureaucracy, after the campaign went into effect in each province, and compare individuals whose parent(s) had worked in bureaucracy (*treatment group*) with those whose parent(s) had not (*control group*). In other words, we exploit variations in the timing of anti-corruption measures at the provincial level, and set the year or the next year (depending on the investigation timing) after the time when the first senior government official in each province was investigated as the “shock time” for that province.⁴ Our main empirical analysis is based on the Chinese General Social Survey (CGSS) waves 2003–2017. The data include important information on the occupations of the respondents and the occupations of their parents when the respondents were 14 years old. We focus on working people at the general working age in China, namely 18–55.

We first show that before the campaign, adults of working age with a bureaucrat parent were more than 13 percentage points (p.p.) more likely to work in bureaucracy.

³Different observations do indeed exist concerning the intentions of this anti-corruption campaign, including the removal of political rivals and the consolidation of political power (Yuen, 2014), and endeavors beyond factional competition (Lorentzen and Lu, 2018). The former would generally target the top and high-ranked officials. Providing that the vast majority of our estimation sample consists of low-ranked officials and workers in public institutions, our results are thus not likely to be determined by the former intention.

⁴Though benefiting from richer variations in terms of more precise and relevant timing of anti-corruption measures at the provincial level, this strategy may generate concerns about spillovers from early impacted provinces to later ones. Thus in Section 5.6, as a sensitivity analysis we use the initiation of the campaign (i.e., 2012) as the shock time for the whole of mainland China. We reach the same conclusions.

This result echoes the findings of Jia et al. (2021), as well as the previously-mentioned anecdotal evidence regarding the inequality of employment in bureaucracy and nepotism of bureaucrat selections in China.

Then, we investigate whether the inter-generational transmission of bureaucratic employment prior to the campaign could be explained beyond selectivity on competence or human capital. To achieve this, we use the proxy variable of educational attainment. We document a strong and significant association between having a bureaucrat parent and holding a college degree. Having a bureaucrat parent is associated with more than 10 p.p. higher likelihood of someone holding a college degree, even when controlling for their own employment in bureaucracy and annual income. This result suggests that within bureaucracy and with a comparable income, bureaucrats' children tend to be positively selected on their human capital. Nevertheless, the human capital advantage of having a bureaucrat parent only accounts for 12–25 percent (1.6 to 3.5 p.p.) of the premium of bureaucrats' children in working in bureaucracy. Hence, positive selection on human capital cannot be responsible for the whole inter-generational transmission of working in bureaucracy. Unobservables, including bureaucrat parents' networks and/or nepotism may play an important role.

However, we find that the anti-corruption campaign had a negative effect on the inter-generational transmission of bureaucratic employment in China. After the campaign took effect, the premium of bureaucrats' children in working in bureaucracy significantly reduced by over 5 p.p.

We further investigate whether the campaign exerted heterogeneous effects for cohorts aged between 18 and 35—the age interval qualified to take China's civil service examination—than for cohorts at or older than 35 who usually do not qualify to enter bureaucracy through the examination. This analysis helps to explore whether the effects of the anti-corruption campaign were mainly driven by a reduction in entry into bureaucratic work, or an increase in leaving bureaucracy. Although bureaucrats' children were more likely to work in bureaucracy, regardless of their cohort, we find a significant negative influence of the anti-corruption measures for older cohorts only. More specifically, the campaign decreased the premium of having a bureaucrat parent by almost 7 p.p. for individuals aged 35 or above, but had a small and non-significant effect for adults younger than 35. The null effect for the younger group represents the persistent transmission of working in bureaucracy from incumbent bureaucrats to their children, and might be attributed to these youngsters having little life or work experience. Given that in China, individuals at 35 or older are usually disqualified from entering bureaucracy, our results

are more likely due to bureaucrats' children leaving bureaucratic employment than entry into it.

Furthermore, we explore potential mechanisms through which the anti-corruption campaign affected the inter-generational transmission of bureaucratic employment, for cohorts of children at 35 or older. We attempt to answer the question: why did only bureaucrats' children respond to anti-corruption measures by not working in bureaucracy? We test three channels: more economically attractive outside options for bureaucrats' children, the insider information of bureaucrat parents, and changes in opinions about bureaucracy on the part of bureaucrats' children. First, individuals with a bureaucrat parent may have had better outside options as substitutes for a bureaucratic job, after the campaign diminished the economic attractiveness of the latter. Previous studies document that bureaucrats' children have advantages in the private sector, especially in regions with higher government intervention (e.g., Jia et al. (2021)).

To examine this possibility, we first show that after the campaign, personal income significantly decreased, among individuals working in bureaucracy compared with those in other occupations. In addition, household income, the likelihood of home ownership, and perceptions of the family's socio-economic status non-significantly declined. Then, we provide evidence that before the campaign, bureaucrats' children enjoyed a smaller and less significant income premium by working in bureaucracy than by working in other occupations. Moreover, the income premium of the inter-generational transmission of bureaucratic employment (i.e., both children and their parent(s) worked in bureaucracy) was removed by the anti-corruption measures. These results go along with the channel of outside options for bureaucrats' children.

Second, as an insider, a bureaucrat parent might have been better informed of the potential intensity, extensiveness, and duration of the campaign, thus they could have persuaded their children not to work in bureaucracy to avoid potential consequences. If this explanation were correct, we would expect stronger effects for individuals whose bureaucrat parents were better informed. Considering the centralized political institution and the top-down administrative convention in China, we use working in metropolises—especially the direct-administered municipalities—and higher-ranked positions as proxies for the informativeness of bureaucrat parents. Nevertheless, we do not find significant heterogeneous effects in this regard. Hence the campaign did not seem to take effect through insider information of bureaucrat parents.

Additionally, following anti-corruption measures, opinions about bureaucracy could deteriorate to a larger extent, among bureaucrats' children than among individuals with-

out a bureaucrat parent. This could be due to greater exposure of bureaucrats' children to information relevant to the campaign. If so, they would be more prone to not working in bureaucracy. However, examining perceptions of whether the government should intervene in public criticism, and satisfaction with how the government dealt with affairs, we do not find evidence that opinions about bureaucracy of bureaucrats' children worsened, compared with those of individuals without a bureaucrat parent. Thus, changes in perceptions about bureaucracy appear not to explain the anti-corruption campaign effects.

Moreover, we study the heterogeneous effects of anti-corruption measures in terms of different age cohorts and genders. First, we find a more salient effect of the campaign among individuals at a prime working age. These people were more competitive in the labor market, and hence had better outside options than those approaching retirement, which reflects the outside option mechanism. Second, we find that the campaign effect was driven significantly by men and non-significantly by women.

Our study addresses several strands of literature. First and foremost, it complements research into the effects of anti-corruption measures, especially in the context of China. The vast majority of previous studies discuss how endeavors of counter-corruption changed firm activities, including innovations (Xu and Yano, 2017; Fang et al., 2018), production efficiencies (Kong and Qin, 2021; Giannetti et al., 2021), and land bids (Chen and Kung, 2019). An emerging strand of literature focuses on the political goals and consequences of the anti-corruption campaign in China. For example, Xi et al. (2021) argue that the legitimacy of the government comes from the support of citizens and ruling coalitions. The central government could launch an anti-corruption campaign to remedy lost confidence and approval, and hence maintain political support. However, the consequence could be opposite (Wang and Dickson, 2022). Jiang et al. (2022) and Lai and Li (2021) document that the anti-corruption efforts resulted in negative selection of lower-ability and well-connected candidates into bureaucracy, and decreased popularity of bureaucratic jobs, respectively. This paper instead investigates the impact of counter-corruption measures on the dynamics of bureaucracy, through the lens of inter-generational transmission among bureaucrats. Moreover, we empirically disentangle three potential mechanisms: outside options of bureaucrats' children, the insider information of bureaucrat parents, and changes in opinions about bureaucracy. Additionally, using bureaucrats' educational attainment and citizens' opinions about bureaucracy as proxies from different perspectives, we do not find a significant reduction in bureaucrat competence after the anti-corruption campaign.

Second, the current study contributes to the academic discussion on political favoritism. Ties to the government or politicians may lead to the misallocation of economic resources and yield gains for parties with specific interests. Favors from officials boost infrastructure construction in politically connected regions (Do et al., 2017; Burgess et al., 2015; Hodler and Raschky, 2014) and aid the performance of politically connected firms (Fisman et al., 2020; Jia and Nie, 2017; Chen et al., 2017; Kung and Ma, 2018). Specifically regarding cronyism in the selection of bureaucrats, recent studies find that ties to superior officials or insiders increase the likelihood of being recruited into the government (Fisman et al., 2020; Francois et al., 2016; Jia et al., 2015) and academic institutions (Fisman et al., 2018). Among these studies, the importance of family background has nevertheless been largely unexplored. One exception is Jia et al. (2021), who document that children of government workers are more inclined to become entrepreneurs, partially because of political networks. This phenomenon is more prominent in regions where there is stronger government involvement in the local economy. Rather than the influence of parental background in shaping people’s business ownership, we pay special attention to the inter-generational transmission of bureaucratic employment. We find that individuals with a bureaucrat parent have a higher likelihood of also working in bureaucracy. Moreover, when the anti-corruption campaign reduced the economic attractiveness of bureaucratic jobs, these bureaucrats’ children were more likely to turn to better outside options. These results align with the studies on nepotism in bureaucratic employment mentioned above.

Last but not least, this paper is closely related to the literature on the incentives of working in bureaucracy, as well as other individual traits relevant to this career choice (for an overview, see Besley et al. (2021)). By conducting a field experiment in Mexico, Dal Bó et al. (2013) show that for public services, a larger salary attracts candidates with a higher IQ. However, other studies find that such financial incentives may motivate people who are less pro-social (Deserranno, 2019) and who are more likely to be corrupt (Prendergast, 2007). In addition, pro-social motivation (Cowley and Smith, 2014; Hanna and Wang, 2017), risk aversion (Guiso and Paiella, 2008), and career concerns (Ashraf et al., 2020) are also correlated with employment in bureaucracy. Our study provides quasi-experimental evidence for the influence of financial incentives on the dynamics of bureaucracy. The diminished economic attractiveness of bureaucratic jobs due to anti-corruption measures reduced the inter-generational transmission of bureaucratic employment, even though it did not significantly change the likelihood of working in bureaucracy among the average population of working age.

