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Essays on the Political Economy of Governance

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Essays on the Political Economy of Governance

Yang Zhou

Dissertation submitted to the
John Chambers College of Business and Economics
at West Virginia University
in partial fulfillment of the requirements
for the degree of

Doctor of Philosophy
in
Economics

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Morgantown, West Virginia
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Abstract

Essays on the Political Economy of Governance

Yang Zhou

This dissertation studies the governance structure and its economic impacts in the Chinese context. Specifically, I use a public choice framework to analyze how institutions influence economic and political activities of both public officials and private sectors. Chapter 1¹ employs the synthetic control method to investigate the effects of institutions to regional economic development. Chongqing Municipality, a province-level region in China, had a unique leader from late 2007 to early 2012 who conducted red ideology movements and legal intervention. The empirical results reveal that although the economic policies promoted the Chongqing economy, the Maoist political policies partially undermined its economic growth in the short run. Chapter 2² analyzes the collective actions and horizontal bargaining within every political branch in contemporary China. I argue that this horizontal bargaining within the party is enhanced by the vertical bargaining. Incorporating Kornai's work on socialism, the "party chief and mayor" template extends the bargaining model from one key figure and one group in the "king and council" template to two key figures and their respective confidants. In addition, it incorporates institutional constraints into the graphical model. It also defines a "collective decision probability function," which shows how the party chief and mayor model reaches "checks and balances" that limit the policy space, regardless of whether the policy is exogenous or endogenous. Chapter 3 empirically tests the theory proposed in the second chapter. It investigates how economic institutions influence the "matching" degree between party chief and mayor across provinces. In the Chinese context, these city level politicians are appointed, i.e. "elected", by the province level politicians who also face institutional constraints. Results suggest that more economic freedom in one province reduces the difference between party chief and mayor in the biographical background and career experience components. However, more economic freedom in one province increases the difference of the ideology component between party chief and mayor. The results deepen understanding of institutions' role in the political system of authoritarian regimes.

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the topic is on the political economy of governance in China.

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Chapter 1

Do Ideology Movements and Legal Intervention Matter: A Synthetic Control Analysis of the Chongqing Model

1.1 Introduction

Institutions have a fundamental influence on the economic performance of a regime. Recent discussions regarding this phenomena can be found in North's (1990) work. More specifically, North (1991) emphasizes the importance of ideology, an aspect of informal institutions, in promoting economic growth. The change of ideology is never a short-term process, and it is difficult to capture the economic consequences of ideological changes quantitatively. However, it is possible to examine the short term effects of ideological political movements that disrupt normal economic activities. Meanwhile, legal intervention leads to uncertainty in a regime, which indirectly impedes normal economic development.

Moreover, people generally think that the development of a region is due to a specific leader. However, such a leader should not accept all of the credit for rapid development nor take all of the blame for a stagnant economy because their ability to influence it is limited. To assert that he/she has some specific effects on a region is to argue that the economic performance of that region is different with him/her than without (Grier and Maynard, 2016). In many cases, the leader that earns the

credit for enhancing economic growth might be a dictator. Barro (1996) investigates the relationship between democracy and growth. He finds that the mere addition of democratic institutions is not the key to economic growth. There may, however, be a weak positive effect for regions with few political rights. Glaeser et al. (2004) also provide evidence that good policies, which are often pursued by dictators, can help poor regions get out of poverty. This kind of “leader credit” is widely recognized in the People’s Republic of China (PRC). In China, government officials have strong administrative power and are only responsible to the superior department rather than the people (voters) within their jurisdictional area.

Recently, Chongqing Municipality, one of four province level direct-controlled Chinese municipalities,¹ witnessed a time period with pro-development economic policies and a red ideological political movement. These were started by a unique “dictator”. This provides a natural experiment for a quantitative analysis of the economic effects of such political movements. In November 2007, Bo Xilai was promoted to one of the top 25 party leader positions in the Politburo of the Communist Party of China (CPC). He was designated as the party chief of Chongqing Municipality. Before his designation, Bo served as the Minister of Commerce of China (since 2004) and the governor of Liaoning Province (2001-2004). Under his authority, with the help of pro-development policies, Chongqing has experienced economic growth at a much higher rate than other regions of China. However, the Maoist political policies associated with the “Chongqing Model”² remain controversial.

In this paper, I use the Synthetic Control Method (SCM) to quantify the economic effects of Bo’s Maoist political policies. The SCM was invented by Abadie and Gardeazabal (2003) and further developed by Abadie et al. (2010, 2015). With this method, I construct a counterfactual Chongqing to compare with the actual Chongqing. This counterfactual Chongqing lacks red ideological movements and sweeping legal interventions. My results indicate that the economic policies of Bo’s authority have promoted

¹The other three are Beijing, Shanghai, and Tianjin. There are 31 province-level regions in mainland China. Among which, there are four municipalities, five autonomous regions of minority ethnic groups, and 22 regular provinces. Hong Kong and Macau are two special administrative regions. Additionally, although China does not have real control of it, Taiwan is claimed to be a province by PRC.

²The term “Chongqing Model” refers to Bo Xilai’s policy combination. It has been widely discussed across China. For example, “Analyzing public housing construction in the ‘Chongqing Model,’” by Wang and Cui (2010) in *People’s Daily* (the most important party press of CPC) discusses Chongqing’s subsidized public apartments.

economic development to some extent. Bo's political movements, on the other hand, seem to have, in part, impeded Chongqing's economic development.

