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ABSTRACT

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

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 positive selection on human capital can explain about one third 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.

JEL Classification: D73, H83, O12, P35, D63

Keywords: anti-corruption, bureaucracy, inter-generational transmission, inequality

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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 politician or cadre parent are significantly more likely to work in political institutions or bureaucracy as well (Dal Bó et al., 2009; 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. Such an inequality may partially imply corruption and cronyism which can lead to the mis-allocation of economic resources and talent, and hence be inefficient and unfair (Finan and Mazzocco, 2021).

The current paper studies the effect of anti-corruption endeavors on inequality of bureaucratic employment through the inter-generational transmission of occupations: children of bureaucrats also work in bureaucracy.[2] Economists have provided plenty of evidence about advantages of bureaucrats' children especially in labor market outcomes (e.g., Dal Bó et al. (2009), Li et al. (2012), and Jia et al. (2021)). Economists have also documented how counter-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 anti-corruption efforts on these advantages of bureaucrats' children. This study aims to fill in this gap, through the lens of the inter-generational transmission of bureaucratic employment.

It remains unclear how anti-corruption policies can affect the inter-generational transmission of bureaucratic employment, and ultimately, inequality of bureaucratic employment.[3] First, these measures may directly curb bureaucrat parents from securing the

[1] Bureaucratic 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: "A parent works in the local government or a public institution."

[2] Some other occupations, such as doctor/pharmacist, educator, and manager, are also characterized by persistent inter-generational transmission (Bamieh and Cintolesi, 2021; Mocetti et al., 2022). However, bureaucracy is different from these occupations in the sense that it is substantially more likely to breed corruption and cronyism in bureaucracy, such as bribery and collusion between government officials and entrepreneurs. In Table 18 of Appendix A, we show that these occupations indeed present a strong inter-generational transmission as well, but less substantial than that of bureaucracy. Furthermore, an additional analysis in Appendix B3 shows that the anti-corruption campaign did not exert significant influence on the inter-generational transmission of these selected occupations.

[3] In Appendix C, we provide a simple conceptual framework to facilitate understanding inequality of

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 choose to work in occupations other than bureaucracy for relatively better outside options, owing to their family's superior networks. They could nevertheless also be convinced by the anti-corruption endeavors, and hence devote themselves to public service if they are more pro-social.[4] A better understanding of how the dynamics of bureaucracy and its inequality respond to these counter-corruption efforts 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*.

The recent anti-corruption campaign in China provides a quasi-experimental setting to answer the above 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.[5] 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. Moreover, we show that the investigation time across provinces is not correlated with the level of perceived local corruption before the investigation. One also cannot observe a systematic pattern of the investigation time in terms of the geography or the level of economic development of the provinces. Thus, the above pieces of evidence suggest that the investigation time may be plausibly exogenous to common people.

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 varia-

bureaucratic employment between bureaucrats' children and non-bureaucrats' children, and the potential impact of the anti-corruption campaign on such inequality.

[4] A 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 might be transmitted to their offspring.

[5] Different 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 bureaucrats in our estimation sample consist of low-ranked officials and workers in public institutions, our results are thus not likely to be determined by the former intention.

tions in the timing of the anti-corruption campaign at the provincial level, and set the year or the next year (depending on the investigation time) after the time when the first senior government official in each province was investigated as the "shock time" for that province.[6] 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. This result echoes the findings of Jia et al. (2021), as well as the previously-mentioned anecdotal evidence regarding the inequality of bureaucratic employment and nepotism of bureaucrat selections in China.

Then, we investigate whether the inter-generational transmission of bureaucratic employment could be explained beyond selectivity on human capital or competence. 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 holding a college degree, even when controlling for their own employment in bureaucracy and annual income.[7] 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 bureaucrats' children only accounts for a small proportion of their premium in bureaucratic employment. Hence, positive selection on human capital cannot be responsible for the whole inter-generational transmission of bureaucratic employment. Unobservables, including networks of bureaucrats' children and/or nepotism may play an important role.

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 bureaucratic employment significantly reduced by over 5 p.p. However, the campaign did not exert an influence on the likelihood of working

[6]Though benefiting from richer variations in terms of more precise and relevant timing of anti-corruption endeavors 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.

[7]We also study in Appendix B4 proxy variables for pro-sociality and civic engagement motivation, and do not find that they are significantly different between bureaucrats' children and people without a bureaucrat parent.

in bureaucracy among individuals without a bureaucrat parent.[8]

We further investigate whether the campaign exerted differential 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 and lacking their own networks. 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 work.

Furthermore, we explore potential mechanisms through which the anti-corruption campaign affected the inter-generational transmission of bureaucratic employment, for cohorts of bureaucrats' 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 four channels: more economically attractive outside options for bureaucrats' children, the insider information of bureaucrat parents about the campaign, risk precaution or career concern of bureaucrats' children, and changes in opinions about bureaucracy among bureaucrats' children. First, individuals with a bureaucrat parent may have had relatively better outside options as substitutes for a bureaucratic job, after the campaign diminished the economic attractiveness of working in bureaucracy. Previous studies document that bureaucrats' children have advantages in employment in the private sector, especially in regions with higher government intervention (e.g., Li et al. (2012) and Jia et al. (2021)).

To examine this possibility, we first show that after the campaign, personal income

[8]Note that the likelihood of working in bureaucracy, i.e., our outcome variable, is different from the proportion in bureaucratic jobs for which a group (either bureaucrats' children or non-bureaucrats' children) accounts. It is possible that following the anti-corruption campaign, the likelihood of working in bureaucracy significantly decreased for bureaucrats' children while the same likelihood did not change for non-bureaucrats' children.

significantly decreased for bureaucrats relative to those in other occupations. Then, we provide evidence that even before the campaign, bureaucrats' children had enjoyed a smaller and less significant income premium by working in bureaucracy than in other occupations. Moreover, children of bureaucrats suffered penalties of both household income and household salary, if they continued working in bureaucracy after the anti-corruption campaign. These results go along with the channel of better 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 the insider information of bureaucrat parents.

Third, the anti-corruption campaign might have raised risk precaution or career concern of bureaucrats' children more substantially than non-bureaucrats' children. If so, bureaucrats' children would be more likely to leave bureaucracy due to such a risk precaution or concern following the campaign. We rely on general risk preference and financial investment as available proxies for risk precaution or concern, and do not find that bureaucrats' children became more risk adverse compared to non-bureaucrats' children post-campaign. So, there is no evidence supporting this mechanism of risk precaution or concern of bureaucrats' children.

Additionally, following anti-corruption measures, opinions about bureaucracy could deteriorate to a larger extent among bureaucrats' children than individuals without 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 censor public criticism and satisfaction with how the government dealt with affairs, we do not find that opinions about bureaucracy worsened among bureaucrats' children, compared with individuals without a bureaucrat parent. Thus, changes in perceptions about bureaucracy appear not to explain the effects of the anti-corruption campaign.