2 Institutional Background

In this section, we introduce the background information on bureaucratic work in China and its inter-generational transmission. We also briefly discuss the implementation and consequences of the recent anti-corruption campaign launched by the General Secretary of the CCP, Xi Jinping.

2.1 Working in Bureaucracy and Its Inter-Generational Transmission in China

As in many other countries, working in the government and its affiliates has been a preference for large numbers of people in China. This career choice is culturally-based and has a long tradition. Since the Sui Dynasty of China (607 A.D.), the central government started to select talent into the bureaucratic system through a nationwide, competitively-based entry examination (“*keju*” in Chinese). At that time, passing this selective examination and being recruited into the government was regarded as a great honor, and this perception was reflected in the social hierarchy of occupations. Civilians were sorted into four classes based on their occupations, from the most respected to the least: bureaucrats, farmers, workers, and businessmen (“*shi nong gong shang*” in Chinese). There are also some Chinese proverbs about this social hierarchy of occupations, such as “All other occupations are base, only learning is exalted” (“*wan ban jie xia pin, wei you du shu gao*”). The purpose of hard-learning for many years was to perform well in the national bureaucratic selection examination and become a government official, as illustrated in the Chinese saying “*shi nian han chuang ku du ri, jin zhao jin bang ti ming shi.*”

In modern-day China, many aspects of the historic bureaucratic selection examination remain in the contemporary civil service examination. One of the requirements to participate in the examination is the age limit, which is normally between 18 and 35.⁵ We exploit this in order to explore the entry into and exit from bureaucratic employment, in that people of 35 or older are usually disqualified from taking the entry examination.

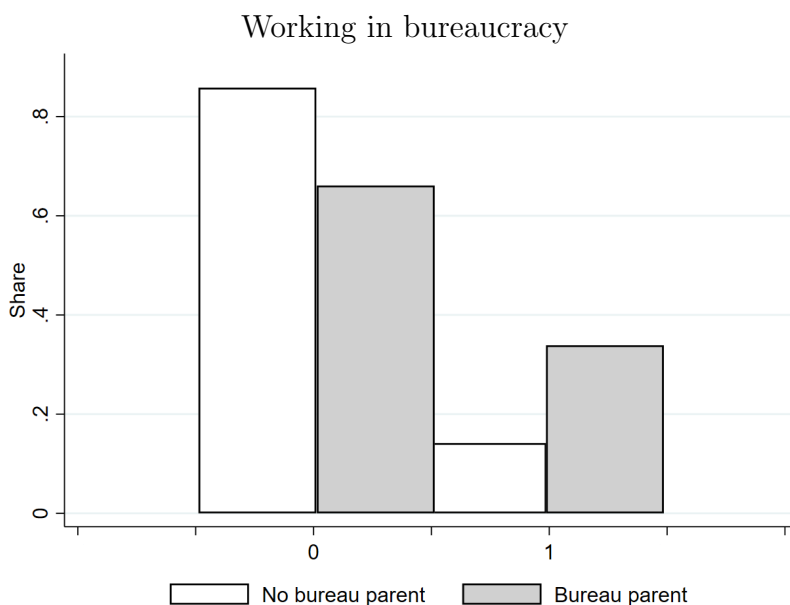
A bureaucratic job in the government or its affiliated public institutions remains popular. Economic incentives, including a steady income, secure employment, and opportunities for rent-seeking, play an important role in this career choice. Especially in regions with substantial government intervention in the local economy, even officials in relatively low-ranked position have opportunities for rent-seeking or obtaining “gray incomes.” For

⁵See “The Registration Guideline of the National Civil Service Examination,” http://www.chinagwy.org/html/kszc/gj/201910/42_321250.html (in Chinese).

instance, the head of the local Department of Health in Kaijiang, a small town in Sichuan Province, accepted 60,000 RMB from a pharmaceutical company in 2006 in return for asking local hospitals to sell the company’s specific medicines.⁶

Anecdotal evidence suggests that children of bureaucrats, including workers in the government and public institutions, are also more prone to working in bureaucracy, sometimes even in the same branch as their parent(s). Using the CGSS data, we, as well as Jia et al. (2021), document that individuals with a bureaucrat parent are more than 10 p.p. more likely to work in bureaucracy than those without a bureaucrat parent. Figure 1 illustrates the histograms of the dummy variable for working in bureaucracy, separating bureaucrats’ children from other individuals. In our sample, the unconditional proportion of working in bureaucracy is around 20 p.p. higher for bureaucrats’ children than for other people.

Figure 1: Working in bureaucracy, separating bureaucrats’ children from individuals without a bureaucrat parent



Note: On the horizontal axis, the value 1 indicates working in bureaucracy, and the value 0 working in other occupations.

Public institutions are not an official part of the government, but are close affiliates to it. They may be influential, such as the China Banking & Insurance Regulatory Commission, and the China Securities Regulatory Commission (Jia et al., 2021). Working in this sector may also yield attractive salaries, such as those in the Power Supply Bureau,

⁶Approval from the local health authority was necessary, but not alone sufficient to introduce the product into the market for prescription medicine; thus, this company also bribed directors and doctors in the local hospitals.

the State Tobacco Monopoly Administration, and their regional branches. If the higher likelihood of employment in bureaucracy among bureaucrats' children is a result of their family's connections to insiders, it implies nepotism.

2.2 Anti-Corruption Campaign in China

China's economy has rapidly grown since the "Reform and Opening-Up" policy that started to be implemented in 1978. The phenomenon of around 8 to 10 percent persistent growth of its annual GDP for over three decades has been called the "China Miracle." Meanwhile, corruption has prevailed, partially because the structural transformation of the economy has generated more room for bribery in bureaucracy, as well as rent-seeking and collusion between government officials and entrepreneurs.

To fight against corruption, the General Secretary of the CCP, Xi Jinping, launched an anti-corruption campaign following the 18th National Congress of the CCP in 2012. After that, the CCDI dispatched the CIT to every province in mainland China. The time when the CIT would investigate each province was not announced in advance, because of confidentiality prior to the investigation. The team usually stayed in the province for one or two months and collected information with the help of the local inspectors and counter-corruption officers. They generally kept a low profile, so that it was not until the investigation was disclosed later on the CCDI's website that the media and public learned which province had been investigated (Kong and Qin, 2021).

This campaign has been more intense and long-lasting than previous anti-corruption measures (Chen and Kung, 2019). Moreover, the campaign has targeted both top and lower officials at every level, termed "to crack down on both 'tigers' and 'flies' (*lao hu kang ying yi qi da*)." A report in the BBC News in 2017 wrote that in Xi's first five-year term, 35 members of the Central Committee of the CCP were caught—as many as during the whole past period of 1949 to 2012. In total, around 1.34 million officials nationwide were indicted. Diverging from the previous convention that members of the Politburo Standing Committee (PSC) were exempt from investigation, Zhou Yongkang, the former PSC member and the Secretary of the Central Political and Legal Affairs Commission in 2007–2012, was convicted of serious corruption, and expelled from the CCP in 2014.

In addition to high-ranked officials, a large number of lower-ranked bureaucrats have also been prosecuted. As a result, most of the bureaucrats who were investigated were removed from office because of bribery and abuse of power. As of August 2017, these anti-corruption endeavors placed 224 provincial officials, more than 8,600 prefecture-level

officials, and over 66,000 county-level officials under investigation. The campaign has also been long lasting. In 2020, eight years after its initiation, nearly 600,000 bureaucrats were accused of corruption, 27 of whom were provincial officials.⁷ Further, on 21 August 2021, Zhou Jiangyong, the CCP secretary of Hangzhou was suddenly investigated, even though he had attended a conference on the previous day.

This intense, extensive, and persistent campaign may to some extent demotivate bureaucrat parents from seeking a job in bureaucracy for their children by using their networks. The campaign is also likely to deter bureaucrats from taking advantage of their power and influence in order to gain economic benefits, and thus may decrease the relative attractiveness of working in bureaucracy.

3 Data

In this section, we briefly introduce the data for our empirical analyses. First, we use data from the Chinese General Social Survey, comprising representative cross-sectional surveys at the individual level in China. Second, we use the investigation data published on the website of the CCDI.

3.1 Chinese General Social Survey

The main data we exploit to study the effects of the anti-corruption campaign on the inter-generational transmission of working in bureaucracy are from the Chinese General Social Survey (CGSS). This is a repeated, cross-sectional survey at the individual level starting from 2003, and administered by the Renmin University of China and the Hong Kong University of Science and Technology. In a typical wave, the CGSS draws a representative random sample of around 10,000 households nationally.

Similar to the General Social Survey (GSS) in the U.S., the CGSS includes behavioral and attitudinal questions covering well-being, political opinions, religious opinions, and so forth. It also examines general demographic and socio-economic characteristics, such as gender, birth date, ethnicity, marital status, educational attainment, employment status, characteristics of residence, etc. More importantly for the current research, the survey asks questions about the occupations of the respondents and the occupations of their parents when the respondents were 14 years old. We rely on this vital information to study the inter-generational transmission of bureaucratic employment.

⁷ *The Transcripts of Anti-Corruption in 2020*, Xinhua Net. 6 January 2021.

In our analyses, we include the survey waves 2003 to 2017; however, we exclude the 2011 wave due to a lack of information on the occupations of respondents’ parents. The questions related to parents’ (both father and mother) occupations read “When you were 14 years old, which type of employer did your father/mother work for?” We categorize working for the government or public institutions (“*shi ye dan wei*”) as a bureaucratic job. Public institutions in China are close affiliates to the government, and hence are also influential (Jia et al., 2021).⁸ Considering our research question, we focus on working people at the general working age in China; that is, 18–55 years old. In our estimation sample, around 22% of the respondents had at least one parent who worked in bureaucracy. There are another two questions about current occupations, one for the respondent and the other for their spouse or cohabiting partner. In total, about 18% of the respondents and 24% of the households (either the respondent or their spouse/partner) worked in bureaucracy when they were surveyed. The two tables of descriptives in Appendix A display the means of our main variables by respondents’ occupation and that of their parents. In the first table, it is apparent that bureaucrats’ children are 2.5 times as likely to work in bureaucracy, and 1.8 times as likely to hold a college degree compared with individuals without a bureaucrat parent. The former also have higher personal annual income and household annual income than the latter, and hold more optimistic perceptions of their own social class and their family’s socio-economic status.