The remainder of this essay proceeds as follows. Section 1.2 details the economic and political sides of Bo's Chongqing Model. Section 1.3 discusses the synthetic control method and the data used. Section 1.4 interprets the results and the corresponding placebo tests, and includes a robustness test. Section 1.5 provides a conclusion and offers suggestions for further discussion.

1.2 Bo Xilai and the Chongqing Model

The current Chongqing Municipality was separated from Sichuan Province as a direct-controlled municipality in March 1997. They are both located in the western area of China, the least developed area in the country. Chongqing City has a three thousand year history. It was once a municipality of the Republic of China (ROC) and it served as the wartime capital during the Second Sino-Japanese War (1937–1945). In the current Chinese administrative system, a municipality normally possesses more political and economic privileges than a mere province.

In the last two decades, there has been an implicit rule in Chinese politics: the national party leader and the General Secretary of the CPC can have two five-year terms. Bo's father, along with Mao Zedong, was one of the cofounders of this socialist regime and held many important positions at the top level. As one of the Princelings³, this political heritage enabled Bo to gain political support from former colleagues in his red family. Even though he was already one of the top 25 elites in a country with 1.35 billion people, his goal was to be more than just a province-level party leader. He also desired to be on the Politburo Standing Committee (PSC) of the CPC. The PSC normally has less than 10 members who are at the top of China's pyramid of power. Bo Xilai took many actions to prove his abilities to the top level ruling class of the CPC. His aim was to advance in the 2012 "election"⁴ of the 18th National Congress of the CPC (Ansfield and Johnson, 2012; Li, 2012a,b). However, his political life ended in early 2012 after his four years in authority promoting Maoist political movements

³The Princelings are also known as the Party's Crown Princes, which refer to the descendants of prominent and influential senior communist officials in the PRC.

⁴To be more accurate, the "election" is actually "nomination" by the "old guys" and the current party elites at the top level.

in Chongqing. Bo Xilai is famous, yet controversial, for his Chongqing Model. His model featured two reforms: economic and political.

1.2.1 The Economic Side of Bo's Chongqing Model

The economic side of the Chongqing Model mainly refers to its pro-development economic policies. Such policies include tax reduction, attracting (foreign and domestic) direct investment, high-tech projects, increasing/shifting government investment/expenditure, improving social welfare plans, reforming the Hukou system, etc.⁵

With the network built up by Bo when serving as Minister of Commerce, a series of tax reductions, and abundant labor with lower wage levels than those in the east coastal area (Howden and Zhou, 2014), the municipality managed to introduce more foreign and domestic investment to Chongqing during Bo's authority relative to the eastern regions. For example, in 2008, the Chongqing Lianglu Cuntan Free Trade Port Area was established by the State Council of the PRC. It provides institutional tariff exemption to foreign trading. Meanwhile, with the help of the China Western Development program, the corporate income tax rate in capital-intensive, high-tech and other specific industries in western China was reduced from 25% to 15% (since 2001).⁶ However, Chongqing also started its own tax reduction in 2008, with a package of preferential policies including a low corporate income tax of 15% (Bo and Chen, 2009). Such a reduction provides a comparative advantage in attracting corporations to "vote with their feet" (Tiebout, 1956). Chongqing also managed to hold a series of commercial and trade promotions. These policy combinations made Chongqing more appealing to foreign and domestic investors. Chongqing Municipality also improved its cooperation with Taiwan and the Chinese east coast, which further attracted more domestic and foreign investment. In 2008, the first year of this new authority, nine more Fortune Global 500 corporations established their branches in Chongqing. This increased the total number to 102. Foreign investment utilization was 2.73 billion US dollars; this increased by 151%. Domestic investment utilization also increased by

⁵The annual report, since 2008, of Chongqing Municipal People's Government provides even more detailed information. <http://www.cq.gov.cn/zwgk/zfgzbg/>. It is important to note that the annual report, at the beginning of every year, details the government's policies and achievements in the previous year. For example, the 2010 annual report covers the government's work in 2009.

⁶However, it is important to note that China Western Development covers 12 province level regions, including: 6 provinces (Gansu, Guizhou, Qinghai, Shaanxi, Sichuan, and Yunnan), 5 autonomous regions (Guangxi, Inner Mongolia, Ningxia, Tibet, and Xinjiang), and 1 municipality (Chongqing).

96%.⁷ In 2009, foreign investment utilization increased by 47.7% and domestic investment utilization also increased by 74.2%.⁸ In the post-Bo period, foreign investment kept increasing. In 2013, the annual foreign investment utilization reached 10.6 billion US dollars. This is 3.9 times its 2008 level.⁹ In 2014, annual foreign investment utilization remained the same as in 2013.¹⁰

Its remote geographic location and domestic-focused economy insulated Chongqing from the worldwide economic crisis. Given the Great Recession, since late 2007 the relatively developed regions, along the Yangtze River and Pearl River, suffered an economic slowdown. This was due to a heavy reliance on foreign trade. Chongqing, however, is located in the hilly area of western China. This means a higher transportation cost for foreign trade. Chongqing's role as the wartime capital during the Second Sino-Japanese War (1937-1945) testifies to its distance from the east coast. This relative geographic disadvantage led Chongqing to rely less on foreign trade than areas in the east. Thus, the negative influence of the Great Recession on Chongqing is more moderate. In 2007, the national average of the ratio of foreign trade to GDP was 39.32%. In Chongqing it was only 9.83%. The ratio of foreign trade to GDP of Guangdong Province, a famous export region, was 158.08% in 2006. This, however, decreased to 105.73% in 2009 and 97.72% in 2014. The ratio of another sizable economy in the east, Jiangsu Province, was 104.13% in 2006. This decreased to 67.15% in 2009 and 53.29% in 2014. The ratio for Chongqing, on the other hand, was 11.16% in 2006 - and it remained around 10% until 2010, after which it started increasing. The foreign trade to GDP ratio of Chongqing was 29.4%, 33.1% and 41.2% in 2012, 2013 and 2014, respectively. As Figure 1.1 shows, all the provinces experienced a decrease in foreign trade to GDP in 2008 and 2009 and rebounded in the following two years. Only Chongqing, however, managed to have a continuous increase after 2011.