Our study addresses several strands of literature. First and foremost, it complements

research on 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 outcomes, including innovations (Xu and Yano, 2017; Fang et al., 2018), production efficiencies (Kong and Qin, 2021; Giannetti et al., 2021), land bids (Chen and Kung, 2019) and lawsuits (Zhang, 2023). 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) document that the anti-corruption efforts resulted in negative selection of lower-ability (measured by activities and achievements during college) and well-connected (comparing bureaucrats' children with children from poor, rural families) candidates into bureaucracy. Lai and Li (2021) examine the number of applications for bureaucratic jobs, and find that the campaign decreased popularity of these jobs. This paper instead investigates the impact of counter-corruption measures on the dynamics of bureaucracy, through the lens of intergenerational transmission among bureaucrats. Moreover, we empirically disentangle four potential mechanisms: better outside options for bureaucrats' children, the insider information of bureaucrat parents, risk precaution or concern of bureaucrats' children, 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 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 mis-allocation 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 politicians and bureaucrats, recent studies find that ties to superior officials or insiders increase the likelihood of being recruited into political institutions (Dal Bó et al., 2009; Fisman et al., 2020; Francois et al., 2023; Jia et al., 2015) and academic institutions (Fisman et al., 2018). Closest to our work are Jia et al. (2021) and Riaño (2021). The former documents 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 involve-

ment 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 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 relatively better outside options. These results align with the studies on nepotism in bureaucratic employment mentioned above. The latter, i.e., Riaño (2021) presents family connections among bureaucrats in Colombia and shows the limited effectiveness of an anti-nepotism legislation with an identical reform time nationwide. Our study leverages richer geographic variations at the provincial level of the timing of the anti-corruption campaign in China, and improves the identification of the policy effects by taking into account potential changes in bureaucratic employment over time at both the national level and the regional level.

Third, our study also speaks to research on the inter-generational transmission of economic status, including occupations and earnings (for an overview, see Solon (1999), Bowles and Gintis (2002), Black and Devereux (2011) and Mogstad and Torsvik (2023)). More recent studies in this literature have focused on the driving forces of such a transmission, including networks/social ties (Corak and Piraino, 2011; Li et al., 2012; Kramarz and Skans, 2014; Bamieh and Cintolesi, 2021; Staiger, 2021; Lo Bello and Morchio, 2022), occupational competitiveness (Mocetti et al., 2022), unions and motivation (Jacinto, 2023), and comparative advantage, choices and preferences (Folke et al., 2017; Lo Bello and Morchio, 2022). Compared with these studies, our paper focuses on the negative impact of a counter-corruption policy shock on the inter-generational transmission of bureaucratic employment. Such a quasi-(natural) experiment is expected to affect exploitation of networks and/or social ties in bureaucratic employment. Moreover, different from previous studies mainly examining the job entry and/or first-job earnings, we leverage the age requirement for the civil service examination in China to explore the anti-corruption effect from perspectives of both the bureaucracy entry and exit, and document evidence for the exit.

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 in occupations of public service, 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 evidence for the influence of financial incentives on the dynamics of bureaucracy. The diminished economic attractiveness of bureaucratic jobs due to anti-corruption measures was associated with the reduced 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 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, competitive 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 range, which is normally between 18 and 35.[9] We exploit this range 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 a relatively low-ranked position have opportunities for rent-seeking or obtaining "gray incomes." For 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.[10]

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.

For comparison purposes, in Table 18 of Appendix A we report the same kind of differences regarding some selected occupations. These occupations are characterized by persistent inter-generational transmission (Mocetti et al., 2022; Bamieh and Cintolesi, 2021).[11] The unconditional propensity of being a doctor/pharmacist is around 13 p.p. higher for children of doctors/pharmacists than for others. The same type of differentials is 11 p.p. and 9 p.p. regarding educators and managers, respectively.[12] These occupations indeed present a strong inter-generational transmission as well, but less substantial than that of bureaucracy.

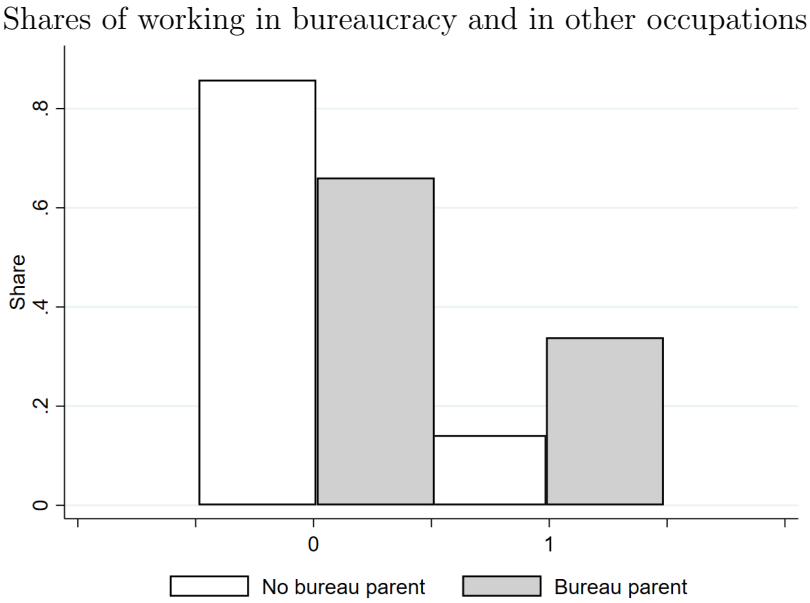
[9] See "The Registration Guideline of the National Civil Service Examination," http://www.chinagwy.org/html/kszc/gj/201910/42_321250.html (in Chinese).

[10] Approval 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.

[11] Mocetti et al. (2022) and Bamieh and Cintolesi (2021) show that lawyer is also one of the occupations with strong inter-generational transmission. In our sample, the number of respondents who work in this occupation is under 20, and hence insufficient for meaningful comparison and analysis.

[12] Note that part of jobs in these selected occupations, especially those in a high rank in public institutions including public hospitals and schools, is classified as bureaucratic jobs.

Figure 1: Bureaucrats' children are more likely to work in bureaucracy than 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, 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 cang 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.[13] 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.

As discussed previously, the relevant literature has explored influence of the anti-corruption campaign on various individual and firm outcomes. This paper, instead, focuses on the potential effect of the campaign on the premium of bureaucrats' children in bureaucratic employment, i.e., the inter-generational transmission of working in bureaucracy. In Appendix C, we provide a simple conceptual framework to facilitate understanding inequality of bureaucratic employment between bureaucrats' children and non-bureaucrats' children, and the potential impact of the anti-corruption campaign on such inequality.

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

3 Data

In this section, we briefly introduce the data for our empirical analyses. First, we use data from the Chinese General Social Survey (CGSS)–representative cross-sectional surveys at the individual level in China. Second, we use the investigation data published on the website of the CCDI. We further incorporate the China Family Panel Studies (CFPS) to provide additional evidence.

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.

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.[14] Public institutions in China are close affiliates to the government, and hence are also influential (Jia et al., 2021).[15] Considering our research question, we focus on

[14] A nice feature of these questions is that they are concerning the time when the respondent was 14 years old rather than when the survey was conducted, which to the largest extent reduces the sensitivity of questions and hence the likelihood of misreporting. The same questions are utilized in Jia et al. (2021) as well.

[15] In Appendix B, 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 insti-

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. This proportion of bureaucrats' children is similar to that filed in Li et al. (2012), Yu et al. (2019), Jia et al. (2021), and Deng et al. (2023). 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.[16]

Tables 16 and 17 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 as individuals without a bureaucrat parent. Bureaucrats' children also have higher personal annual income and household annual income, and hold more optimistic perceptions of their own social class and their family's socio-economic status than non-bureaucrats' children.

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.