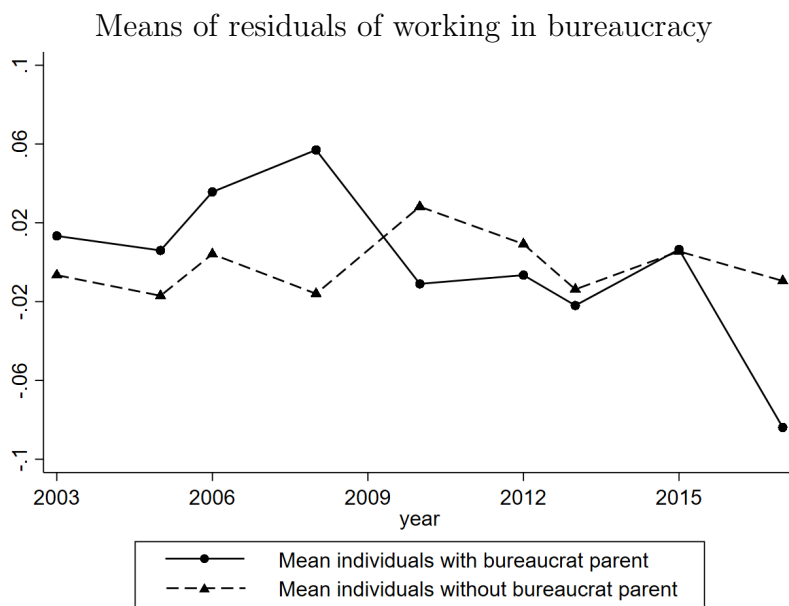
The second table compares respondents working in bureaucracy with those working in other occupations. Similarly, bureaucrats have advantages regarding income, home ownership, educational attainment, and self-perceived social class and family socio-economic status. Their likelihood of having a bureaucrat parent is 2.4 times higher than that of people working in other occupations.

To provide an overview of the dynamics of bureaucracy over time, Figure 2 illustrates the means of the residuals of working in bureaucracy based on our baseline sample, when we remove the influence of educational attainment, separating bureaucrats’ children from individuals without a bureaucrat parent. It is necessary to account for educational attainment in this comparison, as we want to rule out inter-generational transmission merely through human capital. The dashed line shows that after taking into account the

⁸In Appendix C, we perform a sensitivity analysis distinguishing parents working in the government from those working in public institutions. We obtain quite similar effects of anti-corruption measures between them. Moreover, state-owned enterprises are neither part of the government nor public institutions. In the same appendix, we conduct another analysis excluding people working in state-owned enterprises from our estimation sample. The results are again similar.

impact of education, the likelihood of working in bureaucracy remains stable without an apparent pattern of changes across periods for individuals without a bureaucrat parent. Nonetheless, the solid line for bureaucrats' children indicates a decline in employment in bureaucracy in general, especially after the anti-corruption campaign was launched in 2012.

Figure 2: Working in bureaucracy over time, separating bureaucrats' children from individuals without a bureaucrat parent



Note: The figure shows the means of working in bureaucracy across years after removing the effect of individual educational attainment.

Job mobility between bureaucracy and other occupations is low for older generations in China, since the Chinese bureaucracy is a fairly closed system (Jia et al., 2021). The low mobility in and out of bureaucracy is not unique to the country, but in fact is relatively common (Besley et al., 2021). With the same data on which our estimation is based, Jia et al. (2021) find that most bureaucrat parents had started to work in bureaucracy long before their children reached working age, or even before they were born. Thus having a bureaucrat parent when the respondents were 14 years old is unlikely to result in differences from when they were at another age. In other words, the questions on parents' occupations in our survey are valid in order to study the inter-generational transmission of bureaucratic employment.

3.2 Investigation Data

The website of the CCDI published the dates when officials at the provincial level or higher were under investigation, and the dates on which and the reasons why they were indicted. We leverage the information about the specific date when the first provincial-level senior government official in each of the 31 provinces of mainland China was investigated. In our analysis, we regard the year after the year of investigation (if the investigation occurred in the first half of the year) or the next year (if the investigation in the second half of the year) in each province as the time when the campaign took effect in that province, in order to allow a period for response in the labor market. Table 1 shows the time when the anti-corruption campaign came into effect in each province of mainland China.

Table 1: Time when the campaign took effect in each province of mainland China

Province	Year	Province	Year	Province	Year
Sichuan	2014	Yunnan	2015	Liaoning	2016
Inner Mongolia	2014	Shanxi	2015	Henan	2016
Anhui	2014	Hainan	2015	Heilongjiang	2016
Guangdong	2015	Shaanxi	2015	Tianjin	2016
Jiangsu	2015	Chongqing	2015	Zhejiang	2016
Jiangxi	2015	Shandong	2016	Shanghai	2017
Guangxi	2015	Gansu	2016	Beijing	2017
Guizhou	2015	Xinjiang	2016	Ningxia	2017
Hunan	2015	Hebei	2016	Jilin	2017
Hubei	2015	Fujian	2016		
Qinghai	2015	Tibet	2016		

Table 2 reports the proportions of working in bureaucracy by periods before and after the anti-corruption measures, separating bureaucrats' children from those without a bureaucrat parent. The variations in the timing of the anti-corruption measures are at the provincial level. That is to say, the timing of the campaign is different across provinces. Among the individuals without a bureaucrat parent, the likelihood of them working in bureaucracy increased by 1.1 p.p. after the campaign went into effect in their province. However, the same proportion reduced by 2.3 p.p. for bureaucrats' children following the anti-corruption measures. The last column shows the unconditional DiD of the proportions of working in bureaucracy: compared with individuals without a bureaucrat parent, the likelihood of working in bureaucracy for bureaucrats' children declined by 3.4 p.p. after the campaign.

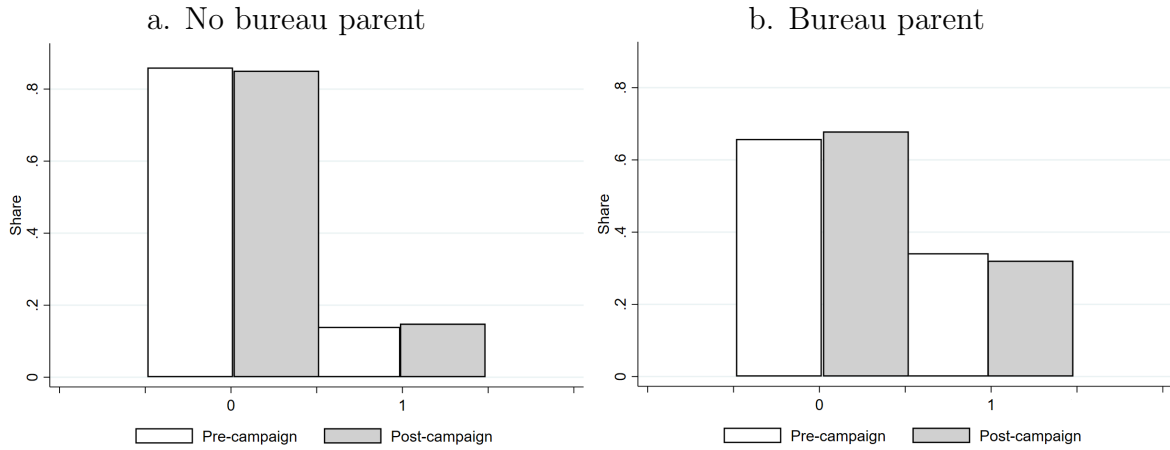
Figure 3 visualizes the statistics in Table 2. For respondents without a bureaucrat parent (panel a), the probability of working in bureaucracy rose by a tiny amount post-campaign, while this percentage decreased by a larger amount for bureaucrats' children

Table 2: Percentage of working in bureaucracy, separating bureaucrats' children from individuals without a bureaucrat parent, and separating the pre-campaign phase from the post-campaign period

	No bureau parent			Bureau parent			
	Pre	Post	Δ	Pre	Post	Δ	$\Delta\Delta$
Work in bureaucracy	0.136	0.147	0.011	0.342	0.319	-0.023	-0.034
Observations	11,293	2,795		3,415	539		

(panel b). Thus the relative reduction between the two groups of people was even more substantial, especially considering the small likelihood of working in bureaucracy among individuals without a bureaucrat parent.

Figure 3: Working in bureaucracy, separating the pre-campaign period from the post-campaign phase



Note: On the horizontal axis, the value 1 indicates working in bureaucracy, and the value 0 working in other occupations.

4 Empirical Strategy

4.1 Statistical Model

We conduct a DiD analysis with province fixed effects and survey wave fixed effects to examine the influence of the anti-corruption campaign on the inter-generational transmission of bureaucratic employment. Specifically, we look at changes in the probability of working in bureaucracy after the anti-corruption campaign took effect in each province of mainland China, comparing individuals with a bureaucrat parent with those without a bureaucrat parent.

The model for our main analysis is specified as follows

$$y_i = \alpha_t + \alpha_p + x_i' \beta_x + \gamma_1 BP_i + \gamma_2 Cpgn_{tp} + \delta BP_i \times Cpgn_{tp} + \epsilon_i \quad (1)$$

in which i denotes individuals, t (2003–2017) stands for survey years, p (1–31) refers to the provincial administrative divisions of mainland China. y represents a dummy that values one if the respondents currently worked in bureaucracy.⁹

Furthermore, BP indicates a dummy if either of the respondents' parents had worked in bureaucracy when they were 14 years old. $Cpgn$ is a dummy for the year when the campaign came into effect in the province where the respondents resided; that is, the year or the next year (depending on whether the investigation occurred in the first or second half of the year) after the time when the first senior official in the province was investigated. x denotes a vector of demographic and socioeconomic covariates, such as a dummy for male, the quadratic of age, birth cohort dummies, a dummy for Han ethnicity, a dummy for being married, a dummy for holders of the highest educational level of high school, a dummy for college degree holders, and another dummy for residing in the urban area.

The parameter γ_1 measures the difference in the probability of working in bureaucracy prior to the campaign, between bureaucrats' children and individuals without a bureaucrat parent. γ_2 represents the common effect of the calendar time period after the anti-corruption measures in the province. Our main parameter of interest is δ , which captures the effect of the campaign on the inter-generational transmission of working in bureaucracy. Finally, α_t is a vector of survey year dummies, α_p is a vector of dummies of the provincial divisions of mainland China, and ϵ is an error term. In response to the potential issue of heterogeneous treatment effects discussed in recent methodological literature on DiD, we adopt the Callaway and Sant'Anna (2021) estimator and show the results in the following subsection and in Table 10.