Increasing and shifting government expenditures in various sectors is another feature of the Chongqing Model. Bo Xilai created a "Five Chongqing" slogan in 2008. It includes five components: "Safe Chongqing," "Livable Chongqing," "Forest Chongqing,"

⁷The 2009 Annual Report of Chongqing Municipal People's Government. <http://www.cq.gov.cn/zwgk/zfgzbg/2009/1/131096.shtml>.

⁸The 2010 Annual Report of Chongqing Municipal People's Government. <http://www.cq.gov.cn/zwgk/zfgzbg/2010/12/290524.shtml>.

⁹The 2014 Annual Report of Chongqing Municipal People's Government. <http://www.cq.gov.cn/zwgk/zfgzbg/2014/1/1199980.shtml>.

¹⁰The 2015 Annual Report of Chongqing Municipal People's Government. <http://www.cq.gov.cn/zwgk/zfgzbg/2015/1/1354320.shtml>.

“Healthy Chongqing,” and “Convenient Chongqing.” To achieve these goals, the authority shifted government expenditures to low-rent housing, urban virescence, health care, and transportation infrastructure. Figure 1.2 depicts the Chongqing expenditure growth rate, the national growth rate, and the share of Chongqing’s local government expenditure to the national total. In general, given the increasing share of Chongqing’s economy to China, Chongqing’s local government expenditure share to the national total increased gradually from 2008 to 2010. However, 2011 is a unique year because the local government expenditure growth rate was much higher than the national growth rate. In that year the share of Chongqing’s local government expenditure to the national total also increased by 0.46%. There has been, since 2013, a slight decrease compared to the national level.

Figure 1.3 details the historical share of Chongqing’s local government expenditures across major sectors. Three sectors, from 2007 to 2014, received a larger share of local government expenditures: Medical and Health Care, Urban and Rural Community Affairs, and Transportation.

Moreover, since 2002, to enhance infrastructure investment the Chongqing government began reforming infrastructure State Owned Enterprises (SOEs). It not only managed to consolidate former small sectors and attract diversified funding sources, but it also set up more professional investment departments and systems. Under Bo’s new authority, infrastructure construction was one of the main targets of the government’s “Five Chongqing” campaign. For example, in 2010, the municipality planned as many as 39 additional bridges crossing the Yangtze and Jialing rivers (two large rivers flowing across Chongqing). This helped Chongqing survive the global economic crisis, especially given the high fixed asset investment in China (Xie, 2009).

Another unique Chongqing reform was to the Hukou system. For decades, it impeded the mobility of labor and divided citizens of the same country into two different groups with different welfare benefits: urban citizens and rural citizens (Howden and Zhou, 2015). Chongqing began reforming the Hukou system in 2008 (Bo and Chen, 2009; Heberer, 2014). These reforms initiated greater mobility for rural labor to urban areas and promoted the transactions of the rights of use of rural lands.

Given the nationwide economic growth slowdown, its unique geographic situation, historical economic structure, and pro-development economic policies (made/implemented

with the assistance of Mayor Huang Qifan),¹¹ Bo Xilai's leadership managed to achieve a more rapid economic growth for Chongqing than the other regions in China. The economic performance in the pre-Bo era, on the other hand, was similar to the national level.

As Figure 1.4 shows, in 2006 the GDP growth rate of Chongqing was 12.2%, while the national average was 12.7%. In 2007, the GDP per capita of Chongqing was only 16,606 CNY. In mainland China it was 21,453 CNY, which was 29% higher than that of Chongqing. In the same year, the GDP growth rate of Chongqing was 15.9%. This was slightly higher than the national average (14.2%). However, in more recent years, Chongqing's economic growth rate has been much higher than that of the rest of the country. In 2008, the GDP growth rate of Chongqing was 14.5%; the national average was merely 9.7%. In 2009, it had a 14.9% growth rate, while the national was just 9.4%. In 2010, the rate for Chongqing was 17.1%. This was considerably larger than the national average of 10.6%. Recently, in 2014, Chongqing still had a 10.9% growth rate of GDP, yet the national average was only 7.3%. Chongqing has become one of the most promising regions of China.

1.2.2 The Political Side of Bo's Chongqing Model

The other side of the Chongqing Model, the Maoist political movement, has been controversial.

One of Bo's Maoist elements relates to ideology.¹² Bo Xilai started the "Red Culture" movement, including (since 2008) municipality-wide organized "singing red songs" activities. The "red song campaign" required every district, government department, commercial enterprise, educational institution, and state radio/TV station to begin "singing red songs" campaigns. The general theme of these songs praises the achievements of the Communist Party of China. In 2009 he even started a new policy of sending out "red text messages" to the municipality's 13 million cellphone users. Moreover,

¹¹Huang Qifan started serving in Chongqing Municipality in October 2001. He became the vice mayor in charge of the financial, fiscal, economic, industry and education sectors in October 2002. He was promoted to vice party leader in November 2009 and mayor in December 2010. He served as the mayor of Chongqing until December 2016.