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 their children were born. Thus having a bureaucrat parent when the respondents were 14 years old is unlikely to result in a difference from when they were at another age. In other words, the questions on parents' occupations in our survey are valid to study the inter-generational transmission of bureaucratic employment.

tutions. In the same appendix, we conduct another analysis excluding people working in state-owned enterprises from our estimation sample. The results are again similar.

[16]The fraction of bureaucrats sounds high, especially compared to Western democracies. Note that China has a substantially larger proportion of the public sector in its economy relative to Western democracies, and that bureaucrats consist of both government workers and employees in public institutions in our study. Moreover, our estimation sample includes only working people at the general working age in China (18–55).

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 was 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.[17] Table 1 shows the time when the anti-corruption campaign came into effect in each province of mainland China. In the table, one cannot observe a systematic pattern of the investigation time across provinces in terms of the geography or the level of economic development.

Table 1: Time when anti-corruption campaign took effect in different provinces of mainland China

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

Moreover, we exploit the information about the perceived local corruption from the China Family Panel Studies (CFPS) to explore whether there is a correlation between the investigation time and corruption before the investigation. Table 2 presents the five provinces with the highest perceived local corruption before the year of the column. The provinces are marked in red if they had been investigated by the year of the column. For example, the provinces in the first column are the top five most corrupt ones viewed by local residents in 2012 (before the year of the first column, i.e., 2014; the variable of perceived corruption does not exist in Wave 2010); however, none of them had been investigated by 2014. The provinces in the second and third columns are regarded as the most corrupt on average from 2012 to 2014; only two of them, Hunan and Shanxi, had

[17] Labor market outcomes, such as job transitions and unemployment, are usually lagged outcome variables.

been investigated by 2015.[18] The descriptive evidence seems to show that the investigation time is not strongly correlated with the (perceived) local corruption prior to the investigation among the provinces.

Table 2: Five provinces with highest perceived local corruption by year

2014	2015	2016
Hunan	Beijing	Beijing
Beijing	Heilongjiang	Heilongjiang
Tianjin	Hunan	Hunan
Heilongjiang	Tianjin	Tianjin
Shanghai	Shanxi	Shanxi

Note: Data on perceived local corruption are from the CFPS. Provinces marked in red are the ones that had been investigated by the year of the column.

In Table 3, we further examine the significance of the potential association between the perceived local corruption prior to the investigation and the investigation time across provinces. Column (1) reports such an association between the perceived local corruption in a province in 2012 and the probability of the province being investigated in 2014. In column (2), we drop the provinces which had been investigated in 2014, and obtain the association between the perceived local corruption averaged from 2012 to 2014 and the likelihood of the province being investigated in 2015. In the last column, provinces which had been investigated by 2015 are discarded; then the association between the average perceived local corruption from 2012 to 2014 and the probability of the province being investigated in 2016 is -0.3. None of these associations are statistically significant. In Tables 2 and 3, we aim to provide suggestive evidence that the investigation time is not significantly correlated with the perceived corruption across provinces and hence may be plausibly exogenous to common people.

Table 4 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 campaign time 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,

[18] It makes sense that the number of provinces that had been investigated increases with time, and by 2017 all the provincial administrative divisions of mainland China had been investigated.

Table 3: No significant association between the perceived local corruption prior to investigation and the investigation time at the provincial level: Evidence from CFPS

	Perceived local corruption (range: 0 – 10)		
	in 2012	mean in 2012 & 2014	
	(1)	(2)	(3)
Investigation in 2014	0.068		
	(0.369)		
Investigation in 2015		-0.190	
		(0.179)	
Investigation in 2016			-0.315
			(0.301)
No. observations	25	23	12

Note: Column (1) includes 25 rather than all the 31 mainland provinces due to the data limitation of the CFPS. Column (2) drops the provinces investigated in 2014, and column (3) further discards the provinces investigated in 2015; that is why the number of observations varies across columns. *p < 0.10; **p < 0.05; ***p < 0.01.

the likelihood of working in bureaucracy for bureaucrats' children declined by 3.4 p.p. after the campaign.

Table 4: Difference-in-differences calculations without covariates: Likelihood of working in bureaucracy decreased after anti-corruption campaign among bureaucrats' children in comparison to individuals without a bureaucrat parent

	No bureaucrat parent			Bureaucrat parent			
	Pre	Post	Δ	Pre	Post	Δ	ΔΔ
Probability 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		

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 investigate 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

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

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 variable that values one if the respondents currently worked in bureaucracy.

Furthermore, BP indicates a dummy variable if either of the respondents' parents had worked in bureaucracy when they were 14 years old. $Cpgn$ is a dummy variable 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 variable for male, age and age squared, birth cohort dummies, a dummy variable for Han ethnicity, a dummy variable for being married, a dummy variable for holders of the highest educational level of high school, a dummy variable for college degree holders, and another dummy variable for residing in the urban area.[19]

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. α_t is a vector of survey year dummies, and α_p is a vector of dummies of the provincial divisions of mainland China. These two sets of fixed effects separately account for time variations common at the national level and time-invariant regional differentials, respectively. Finally, ϵ is an error term. In our main analyses, we use robust standard errors in order to alleviate potential issues of serial correlation and heteroskedasticity. As a sensitivity analysis, we also cluster standard errors at the provincial level, and present the corresponding estimate in Table 13.

The conventional DiD estimates with period and group fixed effects may be biased, if the "treatment effect" is heterogeneous between groups or across time (De Chaisemartin and D'Haultfoeuille, 2022). This could be an issue in the context of our study, since the anti-corruption campaign came into effect at a different time and might exert a differential

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

influence in different provincial divisions of mainland China. Providing the binary policy "treatment" and the staggered design of the current study, we adopt the Callaway and Sant'Anna (2021) estimator.[20] In the absence of the anti-corruption campaign, there might have been an increasing discrepancy in bureaucratic employment over time between bureaucrats' children and individuals without a bureaucrat parent. This could be due to, e.g., the decelerated economic growth and hence the less economically attractive jobs in the private sector in China, even though the trends prior to the campaign between the two groups of people are shown to be parallel below. De Chaisemartin and D'Haultfoeuille (2022) argue that in case of a potential enlarged discrepancy between groups' trends over time, the Borusyak (2022) estimator is more biased than the Callaway and Sant'Anna (2021) estimator. To be conservative, we prefer the Callaway and Sant'Anna (2021) estimator in this study and show the corresponding results in the following subsection and in Table 13. The Callaway and Sant'Anna (2021) estimates are similar to the baseline ones and do not change the conclusions. Therefore, the heterogeneous treatment effect does not seem a serious issue in our analyses.

In Section 5.6, we try to address additional potential threats to our identification strategy. First, we adopt a more flexible specification by including province by survey wave fixed effects. In this way, we account for potential time-varying divergences at the provincial level that could have affected the local likelihood of bureaucratic employment, such as corruption or cronyism and other policy reforms divergent in different provinces. Second, we include the province-specific linear time trends to control for differential trends of provinces in terms of bureaucrat employment. Third, we use the year 2012 when the campaign was launched as the time of the policy shock for the whole of mainland China. By this means, we attempt to mitigate the potential spillovers from early investigated provinces to later ones. We obtain consistent and similar estimates with these modified specifications. Finally, we conduct falsification tests by using counterfactual investigation time prior to the real campaign, and by examining the potential effects of the campaign on other occupations characterized by persistent inter-generational transmission. We do not detect significant influence from either of the two types of tests.