4.2 Parallel Trend Assumption

In order to apply the DiD framework, the parallel trend assumption between the treatment and control groups should hold. In the current context, this assumption implies that during the post-campaign phase, working in bureaucracy would follow the same trajectory between bureaucrats' children and individuals without a bureaucrat parent in the

⁹The definitions and descriptives of the relevant variables in the baseline models are provided in Appendix A.

absence of the campaign. To assess the validity of this assumption, we examine whether the pre-campaign time trends of working in bureaucracy diverge between individuals with a bureaucrat parent and those without a bureaucrat parent. We replace $Cpgn$ in Equation (1) by dummies for different periods relative to the campaign separately. Relevant estimates of the corresponding model are shown in Table 10. In this event study in the DiD framework, if the coefficients of interaction terms of having a bureaucrat parent and period dummies before anti-corruption are non-significantly different from zero, this is evidence to support the pre-campaign parallel trends.

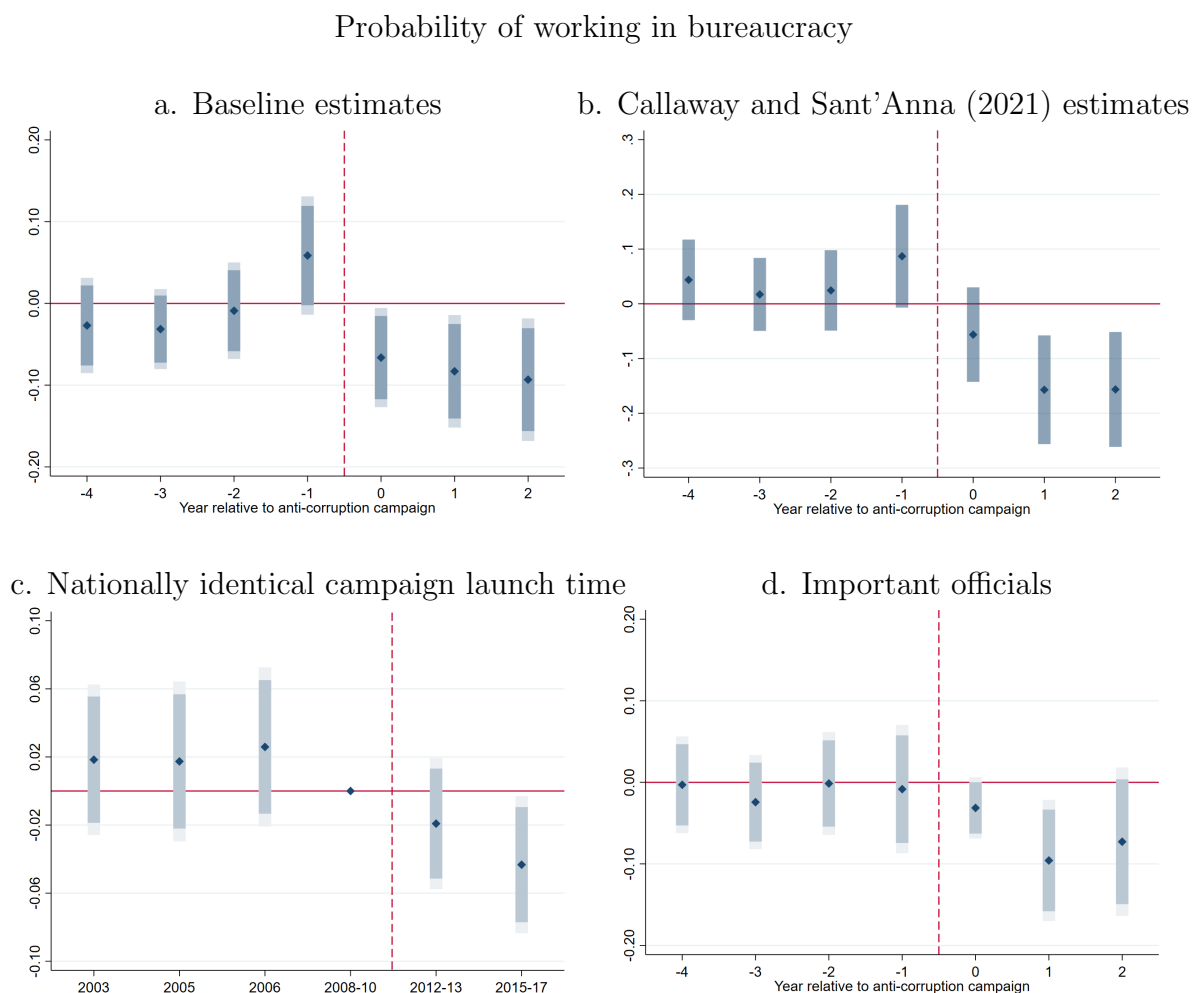
Panel a of Figure 4 visualizes the estimates of the interactions of having a bureaucrat parent and dummies of years relative to the campaign that are different across provinces. The interaction coefficients prior to the anti-corruption campaign are non-significantly distinguishable from zero. Therefore, arguably, the trends of working in bureaucracy, measured pre-campaign, for bureaucrats' children and individuals without a bureaucrat parent are parallel.

In panel b, we adopt the Callaway and Sant'Anna (2021) estimator to address the potential issue of heterogeneous treatment effects, and draw the corresponding event study plot as in panel a. Similarly, the coefficients prior to the campaign are non-significant at the 5% significance level. Panel b of Table 10 displays the Callaway and Sant'Anna (2021) estimates.

Panel c and d illustrate another two event studies using a different identification strategy for robustness checks. In panel c, we regard 2012 as the beginning of the anti-corruption campaign identical for the whole of mainland China, since the campaign was launched in that year. By this means, we mitigate concerns about potential spillovers across provinces. The coefficients of interactions of having a bureaucrat parent and periods before the campaign are also non-significantly close to zero. The estimates related to this identification strategy are reported in panel c of Table 10.

In panel d, we consider only the influential and powerful officials who were investigated and indicted, when we decide the province-specific timing of the campaign. We do not account for members in the provincial or lower level committees of the Chinese People's Political Consultative Conference (CPPCC). They could be "relevant actors inside and outside the party: party elders, intelligence officers, diplomats, propagandists, soldiers and political commissars, united front workers, academics, and business people" (Arugay, 2020). As the party elders and bureaucrats in the regional committees approach the retirement age, they will no longer hold bureaucratic influence or power. We thus exclude them when determining the anti-corruption timing across provinces, as investigations

Figure 4: Event study in the DiD framework—coefficients of interactions of having a bureaucrat parent and period dummies



Note: The segments denote 90% (dark) and 95% (light) confidence intervals of estimated coefficients, except for panel b in which the segments are 95% confidence intervals (with the programming provided by Callaway and Sant'Anna (2021)). Panel a shows the event study plot for our baseline identification strategy, and panel b the same type of plot based on the Callaway and Sant'Anna (2021) estimates. Panel c is the counterpart in which we use 2012 as the launch time of the campaign identical for the whole of mainland China, in order to alleviate concerns about spillover effects across provinces. Panel d illustrates the counterpart in which we consider important officials only and exclude members in the provincial or lower level committees of the Chinese People's Political Consultative Conference (CPPCC).

involving them may not have an important effect. Again, in panel d we cannot reject the parallel trends measured prior to the anti-corruption campaign.

5 Parameter Estimates

5.1 Effect of the Anti-Corruption Campaign on the Inter-Generational Transmission of Bureaucratic Employment

The main parameter estimates of the model are reported in Table 3.¹⁰ Columns (1) and (2) include the sample of all individuals who were at the typical working age of 18 to 55 when surveyed. Columns (3) and (4) are for individuals aged 18 to 34, the qualifying age range for participation in the national civil service examination to enter bureaucracy. Columns (5) and (6) are for those aged 35 to 55, who generally did not qualify for the examination because of the age limit. To begin with, we examine the direct influence of the anti-corruption campaign on working in bureaucracy. The results are displayed in the even-numbered columns: the campaign did not exert a significant direct effect on employment in bureaucracy regardless of age. Such non-response to anti-corruption measures in terms of mobility in and out of bureaucracy can be expected from the argument of stable employment in bureaucracy in Jia et al. (2021) and Besley et al. (2021).

We next focus on how the anti-corruption campaign affected the inter-generational transmission of working in bureaucracy, in the odd-numbered columns of Table 3. Before the anti-corruption campaign, individuals with a bureaucrat parent were about 13–14 p.p. more likely to work in bureaucracy. This phenomenon of inter-generational transmission of bureaucratic employment is consistent across the different columns. After the campaign took effect, the probability of working in bureaucracy decreased significantly by 5.1 p.p. for bureaucrats’ children, compared with people without a bureaucrat parent (column (1)). Moreover, the coefficient of anti-corruption shows that the campaign did not exert a significant influence for individuals without a bureaucrat parent, thus justifying the assumption of DiD that the campaign did not affect the control group.

Then, we explore whether this reduction in the inter-generational transmission of bureaucratic employment was more likely to have been due to increased exit from or decreased entry into bureaucracy on the part of bureaucrats’ children (relative to individuals without a bureaucrat parent). We separate the sample with the cutoff age of qualification

¹⁰Full parameter estimates are available on request.

Table 3: Effects of the anti-corruption campaign on the inter-generational transmission of bureaucratic employment, and on working in bureaucracy

Work in bureaucracy	All		Age [18,35)		Age [35,55)	
	(1)	(2)	(3)	(4)	(5)	(6)
Bureaucrat parent	0.138*** (0.007)		0.142*** (0.011)		0.134*** (0.008)	
Bureaucrat parent \times Anti-corruption	-0.051*** (0.017)		-0.020 (0.029)		-0.069*** (0.021)	
Anti-corruption	0.000 (0.013)	-0.010 (0.013)	0.013 (0.021)	0.009 (0.021)	-0.008 (0.016)	-0.021 (0.017)
No. observations	28,805		10,763		18,042	

Note: The odd-numbered columns are for the inter-generational transmission of bureaucratic employment; the even-numbered columns are for working in bureaucracy. Only the relevant parameter estimates are presented. Covariates containing a dummy for male, the quadratic of age, birth cohort dummies, a dummy for Han ethnicity, a dummy for being married, a dummy for holders of the highest educational level of high school, a dummy for college degree holders, another dummy for residing in the urban area, survey wave fixed effects, and province fixed effects are included in every model but not shown for parsimony. * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$. Robust standard errors in parentheses.

for the civil service examination in China to enter bureaucracy, namely 35 years old. Column (3) shows that the campaign did not have a significant effect among people qualified for the examination to enter bureaucracy. However, the campaign significantly decreased the likelihood of inter-generational transmission of working in bureaucracy by almost 7 p.p. for the group of 35 years old or above, who were generally disqualified from participating in the examination to enter bureaucracy (column (5)). Thus, the results imply that the effects of the anti-corruption campaign on the inter-generational transmission of working in bureaucracy were mainly due to the increased number of people leaving bureaucracy.¹¹ Since the campaign did not significantly impact the younger group, we regard the model specification in column (5) as our baseline model. From here on, if not explicitly indicated, the estimations and interpretations all refer to the baseline sample aged 35 and older.