¹²During, and even after, his term, Bo Xilai and the Chongqing Model attracted the world's attention. For example, "The red and the black" in *The Economists* (2009) documented Chongqing's red ideology movements and its crackdown on organized crime. Another example, after Bo's fall in Chongqing, was "A populist's downfall exposes ideological divisions in China's ruling party" by Wines (2012). This discussed Bo's unique ideology in the current Communist Party of China.

since 2011, all TV channels in Chongqing were forbidden to broadcast commercial advertisements and were required to broadcast red culture programs or related dramas.

Meanwhile, with the assistance of his confidant Wang Lijun (the current Public Security Bureau chief and vice mayor of Chongqing), Bo Xilai managed to implement the so-called “Striking Black” movement. This was a crackdown on so-called “organized crime.” However, many of the “criminals” arrested were not real criminals. They were merely political enemies or just ordinary people. The “Striking Black” movement was part of a broader system of political corruption in China. Kahana and Liu (2010) investigated this corruption in China. They found that it was the consequence of the need to finance bribes to superiors. In particular, this occurred when personal advancement in a bureaucracy involved the payment of bribes. A similar mechanism among officials exists when there are political movements, and every person wants to survive. The reason why many local officials strike the “Black” is that they have to finish the “goals” assigned by their superiors. These superiors decide the political fate of the local officials. Many people need to choose the “right” side and they do not know whether they will or will not be “tagged” as a “criminal.” Every person is just part of the game and, then, they merely “transfer” the pressure they receive from their superiors to their underlings.¹³

In 2006, the number of crime cases placed on file by the police department in Chongqing was 88,203. In 2007 it was 161,920. However, in 2009 and 2010, the number soared to 201,519 and 204,531, respectively. The number of people sued by the procuratorate in China increased by 11.3%, from 1,113,319 in 2007 to 1,238,861 in 2011. In Chongqing, however, it increased by 74.4%, from 20,111 in 2007 to 35,083 in 2011 (Qin, 2014). Furthermore, since the legal system in China was under the control of the government and ultimately the party, the court was also part of the “Criminal Assembly Line.” In 2007, the number of criminal cases of first instance accepted by the Chongqing court system was 14,869. This almost doubled to 27,124 in 2011.¹⁴ Since 2009, an estimated 5,700 people were arrested in the sweeping campaign

¹³Such situations often exist in Chinese politics. The supervisors always “transfer” some “goals” to the underlings. A local official in charge of the One-Child Policy in China told me that if there were more than three violations of this policy (in one year, in her region - set up by her superiors), her political career would be ruined. For this reason, she was desperate to monitor potential suspects and “transfer” political pressure to her underlings. She even employed “brutal” actions to both the gravidas and underlings.

¹⁴Chongqing High People’s Court Annual Report (2007–2014), Chongqing High People’s Procuratorate Annual Report (2007–2014). Accessed from China National Knowledge Infrastructure (CNKI).

that ensnared not only criminals, but also businessmen, members of the police force, judges, government officials and political adversaries, who were accused of corruption or criminal collaboration (Lubman, 2012).¹⁵

Many ordinary people in Chongqing actually like this kind of movement. One reason is their hostility toward the rich. Additionally, many in the latter group were tagged as organized criminals. Another reason is that the ideology of many Chinese is still pro-Maoist. Bo Xilai did not invent Jacobinism and impose it on the Chongqing people. He was just resurfacing what was rooted in the society as part of the legacy of the Mao era. The Land Reform Movement targeting land owners in the 1950s and the Cultural Revolution targeting intellectuals from 1966 to 1976 dramatically shaped the ideology of this society.¹⁶ Bo was in control of Chongqing for just over 4 years; this was too short for any significant ideological change. All this dictator did was to reinforce an already existing ideology.

However, red ideology movements and severe legal intervention spread uncertainty and panic to many others in the country. This is especially true for those who are aware that the pro-market ideology, economic reform and opening up are the reasons for China's economic growth since the late 1970s, even including the other leaders of the party (Li, 2009). Another concern for the current party elites in the Politburo Standing Committee is whether such a unique successor will maintain the current ideological legacy. The informal "dual-generation designation of successors," an institution in China since Deng Xiaoping, is a system where the ruler tends to care about his legacy of greatness and it is thus imperative for him to select a trustworthy successor to maintain his political privileges and ideology (Zhang, 2011). Another potential Cultural Revolution is not acceptable for most of the current party elites. The Communist Party of China, which rarely admits its mistakes, even concluded that "...the 'Cultural Revolution' has made the party, the state and the people suffer the most serious setbacks and losses since the founding of this country..."¹⁷.

<http://www.cnki.net/>.

¹⁵A famous example in 2009 was Gong Gangmo and his lawyer Li Zhuang. Gong was accused of organizing crimes. However, his lawyer, Li claimed that Gong had experienced an inquisition by torture. Li was then framed for perjury and subsequently imprisoned for 18 months by the "assembly line." This received wide attention. Many have documented and discussed such "injustices" in Chongqing during those years. For example, Ran and Zhao (2010) examined this case on a famous critical press in China, *Southern Weekly*.

¹⁶As a result, the Cultural Revolution changed people's lives and interrupted education in China (e.g., Meng and Gregory (2002); Zhou and Hou (1999)).