[20] The Callaway and Sant'Anna (2021) estimator is identical to the Sun and Abraham (2021) estimator in our analyses, because we use the never-treated group–individuals without a bureaucrat parent–as the control group (De Chaisemartin and D'Haultfoeuille, 2022).

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 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 13. 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.

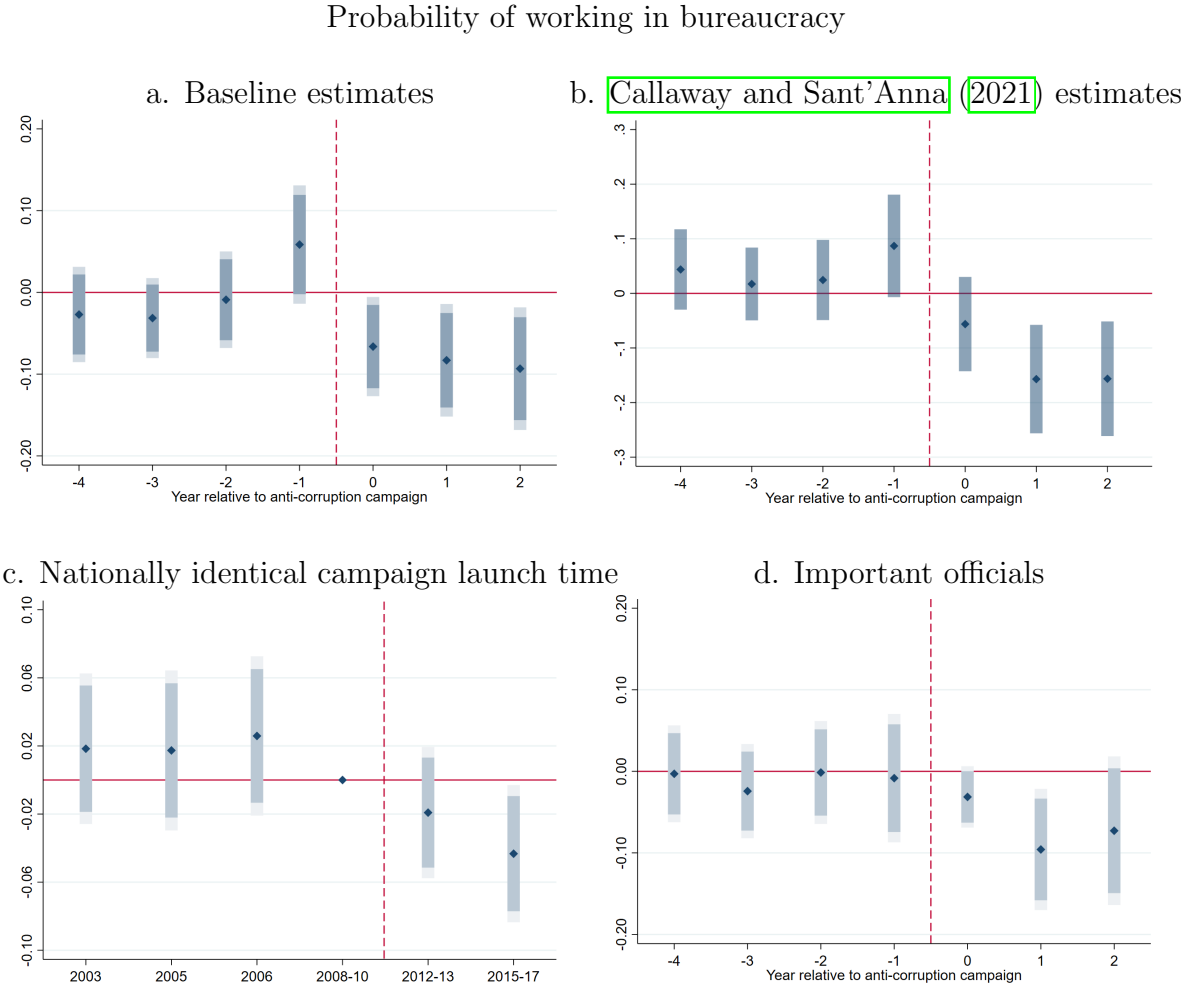
Panel a of Figure 2 visualizes the estimates of the interactions of having a bureaucrat parent and dummies of years relative to the campaign. The interaction coefficients prior to the anti-corruption campaign are non-significantly distinguishable from zero. Therefore, arguably, the trends of working in bureaucracy, measured pre-campaign, are parallel between bureaucrats' children and individuals without a bureaucrat parent.

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 c of Table 13 displays the Callaway and Sant'Anna (2021) estimates.

Panels 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 d of Table 13.

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 in-

Figure 2: Event study in DiD framework: Coefficients of interactions of having a bureaucrat parent and time period dummy variables–likelihood of working in bureaucracy decreased after anti-corruption campaign among bureaucrats' children relative to non-bureaucrats' children



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 only important officials investigated when determining the investigation time, and exclude investigated members in the provincial or lower level committees of the Chinese People's Political Consultative Conference (CPPCC).

side 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 important bureaucratic influence or power. We thus exclude them when determining the anti-corruption time across provinces, as investigations 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 5.[21] 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 5. 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 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 justi-

[21] Full parameter estimates are available on request.

fying the assumption of DiD that the campaign did not affect the control group. Note that the probability of working in bureaucracy, i.e., our outcome variable, is different from the proportion in bureaucratic jobs for which a group (either bureaucrats' children or non-bureaucrats' children) accounts. It is possible that following the anti-corruption campaign, the likelihood of working in bureaucracy significantly decreased for bureaucrats' children while the same likelihood did not change for non-bureaucrats' children.

Table 5: Anti-corruption campaign decreased the inter-generational transmission of bureaucratic employment, but did not significantly affect working in bureaucracy in general

Work in bureaucracy	All		Age [18,35)		Age [35,55)	
	(1)	(2)	(3)	(4)	(5)	(6)
Bureaucrat parent	0.138***		0.142***		0.134***	
	(0.007)		(0.011)		(0.008)	
Bureaucrat parent × Anti-corruption	-0.051***		-0.020		-0.069***	
	(0.017)		(0.029)		(0.021)	
Anti-corruption	0.000	-0.010	0.013	0.009	-0.008	-0.021
	(0.013)	(0.013)	(0.021)	(0.021)	(0.016)	(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 variable for male, age and age squared, birth cohort dummies, a dummy variable for Han ethnicity, a dummy variable for being married, a dummy variable for holders of the highest educational level of high school, a dummy variable for college degree holders, another dummy variable 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.

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 by the cutoff age of qualification for the civil service examination in China, namely 35 years old. Good performance in this examination is a prerequisite for bureaucratic employment. 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 increased leaving bureaucracy.

Later, we document that the campaign decreased the relative economic attractiveness of working in bureaucracy (Deng and Wei, 2024). This may suggest that incumbent bureaucrats, especially the experienced ones, with a bureaucrat parent left bureaucracy for better outside options, thanks to their established networks both inside and outside bureaucracy enhanced by their parent's networks.[22] 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.