¹¹We also exploit the China Family Panel Studies (CFPS), a nationally representative panel at the individual level, to investigate variations in entry into bureaucracy and leaving it for bureaucrats' children, in comparison with individuals without a bureaucrat parent. The patterns of the corresponding results, displayed in Appendix B, confirm the main driving forces of increased exits post-campaign, though the coefficients are imprecisely estimated.

5.2 Selectivity on Human Capital of Bureaucrats' Children

In the previous sub-section, we observed that for both the young and the older groups, bureaucrats' children were substantially more likely to work in bureaucracy, even after the campaign. Can such a discrepancy be explained by positive selection on the human capital/competence of bureaucrats' children, or beyond this selectivity? With educational attainment as a proxy variable, we investigate whether and to what extent selection on human capital is responsible for the inter-generational transmission of working in bureaucracy, prior to the campaign.

Table 4: Association between having a bureaucrat parent and educational attainment, and the inter-generational transmission of working in bureaucracy, accounting for selection on human capital

	All			Age [35,55)		
	College (1)	College (2)	Work in bureau (3)	College (4)	College (5)	Work in bureau (6)
Bureaucrat parent	0.194*** (0.007)	0.116*** (0.007)	0.103*** (0.010)	0.176*** (0.009)	0.096*** (0.009)	0.118*** (0.012)
Bureaucrat parent × Anti-corruption	0.070*** (0.018)	0.082*** (0.017)	-0.055*** (0.017)	0.091*** (0.023)	0.107*** (0.022)	-0.068*** (0.021)
Bureaucrat parent × High School			0.037** (0.015)			0.029* (0.017)
Bureaucrat parent × College			0.056*** (0.015)			0.019 (0.020)
Work in bureaucracy log(Self income)	No No	Yes Yes	No No	No No	Yes Yes	No No
No. observations	28,805	25,895	28,805	18,042	16,327	18,042

Note: See footnote Table 3.

Table 4 presents the estimates. The first three columns show the results for the comprehensive sample and the last three the baseline sample aged 35 to 55. In columns (1) and (4), having a bureaucrat parent is significantly associated with about 17–19 p.p. higher probability of holding a college degree, before the anti-corruption measures. This association was further strengthened after the campaign. When we control for respondents working in bureaucracy and their annual income in columns (2) and (5), this association largely shrinks for the pre-campaign phase, but the influence of the anti-corruption campaign increases to a small extent. This result suggests that within bureaucracy, with comparable incomes, bureaucrats' children are positively selected into bureaucratic employment on human capital. Such selectivity became even more notable after the anti-corruption campaign came into effect.

In columns (3) and (6), we explore whether the human capital advantage of having a bureaucrat parent can be fully responsible for the inter-generational transmission of working in bureaucracy, before the campaign. Specifically, we add to the baseline model specifications interactions of educational attainment categories and the dummy of having a bureaucrat parent. Accounting for positive selection on human capital decreases the premium of bureaucrats' children in working in bureaucracy by only 12% (for the baseline sample) to 25% (for the whole sample); that is, 1.6 to 3.5 p.p., respectively, prior to the anti-corruption campaign. Moreover, the impact of the campaign remains similar.

The patterns of the estimates in Table 4 imply the existence of positive selection on human capital for bureaucrats' children working in bureaucracy, as well as that other unobservables may be more important than this selectivity in explaining the inter-generational transmission of bureaucratic employment. One of these unobserved characteristics could be the pro-social proclivity of bureaucrats' children. Nonetheless, this attribute cannot explain the effect of the anti-corruption measures on repressing the inter-generational transmission of working in bureaucracy. Pro-social inclination would reinforce rather than demotivate the devotion in serving the public, and hence working in bureaucracy, after the anti-corruption campaign purified the bureaucracy by removing corrupt members. The limited contribution of selection on human capital and the finding in the next subsection that the campaign decreased the economic attractiveness of bureaucratic jobs, as well as the anecdotal evidence concerning bureaucracy in China, suggest that bureaucrat parents' networks and/or favoritism may play a role in the inter-generational transmission of bureaucratic employment.

5.3 Effects of the Anti-Corruption Campaign on Economic Outcomes

Why was the effect of the anti-corruption campaign negative in terms of the inter-generational transmission of working in bureaucracy? An immediate conjecture is that the campaign curbed rent-seeking by bureaucrats, and hence made it less economically beneficial to work in bureaucracy. We study the influence of the campaign on the annual incomes, wealth, and perceived social status of bureaucrats, as shown in Table 5. We use home ownership as a proxy for wealth, because in China, real estate can be the most important element of individual wealth. For annual incomes and social status, we account for both respondents themselves and their family/household.

Prior to the campaign, bureaucrats enjoyed more satisfactory incomes, wealth, and

Table 5: Effects of the anti-corruption campaign on incomes, wealth, and perceived social status

	(1)	(2)	(3)	(4)	(5)
	log(Self income)	log(HH income)	Home ownership	Self class	Family Econ status
Self/HH work in bureau (γ)	0.197*** (0.036)	0.112*** (0.018)	0.007 (0.007)	0.160*** (0.046)	0.127*** (0.015)
Self/HH work in bureau \times Anti-corruption (δ)	-0.193*** (0.067)	-0.013 (0.035)	-0.002 (0.012)	0.003 (0.079)	-0.036 (0.031)
p value ($\gamma + \delta = 0$)	0.955	0.002***	0.625	0.020**	0.002***
No. observations	16,327	16,765	17,942	12,799	17,697

Note: See footnote Table 3.

(perceived) social status than people working in other occupations. Specifically, on average, the annual personal income of bureaucrats was 21.8% ($= \exp(0.197) - 1$) higher, and their annual household income was 11.9% higher. The probability of home ownership was 0.7 p.p. non-significantly higher for bureaucrats, and their self-perceptions of social class and family economic status were also higher. However, the anti-corruption campaign reduced the personal income advantage of bureaucrats significantly,¹² and their other advantages in household income, wealth, and social status non-significantly. In the penultimate row of Table 5, we test whether the campaign completely wiped out the economic advantages of bureaucrats (i.e., $\gamma + \delta = 0$). The p-value of the test shows that this is the case for personal income and home ownership at the 5% level. Thus, the campaign indeed rendered working in bureaucracy less economically attractive.

5.4 Mechanisms: Why Only Bureaucrats' Children Responded

Previously, we have shown that the anti-corruption campaign diminished the economic advantages of employment in bureaucracy. However, why did the campaign exert an influence on the inter-generational transmission of bureaucratic employment? In other words, why did only individuals with a bureaucrat parent react to the campaign by not working in bureaucracy? In this sub-section, we explore three potential mechanisms, including outside options for bureaucrats' children, the insider information of bureaucrat parents, and perceptions of bureaucracy.

¹²The annual personal income of bureaucrats decreased by 21.3% and their personal income premium was almost completely removed after the campaign. This could be due to reductions in rent-seeking, various bonuses, or investments in financial assets.

5.4.1 Outside Options for Bureaucrats' Children

The first mechanism through which the anti-corruption campaign affected the inter-generational transmission of bureaucratic employment is the better outside options for bureaucrats' children. Previously, we showed that the anti-corruption campaign curbed the economic advantages of employment in bureaucracy. Bureaucrats' children may be less inclined to work in bureaucracy because of their better outside options, probably thanks to their parents' networks.

In columns (1) and (2) of Table 6, we first compare the annual personal income of bureaucrats' children with that of individuals without a bureaucrat parent, among people working in bureaucracy and those working in other occupations, respectively, prior to the campaign. We find that before the anti-corruption measures, for those working in bureaucracy, bureaucrats' children had a non-significant income premium. However, for those working in other occupations, prior to the campaign bureaucrats' children had a larger and significant income premium. People make decisions based on available prior information when a shock hits. When the anti-corruption campaign reduced the economic attractiveness of bureaucratic jobs, children of bureaucrats were likely to respond by not working in bureaucracy, in view of their larger income premium in other occupations.

Table 6: Mechanism of outside options: effect of having a bureaucrat parent on income by occupation

	log(Annual personal income)		
	(1)	(2)	(3)
	Bureaucracy	Other occupations	All
Bureaucrat parent	0.057 (0.052)	0.097* (0.051)	
Bureau parent \times Work in bureau (γ'_1)			0.248*** (0.049)
Bureau parent \times Work in bureau \times Anti-corruption (δ')			-0.178* (0.095)
Anti-corruption (γ_2)			0.055 (0.080)
p value ($\gamma'_1 + \delta' = 0$)			0.401
No. observations	2,457	10,697	16,327

Note: Columns (1) and (2) include observations prior to the campaign only; see also footnote Table 3.

In column (3), we further explore the income premium of the inter-generational transmission of bureaucratic employment over time. Before the campaign, working in bureaucracy yielded an income 28.1% ($= \exp(0.248) - 1$) higher for bureaucrats' children.

However, this advantage was considerably reduced by the anti-corruption campaign. In the penultimate row, we conduct a statistical test for whether the income premium of the inter-generational transmission of bureaucratic employment was eliminated after the campaign. The p-value of the test suggests that this was indeed the case. The result implies that working in bureaucracy did not bring about a significant income premium for bureaucrats' children, following the campaign. This is in accord with the proposed mechanism of better outside options for bureaucrats' children.