¹⁷Resolution on Several Historical Questions for the Party since the Founding of the People's

On March 14, 2012, during the 5th plenary session of the 11th National People's Congress, the current premier, Wen Jiabao, publicly criticized the Chongqing authority and warned the public that they should be cautious of the resurgence of the Cultural Revolution. A day later, Bo Xilai was removed as the Chongqing party chief. A month later, he was suspended from the politburo. In 2013, Chinese authorities charged Bo with bribery, abuse of power, and corruption. These charges brought Bo life imprisonment.

With a combination of these economic policies, ideological movements and legal interventions, how did Bo's authority influence the economic performance of Chongqing? Do red ideological movements and legal interventions inhibit economic performance?

1.3 Synthetic Control Method and Data

The Synthetic Control Method (SCM) developed by AAbadie and Gardeazabal (2003) provides a unique technique to investigate the specific effects of a particular social shock or a specific political leader. It does so by calculating a synthetic counterfactual which could not happen and has not happened in the real world. Since then, a wide body of economic development literature has employed the synthetic control method. For example, Abadie et al. (2015) estimated the economic impact of the 1990 German reunification on West Germany. They also verified the feasibility and reliability of using synthetic control analysis in comparative economic studies. In their paper, they used the investment rate, industry share of total output, inflation, trade openness, and schooling as five basic predictor variables for GDP per capita. Grier and Maynard (2016) also employed the synthetic control method to investigate the economic consequences of Hugo Chavez in Venezuela. They found that Chavez had some unique effects on the region: per capita income fell dramatically and the overall economic consequences of his administration were bleak. Ribeiro et al. (2013) used the synthetic control method to conduct a similar study regarding the economic effects of the 1959 Revolution in Cuba.

All the data used in synthetic control analysis is directly accessed or calculated

Repulic of China, 1981, the Communist Party of China (CPC). Source: the database of the Central Committees of CPC. <http://cpc.people.com.cn/GB/64162/64168/64563/65374/4526448.html>.

based on data from the National Bureau of Statistics of China (NBSC).¹⁸ It is the best available and most widely used source of Chinese province-level data. Since the data of each region is calculated and reported by the same statistical method, any potential systematic bias does not matter because the focus is on the relative difference. Following Abadie et al. (2015), I choose GDP per capita (current CNY) as the predicted variable. It is calculated via dividing the GDP by population. The predictor variables in this paper include the ratio of fixed assets investment to GDP, the ratio of the value added by industry to GDP, the inflation rate (CPI), the ratio of the amount of foreign trade to GDP, and the portion of the population with a post-secondary degree. Due to an infrastructure and real estate boom in China in the last 15 years, the ratio of the value added by the construction sector to GDP is also added. This will allow us to reflect its effect on GDP growth. I also add the total dependency ratio, which reflects the aging structure of the population. China, after all, employs a unique One-Child Policy – though different regions have different strictness regarding their implementation of this policy. More details of the variables used in this SCM are given in Table 1.1. The descriptive statistics are shown in Table 1.2.

Given the availability of the data of some variables, the time period I examine is from 2002 to 2014. Since Bo became Chongqing party chief in late November of 2007 and had few unique actions in 2007, I count 2007, to avoid a biased estimation, as a pre-Bo year. His term in Chongqing and his political life ended in March 2012. Meanwhile, his confidant, Wang Lijun, the current Public Security Bureau chief and vice mayor of Chongqing, escaped to the Consulate General of the United States in Chengdu on February 6, 2012. This served as a catalyst for the fall of Bo (Wang, 2012). Thus, 2012 could also be seen as a post-Bo period – given the distraction he had in early 2012 and his short ruling term in that year.

Abadie and Gardeazabal (2003) mention that synthetic control results depend upon the selection of regions that have similar economic characteristics to the one with the specific intervention; Abadie et al. (2015) also emphasize that restricting the donor pool might help avoid interpolation biases. Another important reason to restrict the donor pool is to avoid overfitting (Grier and Maynard, 2016). However, at the same time, such donor pool selection might lead to unintended bias. There is a trade-off. The main results of this paper are based on the donor pool with all other 30 province

¹⁸<http://data.stats.gov.cn/english/>.

level regions in Mainland China (excluding Hong Kong, Macau, and Taiwan).¹⁹

A counterfactual Chongqing is calculated by the synthesis, based on their economic performance (GDP per capita) between 2002 and 2007 and the predictor variables of each province-level region. The time period from 2008 to 2011 contains a mixture of the pro-development economic policies and the negative political movements of Bo's authority. However, Huang Qifan kept serving as the mayor of Chongqing today with a similar bundle of economic policies until December 2016. Thus, the period 2012 to 2014 is viewed as a time period with similar economic policies but without Maoist political movements.

1.4 Results and Interpretation

1.4.1 Main Results and Placebo Test

The main results are given in the following tables. Table 1.3 gives the weight for each province region in the donor pool. Six out of the 30 regions have a non-zero weight. Jiangxi Province has a 0.161 weight, Shandong Province has a 0.242 weight, Tibet has a 0.012 weight, Ningxia has a 0.163 weight, Xinjiang has a 0.240 weight, and Guizhou Province (the neighbor of Chongqing), has a 0.182 weight. Table 1.4 gives the predictor balance. Except for the foreign trade to GDP ratio and education, all other predictor variables are a good match.