5.2 Selectivity on Human Capital of Bureaucrats' Children

In the previous sub-section, we observed that bureaucrats' children were substantially more likely to work in bureaucracy. Can such a discrepancy be explained by positive selection on human capital 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.[23]

Table 6 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. The outcome variable in columns (1), (2), (4) and (5) is a dummy variable of holding a college degree, and the outcome variable in columns (3) and (6) is a dummy variable of working in bureaucracy. 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-

[22] Indeed, an average Chinese person at the age of 35 plus is usually immobile regarding job transitions in China, and an average Chinese person who loses their job when they are over 35 years old will find it challenging to obtain a decent job again in general in China. However, the mechanism of outside options for which we find evidence in our analysis later refers to the bureaucrats' children older than 35, i.e., those who have worked in bureaucracy for more than one or two decades and hence established networks both inside and outside bureaucracy, facilitated by their parents' networks. Thus, these bureaucrats' children at the age of 35 plus who left bureaucracy are very different from the average Chinese person unemployed at 35 plus. The former would arrange and manage a smooth and/or beneficial job transition from bureaucracy, thanks to their previously established networks. An article published on 4 September 2014 in the Wall Street Journal (https://www.wsj.com/articles/chinese-officials-are-fleeing-the-public-sector-for-the-private-sector-1409835345) reported that due to the recent anti-corruption campaign, many officials in China especially the experienced and established ones have left the public sector for the private sector.

[23] In Appendix B4, we further try to explore the roles of the potential selection on unobservable components of human capital that may be most relevant to bureaucratic employment, such as pro-sociality and civic engagement motivation. We do not find that they are significantly different between bureaucrats' children and people without a bureaucrat parent. We acknowledge that the data limitation restricts our capacity from comprehensively investigating all possible unmeasured/unobserved components of human capital.

Table 6: Bureaucrats' children were more likely to hold a college degree than individuals without a bureaucrat parent; however, educational premium of bureaucrats' children only partially contributed to their premium in bureaucratic employment before the campaign

	All			Age [35,55)		
	College		Work in bureau	College		Work in bureau
	(1)	(2)	(3)	(4)	(5)	(6)
Bureaucrat parent	0.194***	0.116***	0.123***	0.176***	0.096***	0.134***
	(0.007)	(0.007)	(0.008)	(0.009)	(0.009)	(0.009)
Bureaucrat parent ×	0.070***	0.082***	-0.059***	0.091***	0.107***	-0.079***
Anti-corruption	(0.018)	(0.017)	(0.018)	(0.023)	(0.022)	(0.022)
Bureaucrat parent ×			0.037***			0.007
College			(0.013)			(0.018)
College ×			0.009			0.033
Anti-corruption			(0.013)			(0.020)
Work in bureaucracy	No	Yes	No	No	Yes	No
log(Self income)	No	Yes	No	No	Yes	No
No. observations	28,805	25,895	28,805	18,042	16,327	18,042

Note: See footnote Table 5. The outcome variable in columns (1), (2), (4) and (5) is a dummy variable of holding a college degree, and the outcome variable in columns (3) and (6) is a dummy variable of working in bureaucracy. The smaller numbers of observations in columns (2) and (5) are due to missing values of self-reported annual income controlled for in the corresponding specifications.

corruption measures. When we control for working in bureaucracy and annual income of respondents in columns (2) and (5), this association largely shrinks for the pre-campaign phase. This result suggests that within bureaucracy, with comparable incomes, bureaucrats' children are positively selected into bureaucratic employment on human capital.

In columns (3) and (6), we explore to what extent the human capital advantage of bureaucrats' children is responsible for their premium in bureaucratic employment, before the campaign. Specifically, we add two more interaction terms, *Bureaucrat parent* × *College* and *College* × *Anti-corruption*, to the baseline model specifications. The coefficients of *Bureaucrat parent*×*College* show that the educational premium of bureaucrats' children increases their probability of working in bureaucracy by another 0.7 p.p. (non-significantly though, for the baseline sample) to 3.7 p.p. (for the whole sample), in addition to their existing 12.3 p.p. (for the whole sample) to 13.4 p.p. (for the baseline sample) premium in bureaucratic employment, compared to non-bureaucrats' children. This result suggests that positive selection on human capital of bureaucrats' children accounts for 5% (= 0.007/(0.134+0.007), for the baseline sample) to 23% (= 0.037/(0.123+0.037), for the whole sample) of their premium in bureaucratic employment. From the coefficients of *College* × *Anti-corruption*, one also sees that the influence of educational attainment

on bureaucratic employment does not significantly change after the campaign. Moreover, the negative effect of the campaign on the inter-generational transmission of bureaucratic employment is still significant and becomes more sizable than that in Table 5.

The patterns of the estimates in Table 6 imply the existence of positive selection on human capital for bureaucrats' children in bureaucratic employment. They also imply that other unobservables may be more important than this selectivity in explaining the inter-generational transmission of bureaucratic employment. Other unobserved characteristics could include the pro-social proclivity, civic engagement motivation and social networks/nepotism of bureaucrats' children. Nonetheless, in Appendix B4 using various proxies for pro-sociality and civic engagement motivation, we do not find that they are significantly different between bureaucrats' children and non-bureaucrats' children. The limited contribution of selection on human capital and the finding in the next sub-section 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 Attractiveness of Bureaucratic Employment

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 7. 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 (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

Table 7: Anti-corruption campaign reduced economic attractiveness of bureaucratic jobs

	(1) log(Self income)	(2) log(HH income)	(3) Home ownership	(4) Self class	(5) Family Econ status
Self/HH work in bureau (γ)	0.197***	0.112***	0.007	0.160***	0.127***
	(0.036)	(0.018)	(0.007)	(0.046)	(0.015)
Self/HH work in bureau × Anti-corruption (δ)	-0.193***	-0.013	-0.002	0.003	-0.036
	(0.067)	(0.035)	(0.012)	(0.079)	(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 5. The different numbers of observations across columns are due to missing values of corresponding outcome variables.

campaign reduced the personal income advantage of bureaucrats significantly,[24] and their other advantages in household income, wealth, and social status non-significantly. This mirrors the finding of Deng and Wei (2024). The annual personal income is the most important measurement for the economic attractiveness of a job. In the penultimate row of Table 7, 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 rendered working in bureaucracy less economically attractive.[25]

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 potential mechanisms, including outside options for bureaucrats' children, the insider information of bureaucrat parents, risk precaution or career concern of bureaucrats' children, and changes in perceptions of

[24]The 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 various bonuses and/or rent-seeking. A report in January 2014 on People.cn (http://politics.people.com.cn/n/2014/0123/c1001-24202281.html) also wrote that various bonuses were cancelled and gray incomes were reduced for bureaucrats after the recent counter-corruption endeavors in China.

[25]We acknowledge that it is likely for bureaucrats to misreport their incomes for different incentives compared to non-bureaucrats, especially after the campaign. Thus, the results about the incomes of bureaucrats in Table 7 are suggestive.

bureaucracy among bureaucrats' children.

5.4.1 Outside Options for Bureaucrats' Children

The first mechanism through which the anti-corruption campaign affected the intergenerational transmission of bureaucratic employment is the relatively 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 relatively better outside options, probably thanks to their parents' networks.