5.4.2 Insider Information of Bureaucrat Parents

The second channel for the impact of the anti-corruption measures on the inter-generational transmission of working in bureaucracy is the insider information of bureaucrat parents. As "insiders," bureaucrat parents may have access to more accurate and prompt information about the potential intensity, extensiveness, and duration of the campaign. They are likely to deliver such information to their children, and persuade them not to work in bureaucracy to avoid potential consequences.

Due to a lack of direct measurements of the insider information available to bureaucrat parents, we exploit several proxies for the accuracy and promptness of information about the campaign. These proxies include working in the direct-administered municipalities of China, and the position ranks of bureaucrat parents. Owing to the centralized political institution and the top-down administrative convention in China, bureaucrats in the four direct-administered municipalities, and those with a higher rank generally have more prompt access to the exact policies made by the central government.

Table 7: Mechanism of insider information of bureaucrat parents: interaction effects of the anti-corruption campaign and proxies for insider information on the inter-generational transmission of working in bureaucracy

	(1)	(2)
	Work in bureaucracy	No. of obs.
a. Baseline: Bureaucrat parent \times Anti-corruption	-0.069 (0.021) ^{***}	18,042
b. Direct-admin muncplty \times Bureaucrat parent \times Anti-corruption	0.011 (0.055)	18,042
c1. Bureaucrat parent's rank \times Anti-corruption	-0.001 (0.004)	9,485
c2. High-ranked bureaucrat parent \times Anti-corruption	0.110 (0.086)	1,672

Note: The information on the position ranks of bureaucrat parents is available only from 2010 onward. In row c2, we compare individuals with a high-ranked bureaucrat parent with those with a lower-ranked bureaucrat parent only, thus the estimation sample includes only individuals with a bureaucrat parent; high ranks refer to positions at the deputy-division-head level and above. See also footnote Table 3.

Table 7 displays the results, in which only the estimates for the interactions of the corresponding proxy and $\text{Bureaucrat parent} \times \text{Anti-corruption}$ are reported for parsimony. If the decline in the inter-generational transmission of working in bureaucracy after the anti-corruption campaign were facilitated by the insider information of bureaucrat parents, we would expect to observe a stronger negative effect of the campaign in the direct-administered municipalities, and among individuals with a bureaucrat parent in a higher rank. That is to say, the coefficient of the interaction term of interest would be significantly negative. In row a we replicate the baseline estimate for ease of comparison. In row b where a dummy for working in the four direct-administered municipalities is interacted, the estimate is not statistically significant. Row c1 shows that the position rank of the bureaucrat parent did not make a difference in the effect of the campaign at all.¹³ In row c2, we restrict the estimation sample to include only individuals with a bureaucrat parent, and compare high-ranked bureaucrats' children with those having a lower-ranked bureaucrat parent. A high-ranked bureaucrat parent is a dummy for individuals with a bureaucrat parent with a post at the deputy-division-head level and above. With lower-ranked bureaucrats' children as the reference group, we do not find that people with a high-ranked bureaucrat parent were less likely to work in bureaucracy post-campaign. The sign of the coefficient is actually opposite to what the insider information mechanism would predict.

Moreover, we previously showed that there was no effect of the campaign for young people in their 20s or early 30s when their bureaucrat parent was still in office, while there was a significant and sizable effect for older people whose bureaucrat parent was most likely to have retired. These results again do not support the insider information channel, since incumbents are more likely to be insiders than retirees. Therefore, we do not find evidence for the channel of insider information from bureaucrat parents.

5.4.3 Perceptions of Bureaucracy

Another possible mechanism we explore involves changes in perceptions of bureaucracy following the campaign. People may be disappointed with the bureaucratic system, after witnessing large numbers of officials having been investigated and prosecuted. Bureaucrats' children are likely to hold even more negative attitudes toward the government and its affiliated public institutions, probably due to their greater exposure to information related to the campaign. If so, they would be more inclined not to work in bureaucracy.

¹³The number of observations decreases drastically in row c1 because the information on the position rank of bureaucrat parents is available only from 2010 onward.

There are two relevant questions in our survey data about perceptions of bureaucracy. The first statement is: “If people criticize the government in public, the government should not intervene.” The responses are categorized into 1. completely disagree, 2. somewhat disagree, 3. indifferent, 4. somewhat agree, and 5. completely agree. This statement was included from 2011 onward. The second question asks “Do you agree that the government is fair and just in handling affairs?” The answers are 1. strongly disagree, 2. disagree, 3. neither disagree nor agree, 4. agree, and 5. strongly agree. This question was in the 2015 wave only.

Table 8: Mechanism of perceptions of bureaucracy: effects of the anti-corruption campaign on opinions of bureaucracy

	Gov should not intervene public criticism (range: 1–5)			Gov fair and just in handling affairs (range: 1–5)		
	All (1)	Bureaucrats (2)	Others (3)	All (4)	Bureaucrats (5)	Others (6)
Bureaucrat parent	0.047 (0.035)	0.075 (0.064)	0.042 (0.042)	-0.033 (0.077)	-0.057 (0.133)	-0.029 (0.101)
Anti-corruption	0.007 (0.057)	-0.056 (0.136)	0.013 (0.062)	-0.331** (0.169)	-0.490 (0.336)	-0.337* (0.195)
Bureaucrat parent × Anti-corruption	-0.083 (0.066)	-0.149 (0.126)	-0.039 (0.079)	0.182* (0.110)	0.081 (0.214)	0.243* (0.142)
No. observations	11,632	2,160	9,472	1,908	357	1,551

Note: The outcome variable in the first three columns is only available from 2011 onward, and the outcome variable in the last three columns is only available for 2015. Columns (2) and (5) include only respondents working in bureaucracy. Columns (3) and (6) include only respondents working in other occupations. See also footnote Table 3.

Table 8 reports the estimated effects of the anti-corruption campaign on individual perceptions of bureaucracy. Columns (1) and (4) show the results for all people: the campaign did not affect the opinion of individuals without a bureaucrat parent about the government intervention in public criticism (the coefficient of *Anti-corruption*). However, it significantly reduced their satisfaction with how the government dealt with affairs. Compared with individuals without a bureaucrat parent, bureaucrats’ children agreed less (though non-significantly) that the government should not intervene in public criticism, and were significantly more satisfied with how the government handled affairs, after the campaign (the coefficient of the interaction term). Columns (2) and (5) show that the campaign did not exert significant influence for people working in bureaucracy. Column (6) implies that the effects on perceptions of bureaucracy were mainly driven by individuals working in occupations other than bureaucracy.

These results suggest that following the campaign, bureaucrats' children held more positive opinions about bureaucracy than individuals without a bureaucrat parent. Thus, the results cannot explain the reduction in the inter-generational transmission of working in bureaucracy due to the campaign. Accordingly, we rule out perceptions of bureaucracy as a mechanism.

5.5 Heterogeneity Investigations

In this sub-section, we examine the heterogeneous effects of the anti-corruption campaign with respect to different age cohorts and genders. This study of sub-groups also helps us to better understand entry into and exit from bureaucracy post-campaign, as well as the mechanisms discussed above. The relevant estimates are displayed in Table 9, in which panel a reproduces the baseline result for ease of comparison.

5.5.1 Age Cohort

Panel b splits the baseline sample into every decade of the age cohort. The first row of this panel replicates column (3) of Table 3, and shows that the campaign did not exert significant influence for the younger cohort that qualified for the civil service examination to enter bureaucracy. Nevertheless, the anti-corruption campaign significantly reduced the probability of working in bureaucracy by 9 p.p. for bureaucrats' children aged 35–44, compared with their counterparts without a bureaucrat parent. For the cohort of 45–54 year olds, the campaign significantly decreased the same relative likelihood by 5 p.p. for bureaucrats' children.

It is apparent that the effect of the anti-corruption measures decreased in the age cohort for those above 34 years old. This phenomenon is consistent with the interpretation of outside options. In the labor market, job seekers at a prime working age are on average more preferred than those close to the retirement age. Bureaucrats at a prime age have better outside options, and were thus more likely to leave bureaucracy after the anti-corruption campaign reduced the economic attractiveness of bureaucratic jobs. Moreover, the guaranteed and generous pensions for retired bureaucrats made the potential outside options even less attractive for those approaching retirement.

As discussed earlier, the non-significant effect of the anti-corruption measures among the cohort younger than 35 years old contradicts the mechanism of the insider information of bureaucrat parents. For these young people with a bureaucrat parent, their parents were most likely to have still been in office, and hence to have greater access to the insider

information compared with the retirees. Also interestingly, these youngsters' parents were roughly in their 50s and were only marginally significantly affected by the campaign (the last row in panel b). This phenomenon supports the persistent inter-generational transmission of bureaucratic employment from incumbent parents.

Table 9: Heterogeneity investigation—effect of the anti-corruption campaign on the inter-generational transmission of working in bureaucracy

	(1)		(2)
	Work in bureaucracy		No. of obs.
a. Baseline: Age [35,55)	-0.069	(0.021)***	18,042
b. Age cohort			
Age [18,35)	-0.020	(0.029)	10,763
Age [35,45)	-0.090	(0.030)***	9,957
Age [45,55)	-0.050	(0.030)*	8,085
c. Gender			
Men	-0.084	(0.029)***	9,838
Women	-0.047	(0.031)	8,204

Note: Only parameter estimates of $\text{Bureaucrat parent} \times \text{Anti-corruption}$ are presented in the table for parsimony and ease of comparison. See also footnote Table 3.

5.5.2 Gender

Panel c of Table 9 separates the sample by gender. It is interesting to note that the anti-corruption campaign had a significant influence for bureaucrats' sons, but not for their daughters. This gender disparity is again not consistent with the explanation of the insider information of bureaucrat parents. If the reduced inter-generational transmission of bureaucratic employment post-campaign had been due to such insider information, it does not make sense that bureaucrat parents would pass on this important information to their sons but not their daughters. Even if these parents had a preference for sons (given the Chinese traditional culture, as widely discussed in China studies literature), they would not harm their daughters by hiding this information from them, when the parents were not facing restrictions of economic resource allocation within the household. After all, the discussion here about the insider information concerns whether bureaucrat parents exploited this information to facilitate their children's decision to leave bureaucracy after the anti-corruption campaign, rather than that they used such information to obtain a job for their children. Only in the latter case, would the limited job options need to be competed for among children and/or between genders.

All in all, the impacts of the anti-corruption measures on the inter-generational transmission of working in bureaucracy were more prominent among individuals at a prime working age and among men. These phenomena seem to be amply explained by the outside option mechanism, whereas they do not support the insider information channel.