Although Bo ruled Chongqing for merely one month in 2007, the economic performance in that year already was slightly outperforming the synthetic one. His predecessor, Wang Yang, also has a good reputation for governing. From 2008 to 2011, the gap remained at the same level; the economic performance of Chongqing was better than the Synthetic Chongqing. However, since 2012 when Bo left office, the gap

¹⁹In order to address a potential over-fitting concern, a synthetic control analysis with 18 province level regions in the donor pool is also run as a robustness test. Five autonomous regions of minority ethnic groups are excluded (Xinjiang, Ningxia, Guangxi, Tibet, and Inner Mongolia) due to their unique political and ethnic differences. Qinghai, Gansu, and Yunnan are excluded due to their unique geographic patterns. Liaoning, Jilin, and Heilongjiang are also excluded due to their declining economies. These economies languished due to the large-share of inefficient State Owned Enterprises (SOEs) and the increasing number of emigrants. Moreover, the Northeastern provinces, which are close to North Korea and Russia, are located far away from Chongqing. The last normal province excluded is Hainan. It is a large island north of the South China Sea. Those remaining in the donor pool are: Beijing, Tianjin, Hebei, Shanxi, Shanghai, Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, Shandong, Henan, Hubei, Hunan, Guangdong, Sichuan, Guizhou, and Shaanxi. However, I should note that this 18-province donor pool result provides similar conclusions to the complete donor pool.

has grown larger. The current mayor of Chongqing, Huang Qifan, has been in office since January 2010; he has employed similar economic policies. Moreover, neither of the following two post-Bo party chiefs have had any significantly unique actions and they have continued to maintain similar economic policies. Therefore, we can view the post-Bo Chongqing regime as a government with a similar economic direction but with a different political situation: lacking red ideological movements and severe legal intervention.

From Figure 1.5, it is evident that the gap between Chongqing and the Synthetic Chongqing has been increasing since 2012. The most fundamental difference between the Bo period and post-Bo period is the lack-or-presence of red ideological movements and legal intervention. Although the economic policies contributed to relatively faster economic growth during Bo's authority, the ideological movements and legal intervention partly counteracted such effects. Once Bo left office, the economic performance of Chongqing improved. It is important to note that the economic growth of China, after the Great Recession, has slowed. However, provided this background, the growth rate of the post-Bo Chongqing still retains a similar, or even faster, speed than before. The other provinces' growth rates, on the other hand, have decreased.

To avoid mistaking random differences as real effects, a placebo test is required. The test investigates the other regions (not experiencing the Bo Xilai shock) by the same method and checks whether it has a similar "treated effect," but without Chongqing in the donor pools (Abadie and Gardeazabal, 2003; Abadie et al., 2010). Since the provincial economies are unequal in China, the absolute difference between a province and its synthetic counterfactual may not be comparable. Therefore, a comparable relative difference is calculated by dividing the absolute difference by the synthetic counterfactual. As Figure 1.6 shows, there are six to seven out of the other 30 provinces having a larger relative increase than Chongqing from 2008 to 2011. In 2014, there are only four provinces having a larger relative increase. This placebo test gives moderate support to the claim that Chongqing's economic performance, between 2008 and 2011, was relatively better than most other provinces in China.

1.4.2 Results with Consumption Data

As Section 1.2 describes, some of Bo's economic policies were to directly increase government expenditures. From 2008 to 2011, the growth rate of Chongqing's local government expenditures was higher than the national level. Meanwhile, the share of Chongqing's local government expenditures in the national total also increased during that period. Government expenditures directly contribute to GDP, since $Y=C+I+G$. In order to rule out the direct contribution of government expenditures to GDP and to, instead, focus on the indirect growth effect from shifts in government expenditures, I use consumption as the measurement of economic performance. This serves as a robustness test, with the predictor variables and the donor pool remaining the same. The only province level consumption data available from the National Bureau of Statistics of China is household consumption expenditures. Per capita data would be ideal. However, since the counterfactual also uses per household data, it should provide comparable results in a synthetic control analysis.

Table 1.5 gives the weight of other regions in the donor pool for Chongqing. Table 1.6 reports the predictor balance. With household consumption as the measure of economic performance, five provinces have a positive weight. Figure 1.7 shows that the household consumption from 2008 to 2011 remained small, while the gap increased once the political movements were dissolved (after 2012). The placebo test shown in Figure 1.8 reveals, however, that roughly half of the other provinces had a higher relative increase in household consumption from 2008 to 2011. Moreover, there are still around 10 provinces that have higher consumption increases in the post-Bo period. The placebo test does not provide strong support.

1.4.3 Robustness test

Although the evidence found indicates that the economic performance in the Bo era and post-Bo era are different, the synthetic control method is normally used for evaluating policy effects when it is first implemented. A further robustness test is needed to distinguish between policy shifts that occurred in the different periods.

From 2008 to 2014, Chongqing was the only provincial region in China that had such a dramatic institutional change in 2012. A similar synthetic control calculation was conducted, taking the period from 2008 to 2011 as the predictor period and 2012

(when both Bo and his political movements were removed) as the treated year. If the Maoist political movements had negative effects on the economic performance of Chongqing, we should witness faster economic growth after 2012.