Table 8: Mechanism of outside options: Income premium of bureaucrats' children had been smaller in bureaucracy than in other occupations pre-campaign already; moreover, bureaucrats' children suffered income and salary penalties if they continued to work in bureaucracy post-campaign

	log(Annual personal income)		log(HH inc per capita)	log(HH salary per capita)
	Bureaucracy	Other		
	(1)	(2)	(3)	(4)
Bureaucrat parent	0.057	0.097*		
	(0.052)	(0.051)		
Bureaucrat parent×Work in bureau×Anti-corruption			-0.320*	-0.344**
			(0.164)	(0.150)
Bureaucrat parent×Work in bureau			0.238	0.233
			(0.365)	(0.415)
Bureaucrat parent×Anti-corruption			0.223**	0.190*
			(0.089)	(0.106)
Work in bureau×Anti-corruption			0.085	0.070
			(0.057)	(0.064)
Work in bureau			-0.055	-0.005
			(0.055)	(0.061)
Anti-corruption			-0.077*	-0.027
			(0.039)	(0.047)
No. observations	2,457	10,697	7,381	

Note: Columns (1) and (2) include observations prior to the campaign only; see also footnote Table 5. Columns (3) and (4) are based on the CFPS both before and after the campaign, and include the sub-sample of respondents aged 35 to 55 during the data period 2010–2018; these two columns further include the individual fixed effects in addition to the baseline covariates, thanks to the individual panel structure of the CFPS.

In columns (1) and (2) of Table 8, 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 already 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. This suggests the mechanism of relatively better outside options for bureaucrats' children.

In columns (3) and (4), we explore the income and salary variations, respectively, of the inter-generational transmission of bureaucratic employment over time. The estimates of these two columns are based on the China Family Panel Studies (CFPS), a panel at the individual level. We exploit the individual panel data in order to alleviate the influence of changes in sample compositions due to the campaign. We further include the individual fixed effects in the two columns to remove the time-invariant differentials between individuals. The coeffcients of interest are those of the interaction term $Bureaucrat\ parent \times Working\ in\ bureaucracy \times Anti\text{-}corruption$. After the anti-corruption campaign, children of bureaucrats suffered penalties in both annual household income and salary per capita[26] if they still worked in bureaucracy. This is also in accord with the proposed mechanism of outside options for bureaucrats' children.[27]

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

[26]Since the annual personal income does not exist in all waves of CFPS, the annual household income and salary per capita are the two best available alternatives in the data.

[27]Note that in the CFPS, there are no questions directly providing information on parental (previous) employment in the government or public institutions as in the CGSS. We had to rely on one question in Wave 2010 that asks the respondents whether their parents are/have been the head of a state affiliate. The answer to this question might identify the relatively high ranked cadres only. Thus, we managed to identify only 220 observations of bureaucrats' children, accounting for merely 2.98% of the sample. In our main data CGSS, bureaucrats' children account for about 20% of the sample, similar to that filed in Li et al. (2012), Yu et al. (2019), Jia et al. (2021), and Deng et al. (2023).

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 9: Mechanism of insider information of bureaucrat parents: No significant heterogeneous campaign effects in terms of (proxies for) access to insider information on the inter-generational transmission of working in bureaucracy

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

Note: The information on the position ranks of bureaucrat parents is available only from 2010 onward, so the number of observations is smaller in row c1 than in rows a and b. 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 and hence is even smaller than that in row c1; high ranks refer to positions at the deputy-division-head level and above. See also footnote Table 5.

Table 9 displays the results, in which only the estimates for the interactions of the corresponding proxy and Bureaucrat parent×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 variable 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.[28] 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 variable 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

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

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 Risk Precaution of Bureaucrats' Children

One might also think of a potential mechanism of risk precaution or career concern following the campaign. However, if working in bureaucracy were regarded as riskier after the campaign, and leaving bureaucracy were seen as a preventive measure, then bureaucrats, regardless of their parents' occupations, would be inclined to leave bureaucracy. Thus, it would not affect the inter-generational transmission of bureaucratic employment. This channel would work only if the campaign triggered the risk precaution or concern of bureaucrats' children and non-bureaucrats' children differently.

We use general risk preference and financial investment as available proxies in our data for risk precaution or concern to test this potential mechanism. Table 10 reports the results. After the campaign, general risk preference increased among bureaucrats' children in comparison to non-bureaucrats' children, and changes in financial assets investment were not significantly different between them. This is inconsistent with the proposed mechanism of risk precaution or concern: if bureaucrats' children left bureaucracy post-campaign due to risk precaution and concern, we would have observed a reduction in risk preference among bureaucrats' children relative to non-bureaucrats' children post-campaign. Thus, we do not find evidence supporting the channel of risk precaution or concern of bureaucrats' children.

5.4.4 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

Table 10: Mechanism of risk precaution: No significant negative effects of campaign on risk preference of bureaucrats' children relative to non-bureaucrats' childen

	(1)	(2)	(3)	(4)
	Risk pref	$1_{Riskpref}$	1_{Invest}	1_{Stocks}
Bureaucrat parent	-0.502***	-0.230***	0.023**	0.008
	(0.144)	(0.064)	(0.011)	(0.010)
Anti-corruption	0.435***	0.109*	-0.002	-0.003
	(0.134)	(0.057)	(0.017)	(0.015)
Bureaucrat parent ×	0.575***	0.259***	-0.039	-0.034
Anti-corruption	(0.162)	(0.069)	(0.032)	(0.028)
No. observations	1,144		9,366	

Note: The outcome variable in column (1) is preference for life with risks and opportunities rather than common and stable life–1 is strongly disagree and 5 is strongly agree; the outcome variable in column (2) is the dummy variable for preference for life with risks and opportunities which values 1 if the original response is either 4 or 5 and values 0 otherwise; the outcome variable in column (3) is the dummy variable for making any investment; the outcome variable in column (4) is the dummy variable for buying stocks. Outcome variables in columns (1) and (2) only exist in CGSS Waves 2015 and 2017, while outcomes in columns (3) and (4) are from CGSS Waves 2010-2015. See also footnote Table 5.

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.

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 censor it." 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 11 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 censorship of 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 censor public criticism,

Table 11: Mechanism of perceptions of bureaucracy: Anti-corruption campaign did not deteriorate opinions of bureaucracy among bureaucrats' children relative to non-bureaucrats' children

	Gov should not censor public criticism (range: 1–5)			Gov fair and just in handling affairs (range: 1–5)		
	All	Bureaucrats	Others	All	Bureaucrats	Others
	(1)	(2)	(3)	(4)	(5)	(6)
Bureaucrat parent	0.047	0.075	0.042	-0.033	-0.057	-0.029
	(0.035)	(0.064)	(0.042)	(0.077)	(0.133)	(0.101)
Anti-corruption	0.007	-0.056	0.013	-0.331**	-0.490	-0.337*
	(0.057)	(0.136)	(0.062)	(0.169)	(0.336)	(0.195)
Bureaucrat parent ×	-0.083	-0.149	-0.039	0.182*	0.081	0.243*
Anti-corruption	(0.066)	(0.126)	(0.079)	(0.110)	(0.214)	(0.142)
Treat mean pre-campaign	2.947	2.883	2.984	2.971	3.041	2.918
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. The last row but one reports the mean of the corresponding outcome variable for bureaucrats' children prior to the campaign. See also footnote Table 5.

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 12, 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 5, 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 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 relatively 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 implies the persistent inter-generational transmission of bureaucratic employment from incumbent parents.

5.5.2 Gender

Panel c of Table 12 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

Table 12: Heterogeneity investigation: Heterogeneous campaign effects in terms of age cohort and gender on the inter-generational transmission of working in bureaucracy

	(1) Work in bureaucracy		(2) 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 Bureaucrat parent×Anti-corruption are presented in the table for parsimony and ease of comparison. See also footnote Table 5.