5.6 Sensitivity Analyses

We perform additional analyses with a different strategy and various model specifications to check the robustness of our estimates. We also assess the parallel trends measured before the anti-corruption campaign between bureaucrats' children and individuals without a bureaucrat parent. Moreover, we conduct falsification tests with placebo timings of the anti-corruption campaign, in order to rule out potential confounding events being responsible for the reduction in the inter-generational transmission of bureaucratic employment.

The results of these analyses are reported in Table 10, in which panel a replicates the baseline estimate again for ease of comparison. Panel b adopts the Callaway and Sant'Anna (2021) estimator to address the potential issue of heterogeneous treatment effects. The estimate is larger than the baseline estimate and remains strongly significant.

To remove the influence of potential spillover effects from early impacted provinces to later ones, we leverage a different identification strategy by setting the launch of the anti-corruption campaign, namely 2012, as the time of the policy shock identical for the whole of mainland China. Panel c displays the estimate using this approach, and it is apparent that the effect of the campaign remains significantly negative, although the magnitude shrinks.

In the previous main analyses, we include province fixed effects and survey wave fixed effects separately to account for time-invariant regional differentials and variations in time common at the national level, respectively. In panel d of Table 10, we apply an even more flexible specification by including province by survey wave fixed effects. Hence, we take into account potential time-varying divergences at the province level that could have affected the local likelihood of bureaucratic employment, such as the influence of the catastrophic earthquake in Sichuan Province in 2008 or the terrorist attack in Yunnan Province in 2014. The coefficient of interest is unchanged.

In a similar manner, in panel e we include the province-specific linear time trends instead, to control for divergent trends of provinces and obtain similar estimates. Nevertheless, Wolfers (2006) argues that such a model may be mis-specified by assuming an immediate and constant effect of a policy reform, and that introducing the above

Table 10: Sensitivity analyses—effect of the anti-corruption campaign on inter-generational transmission of working in bureaucracy

	(1)		(2)
	Work in bureaucracy		No. of obs.
a. Baseline: Age [35,55)	-0.069	(0.021)***	18,042
b. Callaway and Sant’Anna (2021) estimates	-0.106	(0.032)***	18,042
c. Identical national campaign timing	-0.048	(0.015)***	18,042
d. Province×year FE	-0.069	(0.021)***	18,042
e. Province-specific trends	-0.066	(0.021)***	18,042
f. Model akin to Wolfers (2006)			
Bureaucrat parent × 1 year after	-0.054*	(0.031)	
Bureaucrat parent × 2 years after	-0.072**	(0.035)	18,042
Bureaucrat parent × 3 years after	-0.087**	(0.038)	
g. Event study in DiD			
Bureaucrat parent × 4 years before	-0.027	(0.030)	
Bureaucrat parent × 3 years before	-0.031	(0.025)	
Bureaucrat parent × 2 years before	-0.009	(0.030)	
Bureaucrat parent × 1 year before	0.059	(0.037)	18,042
Bureaucrat parent × 1 year after	-0.066**	(0.031)	
Bureaucrat parent × 2 years after	-0.083**	(0.035)	
Bureaucrat parent × 3 years after	-0.093**	(0.038)	
h. Placebo timing campaign			
Bureaucrat parent × 4 years before	-0.009	(0.018)	
Bureaucrat parent × 3 years before	0.001	(0.020)	14,708
Bureaucrat parent × 2 years before	0.025	(0.025)	
Bureaucrat parent × 1 year before	0.068*	(0.038)	

Note: Only parameter estimates of Bureaucrat parent×Anti-corruption are presented in the table for parsimony and ease of comparison. Panel c uses 2012 as the policy shock time identical for the whole country. In panel f, we model the effect in consecutive intervals while including the province-specific linear time trends. Panel h includes the sub-sample pre-campaign only. See also footnote Table 3.

trends may even exacerbate the bias. Hence Wolfers (2006) proposes estimating a policy impact in consecutive intervals in addition to province-specific trends. By this means, these trends are able to “identify pre-existing trends.” In panel f, we follow this idea and model the flexible response dynamics to the campaign, while including the regional linear trends. We find significant and similar effects of the anti-corruption campaign, and these were persistent and increased over time. Furthermore, in panel g, we assess the parallel pre-trends with the event study in the DiD framework. We interact having a bureaucrat parent with year dummies relative to the province-specific campaign timing. If the coefficients of the interaction terms before the anti-corruption campaign are non-significantly different from zero, we cannot reject the parallel trends measured pre-campaign. All the estimates prior to anti-corruption are non-significant.

Finally, we take placebo tests in panel h by setting different counterfactual timings before the real campaign. We include only the sub-sample before the anti-corruption campaign.¹⁴ We regard four years, three years, two years, and one year before until the real campaign as the counterfactual post-campaign phase. We do not find a significant influence of these placebo campaigns, although with one exception; however, even for the estimate in the last row, the statistical significance is marginal and the sign is opposite to the negative effect of anti-corruption on the inter-generational transmission of working in bureaucracy. Thus, the effects of the anti-corruption campaign on the inter-generational transmission of bureaucratic employment are not due to confounding events occurring at a time around the campaign.

The above analyses confirm the robustness of our estimates. In addition to validating our empirical strategy, these examinations also provide evidence for the persistent effect of the anti-corruption campaign.

6 Discussion and Conclusions

This study shows that counter-corruption measures decrease the inter-generational transmission of working in bureaucracy, and thus inequality in bureaucratic employment in China. We find that individuals with a bureaucrat parent were over 13 p.p. more likely to work in bureaucracy, and that the positive selection on human capital of bureaucrats’ children contributes to 12–25 percent of this premium. However, the anti-corruption campaign reduced the relative economic attractiveness of bureaucratic jobs, and the pre-

¹⁴Panels e and f of Table 10, and again Figure 4 include the complete sample period for such falsification tests, in order to see how the impact of the anti-corruption campaign materialized over time.

mium for bureaucrats' children in employment in bureaucracy by more than 5 p.p. if they were 35 or older. The campaign did not exert an influence for adult children who were younger than 35, the qualifying age for China's civil service examination to enter bureaucracy. Further analyses on potential mechanisms suggest that more attractive outside options for bureaucrats' children play an important role in the significant effects for the older group. We do not find evidence for the other two alternative explanations: the insider information of bureaucrat parents about the campaign, or changes in perceptions of bureaucracy.

The fight against corruption and cronyism in bureaucracy has been one of the challenges for nations. The core issue with which a government is confronted is how to select bureaucrats on talent and motivation, while repressing nepotism (Besley et al., 2021). Most existing literature focuses on the impacts of counter-corruption endeavors on changes in the allocation of economic resources and the performance of firms. Our study pays attention to the other role in the economy instead—the watchdogs; that is, the bureaucrats. We provide quasi-experimental evidence for the effect of anti-corruption measures on the dynamics of bureaucracy and its inequality through inter-generational transmission.

Our findings may have some implications for similar counter-corruption policies. First, the reduced economic attractiveness of working in bureaucracy after the campaign suggests the effectiveness of anti-corruption measures in deterring rent-seeking or “gray incomes.” Second, the choice of not working in bureaucracy in favor of more economically attractive outside options post-campaign selects out individuals with financial incentives. This selectivity induced by anti-corruption measures may be beneficial for bureaucracy if pro-social bureaucrats stay, and financial incentives do not translate into talent. Nevertheless, a campaign may have negative side-effects if individuals who dismiss working in bureaucracy in favor of better outside options are only the talented and competent ones.

We perform two more analyses, to explore whether the competence of bureaucrats diminished, after the campaign. First, we use educational attainment—specifically, holding a college degree—as a proxy variable for the competence of bureaucrats. We simply compare the proportion of bureaucrats with a college degree before and after the anti-corruption campaign in the CGSS data. Prior to the campaign, 50.37% of bureaucrats held a college degree; following the campaign, this increased to 67.12%.¹⁵ If educational

¹⁵With the CFPS, we document consistent evidence that after the campaign, the entry of college degree holders into bureaucracy outnumbered those leaving, so the net entry of college degree holders was positive.

attainment is believed to be an acceptable proxy for competence, the comparison implies an improvement in bureaucrat competence after the campaign.

Second, we investigate the effects of the campaign on perceptions of bureaucracy for the general adult population, irrespective of their employment status or that of their parents. The two outcome variables concerning perceptions of bureaucracy are the same as those in Table 8, and the estimates are reported in Table 11. The campaign strengthened the opinion that the government should not intervene in public criticism, especially among people who did not work in bureaucracy and those who were non-employed. However, the campaign non-significantly reduced satisfaction with how the government dealt with affairs.

Combining the improvement in the educational attainment of bureaucrats with changes in opinions on bureaucracy after the campaign, we do not find evidence that the campaign significantly decreased the competence of bureaucrats or the quality of bureaucratic services following the anti-corruption measures. However, the campaign decreased the inequality of bureaucratic employment, by reducing the premium of bureaucrats' children relative to individuals without a bureaucrat parent.

Table 11: Effects of the anti-corruption campaign on opinions of bureaucracy

	Gov should not intervene public criticism (range: 1–5)			Gov fair and just in handling affairs (range: 1–5)		
	All (1)	Bureaucrats (2)	Others (3)	All (4)	Bureaucrats (5)	Others (6)
Anti-corruption	0.068*** (0.023)	-0.045 (0.097)	0.073*** (0.024)	-0.122 (0.102)	-0.149 (0.406)	-0.132 (0.105)
No. Observations	57,482	3,841	53,641	10,597	659	9,938

Note: The outcome variable in the first three columns is available only from 2011 onward, and the outcome variable in the last three columns is available only for 2015. The sample contains all the individuals aged 18 or older. Columns (2) and (5) only include respondents working in bureaucracy. Columns (3) and (6) include respondents working in other occupations and non-employed people. See also footnote Table 3.