Figure 1.9 gives the synthetic control result of GDP per capita, and Figure 1.10 is the corresponding placebo test. Chongqing's GDP per capita is much higher than the synthetic counterfactual, and the placebo test provides strong evidence that this effect is not random. In 2012 there were three provinces with a higher relative growth, and there were two in 2013. In 2014, Chongqing had the highest relative growth in China. Figure 1.11 gives the result with household consumption. Figure 1.12 is the corresponding placebo test. Although the household consumption in Chongqing is also higher than the synthetic counterfactual, the placebo test fails to give strong support. The evidence indicates that Chongqing's GDP per capita significantly increased after the removal of Bo, while the relative growth of household consumption was insignificant. The lagged effects of investment and government expenditure have not started to significantly boost consumption. Meanwhile, after Bo left, government expenditure also decreased relative to other regions. Additionally, the fixed assets investment ratio to GDP in Chongqing was similar to those of the regions with a positive weight in the donor pool. The relatively higher GDP per capita growth since 2012 can be explained in that it was partly due to the removal of the Maoist political movements, which distorted normal economic activity during the Bo era.

1.5 Discussion and Conclusion

The evidence from Chongqing via employing the synthetic control method reveals that Bo Xilai's economic policies have had some positive economic effects. The red ideological movements and the legal interventions motivated by his political ambition, to some extent, counteract the positive economic effects. Household consumption does not have a significant increase since 2012; this indicates that the lagged effects of investment are still small. The removal of the Maoist political movements (including red propaganda and the crackdown on so-called "organized crime") has, since 2012, led to a higher GDP per capita growth. This study can only capture the short term effects of such dramatic "movements" because this natural experiment just happened recently. Ideological status is persistent and legal intervention can have long term effects. It is

worthwhile to keep tracking this valuable case.

Meanwhile, it is important to note that the Chongqing Model and even the overall Chinese Model, in recent years, are characterized by high investment rates led by the government. In some provinces, the ratio of yearly fixed assets investment to GDP is even higher than 100% in the last several years, which implies that the current GDP of China is pushed up by infrastructure construction and real estate development. For example, the ratio for Chongqing in 2013 and 2014 was 81.63% and 86.14%, and the ratio for Sichuan was 77.02% and 81.71%, respectively. Guizhou Province, which has a positive weight for both regions, had a 91.18% and 97.40% fixed assets investment to GDP ratio in 2013 and 2014, respectively. However, in 2006, the year before the global economic crisis, the ratio in Chongqing, Sichuan and Guizhou was 61.61%, 50.78% and 51.19%, respectively. There is no doubt that this centrally planned regime was employing its power to force investment at a higher rate. Additionally, concerns remain regarding how long an 80% or even 90% investment rate can last. The bubble will burst when inflation is stopped.

Chongqing is a less developed region in China in terms of GDP per capita, and this provides more room for its economic development. Being a municipality also endows it with political privileges. However, it is clear that Chongqing has had faster growth than other regions in China within the last decade. This is partly due to the economic policies of Bo Xilai and his successors. Meanwhile, the different GDP per capita gap between the real Chongqing and the Synthetic Chongqing in the Bo era and post-Bo era, indicates that the red ideological movements and legal intervention by this “dictator” had a negative impact on economic growth. The negative impact has been observed in the short run while the long term impacts are still unknown.

Tables and Figures

Table 1.1: Definitions and Sources of Variables in the Synthetic Control Analysis

Variable	Definition	Period	Source
GDP Per Capita	In Current CNY	2002-2014	NBSC Annual Data by Province - National Accounts - Gross Regional Product
Household Consumption	In Current CNY	2002-2014	NBSC Annual Data by Province - National Accounts - Household Consumption Expenditure
Fixed Assets Investment	Percentage of Fixed Assets Investment in GDP (Level data divided by GDP)	2002-2014	NBSC Annual Data by Province - Investment in Fixed Assets and Real Estate - Total Investment in Fixed Assets
Industry Value Share	Percentage of Industry Contribution in GDP (Level data divided by GDP)	2002-2014	NBSC Annual Data by Province - National Accounts - Gross Regional Product
Construction Value Share	Percentage of Construction Contribution in GDP (Level data divided by GDP)	2002-2014	NBSC Annual Data by Province - National Accounts - Gross Regional Product
Inflation	Consumer Price Index (CPI)	2002-2014	NBSC Annual Data by Province - Price Index - Consumer Price Index and Retail Price Index
Foreign Trade to GDP	Percentage of Foreign Import and Export to GDP (Level data in USD converted into current CNY then divided by GDP)	2002-2014	NBSC Annual Data by Province - Foreign Trade and Economic Cooperation - Total Value of Imports and Exports by Location of Operating Units
Post-secondary Ratio	Percentage of population with a post-secondary degree (Sample ratio data or census level data divided by total population)	2002-2014	NBSC Annual Data by Province - Population - Total Population/Population Data from Sample Survey- Population by Educational Attainment
Dependency Ratio	Ratio of population aged under 14 and above 65 (inclusive) to that aged between 15 and 64 (Sample ratio data or census level data divided by total population)	2002-2014	NBSC Annual Data by Province - Population - Total Population/Population Data from Sample Survey- Age Composition and Dependency Ratio of Population

Note: All data, with the exception of post-secondary and age composition data in 2010, was obtained from the National Bureau of Statistics of China (NBSC) at: <http://data.stats.gov.cn/english/easyquery.htm?cn=E0103>. Post-secondary and age composition data in 2010 is not available in that data set and was obtained from the 2010 census from NBSC, available online at: <http://www.stats.gov.cn/tjsj/pcsj/rkpc/6rp/indexch.htm>.