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 13, in which panel a replicates the baseline estimate again for ease of comparison. Panel b shows the estimate with standard errors clustered at the provincial level. In panel c, we adopt 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 d 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 time variations common at the national level, respectively. In panel e of Table 13, 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 provincial level that could have affected the local likelihood of bureaucratic employment, such as corruption or cronyism divergent in different provinces, as well 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 f 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 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 g, 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 h, 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 time. 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.

Table 13: Sensitivity analyses: Effect of anti-corruption campaign on the inter-generational transmission of working in bureaucracy

	(1) Work in bureaucracy		(2) No. of obs.
a. Baseline: Age [35,55)	-0.069	(0.021)***	18,042
b. S.E. clustered at provincial level	-0.069	(0.019)***	18,042
c. Callaway and Sant'Anna (2021) estimates	-0.106	(0.032)***	18,042
d. Identical national campaign timing	-0.048	(0.015)***	18,042
e. Province×year FE	-0.069	(0.021)***	18,042
f. Province-specific trends	-0.066	(0.021)***	18,042
g. 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)	
h. 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)	
i. 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 d uses 2012 as the policy shock time identical for the whole country. In panel g, we model the effect in consecutive intervals while including the province-specific linear time trends. Panel i includes the sub-sample pre-campaign only, so the sample size is smaller. See also footnote Table 5.

Finally, we take placebo tests in panel i by setting different counterfactual timings before the real campaign. We include only the sub-sample before the anti-corruption campaign.[29] 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.

Again, for comparison purposes, in panel c of Table 19 in Appendix B3 we explore the potential effects of the campaign on the inter-generational transmission of the selected occupations discussed previously. This may be regarded as an analysis akin to another type of placebo tests with counterfactual impacted occupations, though part of jobs in these occupations is classified as bureaucratic jobs. The selected occupations also bear persistent inter-generational transmission. However, the anti-corruption campaign did not have a significant effect on such a transmission of them.

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 hence 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 30–39 percent of this premium prior to the recent anti-corruption campaign. However, the campaign reduced the relative economic attractiveness of bureaucratic jobs, and the premium for bureaucrats' children in bureaucratic employment by more than 5 p.p. if they were 35 or older. The campaign did not exert an influence for bureaucrats' children younger than 35, the qualifying age for China's civil service examination to enter bureaucracy. Further analyses on potential mechanisms suggest that

[29] Panels g and h of Table 13, and again Figure 2 include the complete sample period, in order to see how the impact of the anti-corruption campaign materialized over time.

relatively 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 three alternative explanations: the insider information of bureaucrat parents about the campaign, risk precaution or concern of bureaucrats' children, or changes in perceptions of bureaucracy.

The fight against corruption and cronyism in bureaucracy has been one of the challenges for many countries. 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, i.e., bureaucrats. We provide quasi-experimental evidence for the effect of anti-corruption measures on the dynamics of bureaucracy and its inequality through the inter-generational transmission of occupations.

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 relatively 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 leave bureaucracy in favor of relatively 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 the 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%. If educational 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 11, and the estimates are reported in Table 14. The campaign strengthened the opinion that the government should not censor 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. Compared with the means of these perceptions of bureaucracy prior to the campaign (the last row but one in the table), the magnitudes of perception changes following the campaign are also rather small.

Table 14: Anti-corruption campaign did not significantly deteriorate opinions of bureaucracy among general adult population

	Gov should not censor public criticism (range: 1–5)			Gov fair and just in handling affairs (range: 1–5)		
	All	Bureaucrats	Others	All	Bureaucrats	Others
	(1)	(2)	(3)	(4)	(5)	(6)
Anti-corruption	0.068***	-0.045	0.073***	-0.122	-0.149	-0.132
	(0.023)	(0.097)	(0.024)	(0.102)	(0.406)	(0.105)
Mean pre-campaign	2.813	2.877	2.808	3.192	3.131	3.196
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. The last row but one reports the mean of the corresponding outcome variable prior to the campaign. See also footnote Table 5.

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 perceived 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.

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Appendix A: Definitions of Variables and Descriptives

Table 15: 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 16: Descriptives of main variables by having a bureaucrat parent or not

	Bureaucrat parent	No bureaucrat parent
Variable	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 17: Descriptives of main variables by working in bureaucracy or not

Variable	Bureaucrat Mean	Non-bureaucrat 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

Table 18: Propensity of working in selected occupations by having a parent in the same occupation or not

	Percentage	Percentage
a.	Bureaucrat parent	No bureaucrat parent
Bureaucrat	0.335	0.132
No. of obs.	6,212	22,593
b.	Doctor/pharmacist parent	No doctor/pharmacist parent
Doctor/pharmacist	0.154	0.022
No. of obs.	714	27,582
c.	Educator parent	No educator parent
Educator	0.152	0.047
No. of obs.	1,688	26,608
d.	Manager parent	No manager parent
Manager	0.149	0.062
No. of obs.	1,487	24,297

Note: The numbers of observations in panels b and c are smaller than that in panel a, because the former information is from another variable of more detailed occupation categories that include missing values; the number of observations in panel d is further reduced in that categories of managers do not exist in survey wave 2005.

Appendix B: 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. We also explore the potential influence of the campaign on the inter-generational transmission of some selected occupations with strong dynastic persistence. Moreover, we try to further explore the potential selection on unobservable human capital of bureaucrats' children in bureaucratic employment.

B1. 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 19 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.

B2. 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 19 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 19: Effect of anti-corruption campaign on the inter-generational transmission of bureaucratic employment: separating government from public institutions, excluding state-owned enterprises, and other selected occupations

Work in bureaucracy	All	Age [35,55)
	(1)	(2)
a. Government vs. public institutions		
Government parent	0.142***	0.126***
	(0.012)	(0.015)
Public institution parent	0.127***	0.131***
	(0.008)	(0.010)
Government parent × Anti-corruption	-0.067**	-0.058
	(0.034)	(0.043)
Public institution parent × Anti-corruption	-0.080***	-0.095***
	(0.017)	(0.022)
Anti-corruption	0.004	-0.006
	(0.013)	(0.017)
No. observations	28,805	18,042
b. State-owned enterprises excluded		
Bureaucrat parent	0.147***	0.144***
	(0.007)	(0.009)
Bureaucrat parent × Anti-corruption	-0.060***	-0.085***
	(0.019)	(0.023)
Anti-corruption	-0.012	-0.025
	(0.014)	(0.018)
No. observations	24,798	15,399
c. Selected occupations	Work in corresponding occupation	
Doctor/pharmacist parent × Anti-corruption	-0.019	0.027
	(0.041)	(0.058)
Educator parent × Anti-corruption	0.014	0.019
	(0.026)	(0.032)
No. observations	27,503	17,295
Manager parent × Anti-corruption	-0.026	0.010
	(0.029)	(0.052)
No. observations	25,017	15,709

Note: In panel b, individuals who or whose parent(s) work in state-owned enterprises are excluded. In panel c, we implement three analyses corresponding to three selected occupations, i.e., doctor and pharmacist, educator, and manager, respectively; only parameter estimates of the interaction term of interest are presented in the table for parsimony and ease of comparison; the numbers of observations in the analyses regarding the doctor/pharmacists and educators are smaller than that concerning bureaucrats, because the former information is from another variable of more detailed occupation categories that include missing values; the number of observations in the analysis about managers is further reduced in that categories of managers do not exist in survey wave 2005. See also footnote Table 5.