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Appendix A: Definitions of Variables and Descriptives

Table 12: Definitions of main variables

Variable	Definition
Work in bureaucracy	Dummy variable if currently working in bureaucracy, i.e. government and public institutions
Bureaucrat parent	Dummy variable if either parent had worked in bureaucracy when respondent was 14
Post-campaign	Dummy variable of the period after anti-corruption campaign came into effect in a province, i.e. the year after the first senior official in the province was investigated and later
Male	Dummy variable if male
Age	Age when surveyed
Birth cohorts	Dummy variables if born in the 1940s, 50s, 60s, 70s, 80s and 90s, respectively
Han ethnicity	Dummy variable if Han ethnic
Married	Dummy variable if married
High school	Dummy variable if highest educational qualification is high school
College & above	Dummy variable for college degree holders
Urban	Dummy variable if urban resident
Home owner	Dummy variable if home owner
log(Self income)	Natural logarithm of annual personal income
log(Household income)	Natural logarithm of annual household income
Self class	Self-perceived social class of respondent; 1 (lowest) to 10 (highest)
Family economic status	Perceived family economic status; 1 (much lower than average) to 5 (much higher than average)

Table 13: Descriptives of main variables by having a bureaucrat parent or not

Variable	Bureaucrat parent	No bureau parent
	Mean	Mean
Age	38.007	37.693
log(Self income)	9.618	9.550
log(Household income)	10.617	10.539
Self class	4.790	4.400
Family economic status	2.680	2.583
Percentage		
Work in bureaucracy	0.335	0.132
Male	0.519	0.544
Han ethnic	0.840	0.891
Married	0.800	0.799
High school	0.307	0.303
College & above	0.458	0.256
Urban	0.924	0.830
Home owner	0.834	0.845
No. of obs.	6,212	22,593

Table 14: Descriptives of main variables by working in bureaucracy or not

Variable	Bureaucrat	Non-bureaucrat
	Mean	Mean
Age	38.290	37.648
log(Self income)	9.931	9.485
log(Household income)	10.773	10.509
Self class	4.848	4.391
Family economic status	2.778	2.566
Percentage		
Bureaucrat parent	0.411	0.174
Male	0.508	0.545
Han ethnic	0.862	0.884
Married	0.832	0.792
High school	0.243	0.317
College & above	0.619	0.232
Urban	0.920	0.835
Home owner	0.866	0.838
No. of obs.	5,063	23,742

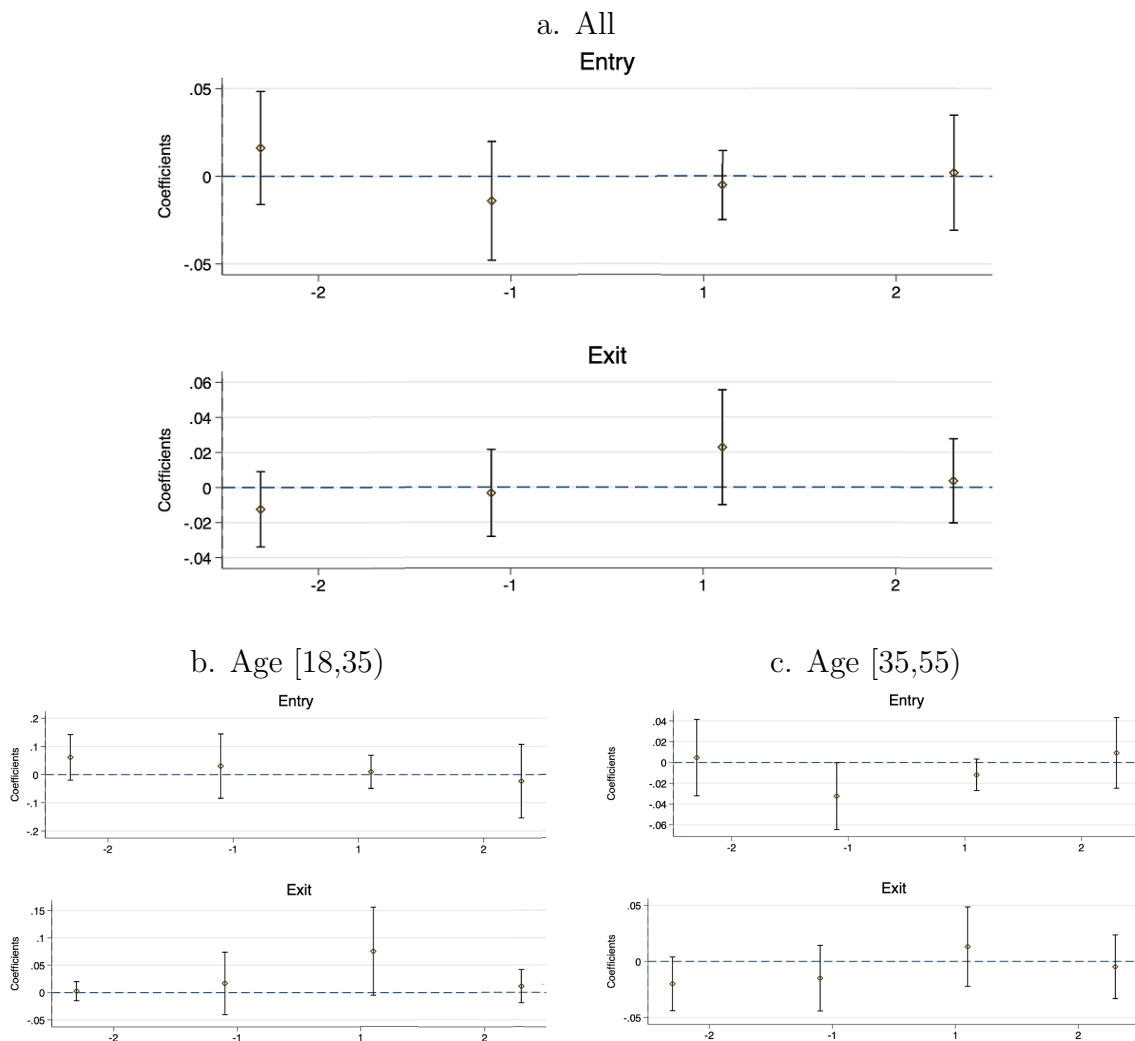
Appendix B: Entry and Exit in Bureaucracy: Additional Evidence from China Family Panel Studies

In this appendix, we attempt to use the China Family Panel Studies (CFPS), a panel at the individual level, to further investigate entry into and exit from bureaucracy, due to the anti-corruption campaign.

The CFPS is a nationally representative panel survey launched in 2010, by the Institute of Social Science Survey (ISSS) of Peking University, China. We have access to the four waves of the survey: 2010, 2012, 2014, and 2016. In the 2010 baseline survey, the CFPS drew a representative random sample of about 15,000 families in China. About 30,000 individuals older than nine from these households were interviewed. They were tracked in follow-up surveys.

We examine both entry into bureaucracy and leaving it for the full sample aged 18 to 54, the younger cohort aged 18 to 34, and the older cohort aged 35 to 54, corresponding to the same three groups in Table 3. Figure 5 shows entry into and exit from bureaucracy of bureaucrats' children, compared with individuals without a bureaucrat parent, in the event study style. We observe an increase in exit from bureaucracy following the anti-corruption campaign. This pattern is present in all the groups shown in the three panels, though the coefficients are imprecisely estimated. However, the figure does not show a clear decrease in entry into bureaucracy after the campaign. Therefore, estimates based on the CFPS, a panel at the individual level, provide additional evidence that the anti-corruption effects are more likely to be driven by increased exits from bureaucracy, rather than decreased entries into it.

Figure 5: Effects of the anti-corruption campaign on entry into and exit from bureaucracy of bureaucrats' children relative to individuals without a bureaucrat parent: evidence from an individual level panel



Note: The figure illustrates entry into and exit from bureaucracy of bureaucrats' children relative to individuals without a bureaucrat parent, in the event study style. The figure is based on the China Family Panel Studies—a panel data set at the individual level. Panel a is for respondents aged 18 to 54, the same as the full sample in the main analyses; panel b includes respondents aged 18 to 34; and panel c includes individuals aged 35 to 54, the same as the baseline sample in the main analyses. The vertical segments denote 95% confidence intervals of estimated coefficients. The horizontal axis shows survey waves relative to the province-specific timing of the campaign.

Appendix C: Additional Analyses

In this section, we perform additional analyses to explore potentially divergent effects of the campaign between the government and public institutions. Then, we exclude the influence of state-owned enterprises, and examine whether the previously identified effects still hold.

C1. Government vs. Public Institutions

As mentioned in the main body of the paper, public institutions are closely affiliated to the government, but not an official part of it. Here, we explore their potential difference in terms of the effects of the anti-corruption campaign.

Panel a of Table 15 shows the results. Prior to the campaign, children of both government workers and public institution employees were more than 12 p.p. more likely to work in bureaucracy. In both the full sample (column (1)) and the baseline sample (column (2)), the negative effects of the anti-corruption measures on the inter-generational transmission of bureaucratic employment were stronger and more significant for children of public institution employees than for children of government workers.

C2. State-Owned Enterprises Excluded

In China, state-owned enterprises (SOEs) are neither bureaucracy—that is, government or public institutions—nor private corporations. In the previous main analyses, we included SOE employees in the reference group, as SOEs are still companies. We now conduct a sensitivity analysis by excluding them from the reference group, and check whether the effects of the campaign still hold.

Panel b of Table 15 shows the relevant estimates. Before the anti-corruption campaign, the premiums of bureaucrats' children were over 14 p.p. when we exclude SOE employees. The effects of the anti-corruption campaign on the inter-generational transmission of working in bureaucracy also become larger. The results imply the advantageous positions of SOE employees in the reference group previously. The conclusions are consistent.

Table 15: Effects of the anti-corruption campaign on the inter-generational transmission of working in bureaucracy: separating government from public institutions, and excluding state-owned enterprises

Work in bureaucracy	All (1)	Age [35,55) (2)
a. Government vs. public institutions		
Government parent	0.142*** (0.012)	0.126*** (0.015)
Public institution parent	0.127*** (0.008)	0.131*** (0.010)
Government parent \times Anti-corruption	-0.067** (0.034)	-0.058 (0.043)
Public institution parent \times Anti-corruption	-0.080*** (0.017)	-0.095*** (0.022)
Anti-corruption	0.004 (0.013)	-0.006 (0.017)
No. observations	28,805	18,042
b. State-owned enterprises excluded		
Bureaucrat parent	0.147*** (0.007)	0.144*** (0.009)
Bureaucrat parent \times Anti-corruption	-0.060*** (0.019)	-0.085*** (0.023)
Anti-corruption	-0.012 (0.014)	-0.025 (0.018)
No. observations	24,798	15,399

Note: In panel b, individuals who or whose parent(s) work in state-owned enterprises are excluded. See also footnote Table 3.