B3. Some Selected Occupations

Some other occupations bear persistent inter-generational transmission as well. These occupations include doctors/pharmacists, educators, managers and so forth. A caveat is that in China, part of jobs in these occupations, especially those in a high rank in public institutions such as public hospitals and schools, is categorized as bureaucratic jobs.

In panel c, we investigate the effects of the campaign on the inter-generational transmission of these occupations. We observe only non-significant influence in a small magnitude for them. Thus this examination works as a type of falsification tests with counterfactual occupations corresponding to bureaucracy.

B4. Selectivity on Unobservable Human Capital of Bureaucrats' Children

In addition to selection on (observable) educational attainment investigated in Section 5.2, we also explore the potential selection on unobservable human capital of bureaucrats' children. The unobservable components most relevant to bureaucratic employment are pro-sociality and civic engagement motivation.

Specifically, we study proxy variables for pro-sociality and civic engagement motivation, including charity donations, willingness to contribute to society, and social trust. We investigate associations between these variables and bureaucrats' children controlling for the baseline covariates as in Table 5.

The results are displayed in Table 20. None of the associations are statistically significant or sizeable. The estimates show that bureaucrats' children are not significantly different from non-bureaucrats' children in these proxies for unmeasured human capital including pro-sociality and civic engagement motivation. Therefore, we do not find evidence supporting that the premium of bureaucrats' children in bureaucratic employment is attributed to their superior pro-sociality or civic engagement motivation. We acknowledge that the data limitation restricts our capacity from comprehensively investigating all possible unmeasured/unobserved components of human capital.

Table 20: No significant associations between bureaucrats' children and proxies for pro-sociality and civic engagement motivation

	(1) log(Donate+0.01)	(2) 1_{Donate}	(3) Contribute	(4) $1_{Contribute}$	(5) Trust	(6) 1_{Trust}
Bureaucrat parent	0.334	0.018	-0.059	-0.010	0.032	0.013
	(0.527)	(0.051)	(0.084)	(0.017)	(0.028)	(0.013)
No. observations	563		1,271		9,382	

Note: The outcome variable in column (1) is the natural logarithm of the amount of charity donations; the outcome variable in column (2) is the dummy variable for any charity donations; the outcome variable in column (3) is willingness to contribute to society–1 is strongly disagree and 7 is strongly agree; the outcome variable in column (4) is the dummy variable for willingness to contribute to society which values 1 if the original response is between 5-7; the outcome variable in column (5) is social trust–1 is completely untrustworthy and 5 is completely trustworthy; the outcome variable in column (6) is the dummy variable for social trust which values 1 if the original response is either 4 or 5. Outcome variables in columns (1) to (4) only exist in CGSS Wave 2012; the difference in numbers of observations is because these survey questions were randomly assigned to different respondents. Outcomes in columns (5) and (6) are from CGSS Waves 2010-2015. Standard errors in parentheses. See also footnote Table 5.

Appendix C: Conceptual Framework

In a society, there exists a continuum of agents heterogeneous in their family background and human capital. There are two types of family background: having a bureaucrat parent, or having no bureaucrat parent. We call the first type of agents as bureaucrats' children, and the second type as non-bureaucrats' children. For simplicity, suppose that human capital consists of two components: educational attainment and social networks. Social networks include both parental social networks and one's own social networks. The distribution of human capital differs between bureaucrats' children and non-bureaucrats' children: on average, bureaucrats' children possess higher human capital–both educational attainment and social networks–than non-bureaucrats' children do.

Let us consider the labor market in this society. There are two types of occupations available: bureaucracy and non-bureaucracy. Incomes from both types of occupations include fixed salaries and variable salaries. Variable salaries are performance-based, and may include various bonuses and possible gray incomes related to the job. Suppose that fixed salaries are independent of a worker's human capital, whereas variable salaries depend on their human capital. On average, bureaucratic jobs yield lower fixed salaries but higher expected variable salaries than non-bureaucratic jobs do. Hence, bureaucratic jobs are preferred in the society, especially by those with higher human capital. Human capital, including both educational attainment and social networks, is accounted for in recruitment. Thanks to their parental social networks as well as their higher educational

attainment, bureaucrats' children are confronted with lower costs or barriers to entering bureaucracy than non-bureaucrats' children are.

Workers in bureaucracy, namely bureaucrats, establish and expand their social networks and thus enhance their human capital over time. The rate at which bureaucrats expand and/or strengthen their social networks is positively associated with their parental social networks. The marginal social networks is diminishing over time: the longer does one work in bureaucracy, the fewer *additional* social networks will they expand. Human capital accumulates in the same manner, because educational attainment is assumed to be fixed after one enters the labor market.

First, let us compare occupation choices between bureaucrats' children and non-bureaucrats' children, prior to the anti-corruption campaign. As mentioned previously, bureaucrats' children face lower costs or barriers to entering bureaucracy than non-bureaucrats' children, benefiting from their parental social networks as well as higher educational attainment. So, they are more likely to enter bureaucracy than non-bureaucrats' children. Once in bureaucracy, bureaucrats' children establish and expand social networks more rapidly than non-bureaucrats' children, thanks to their parental social networks. Bureaucrats' children are also able to obtain higher variable salaries of bureaucracy, due to their higher human capital, and hence gain higher overall incomes than non-bureaucrats' children. Thus, on average, bureaucrats' children have a higher likelihood to keep working in bureaucracy. This argument yields our first testable hypothesis:

Hypothesis 1 *Before the anti-corruption campaign, bureaucrats' children were more likely to work in bureaucracy than non-bureaucrats' children.*

We then analyze the impact of the anti-corruption campaign on occupation choices of bureaucrats' children and non-bureaucrats' children. Suppose that the anti-corruption campaign affects bureaucracy in two aspects: first, it to some extent raises entry costs of bureaucracy for bureaucrats' children relative to non-bureaucrats' children, by curtailing favoritism or inappropriate exploitation of parental social networks in bureaucratic employment; second, it reduces expected variable salaries of bureaucracy for bureaucrats' children in comparison to non-bureaucrats' children, by deterring nepotism and rent-seeking boosted by parental social networks. This results in our second testable hypothesis:

Hypothesis 2 *After the anti-corruption campaign, the probability of working in bureaucracy decreased for bureaucrats' children.*

Moreover, the anti-corruption campaign is not likely to completely remove the consideration of parental social networks in bureaucratic recruitment. Possessing higher human capital on average, especially higher educational attainment, bureaucrats' children are still preferred in bureaucratic recruitment post-campaign. This mitigates the negative influence of the campaign for the young cohort of bureaucrats' children, from the perspective of entry into bureaucracy. However, as the marginal social networks is diminishing, and the boost of parental social networks in their own social networks expansion is curbed by the campaign, expected variable salaries of bureaucracy decrease more for bureaucrats' children than non-bureaucrats' children over time. Then, bureaucrats' children who have worked in bureaucracy for a certain period of time may leave bureaucracy for more economically attractive outside options. Therefore, we have our final testable hypothesis as follows:

Hypothesis 3 *The negative effect of the anti-corruption campaign on working in bureaucracy is larger for the older cohort of bureaucrats' children than the young cohort.*