Table 1.2: Descriptive Statistics of Variables in the Synthetic Control Analysis

Variable	Mean	St. Dev.	Min	Max
Chongqing				
GDP Per Capita	23485.88	13579.98	7934.83	47685.06
Household Consumption	8561.62	4674.45	3204.00	17262.00
Fixed Assets Investment (%)	67.12	15.28	40.27	86.14
Industry Value Share (%)	40.68	4.38	35.29	46.85
Construction Value Share (%)	8.24	0.59	7.66	9.49
Inflation (%)	2.42	2.17	-1.60	5.60
Foreign Trade to GDP (%)	16.28	11.08	6.65	41.18
Post-secondary Ratio (%)	6.22	3.21	3.14	12.12
Dependency Ratio (%)	43.53	3.78	38.90	52.48
All 31 Province Level Regions in China				
GDP Per Capita	27669.97	20022.38	3240.63	103671.26
Household Consumption	9461.88	6687.64	2301.00	43007.00
Fixed Assets Investment (%)	59.07	20.13	25.36	124.22
Industry Value Share (%)	38.97	9.65	7.03	53.04
Construction Value Share (%)	7.30	3.41	3.25	29.40
Inflation (%)	2.69	2.12	-2.30	10.10
Foreign Trade to GDP (%)	32.67	40.57	3.58	172.30
Post-secondary Ratio (%)	8.19	5.68	0.73	39.30
Dependency Ratio (%)	37.72	7.16	19.30	61.55

Table 1.3: Estimated Synthetic Control Weights of Each Province in the Donor Pool for Chongqing (GDP Per Capita)

Region	Weight	Region	Weight	Region	Weight
Beijing	0	Zhejiang	0	Hainan	0
Tianjin	0	Anhui	0	Sichuan	0
Hubei	0	Fujian	0	Guizhou	0.182
Shanxi	0	Jiangxi	0.161	Yunnan	0
Inner Mongolia	0	Shandong	0.242	Tibet	0.012
Liaoning	0	Henan	0	Shaanxi	0
Jilin	0	Hubei	0	Gansu	0
Heilongjiang	0	Hunan	0	Qinghai	0
Shanghai	0	Guangdong	0	Ningxia	0.163
Jiangsu	0	Guangxi	0	Xinjiang	0.240

Table 1.4: Predictor Balance for Chongqing (GDP Per Capita)

Variables	Chongqing	Synthetic Chongqing
Fixed Assets Investment (%)	53.44	52.72
Industry Value Share (%)	38.24	38.24
Construction Value Share (%)	7.83	7.83
Inflation (%)	1.97	1.97
Foreign Trade to GDP (%)	9.83	17.96
Post-secondary Ratio (%)	3.68	5.66
Dependency Ratio (%)	43.70	43.66
GDP Per Capita (2007) (Current CNY)	16605.58	16876.54

Table 1.5: Estimated Synthetic Control Weights of Each Province in the Donor Pool for Chongqing (Household Consumption)

Region	Weight	Region	Weight	Region	Weight
Beijing	0	Zhejiang	0.042	Hainan	0
Tianjin	0	Anhui	0	Sichuan	0
Hubei	0	Fujian	0	Guizhou	0
Shanxi	0	Jiangxi	0	Yunnan	0
Inner Mongolia	0.512	Shandong	0	Tibet	0.124
Liaoning	0	Henan	0.155	Shaanxi	0
Jilin	0	Hubei	0	Gansu	0
Heilongjiang	0	Hunan	0.166	Qinghai	0
Shanghai	0	Guangdong	0	Ningxia	0
Jiangsu	0	Guangxi	0	Xinjiang	0

Table 1.6: Predictor Balance for Chongqing (Household Consumption)

Variables	Chongqing	Synthetic Chongqing
Fixed Assets Investment (%)	53.44	53.38
Industry Value Share (%)	38.24	34.11
Construction Value Share (%)	7.83	8.18
Inflation (%)	1.97	2.35
Foreign Trade to GDP (%)	9.83	10.67
Post-secondary Ratio (%)	3.68	4.94
Dependency Ratio (%)	43.70	37.30
GDP Per Capita (2007) (Current CNY)	6453.00	6378.01

Figure 1.1: Foreign Trade to GDP ratio of Chongqing, the Other Municipalities, and Major Eastern Provinces

Data Source: National Bureau of Statistics of China (NBSC).

Figure 1.2: Local Government Expenditure of Chongqing and the National Total

Data Source: National Bureau of Statistics of China (NBSC).

Figure 1.3: Share of Major Local Government Expenditures of Chongqing

Data Source: National Bureau of Statistics of China (NBSC).

Figure 1.4: Annual GDP Growth of China and Chongqing

Data Source: National Bureau of Statistics of China (NBSC).

Figure 1.5: The Real Chongqing and the Synthetic Chongqing (GDP Per Capita)

Figure 1.6: Placebo Test for Chongqing (GDP Per Capita)

Figure 1.7: The Real Chongqing and the Synthetic Chongqing (Household Consumption)

Figure 1.8: Placebo Test for Chongqing (Household Consumption)

Figure 1.9: The Real Chongqing and the Synthetic Chongqing Post 2008 (GDP Per Capita)

Figure 1.10: Placebo Test for Chongqing Post 2008 (GDP Per Capita)

Figure 1.11: The Real Chongqing and the Synthetic Chongqing Post 2008 (Household Consumption)

Figure 1.12: Placebo Test for Chongqing Post 2008 (Household Consumption)

Chapter 2

Horizontal “Checks and Balances” in the Socialist Regime: The Party Chief and Mayor Template

2.1 Introduction

Kornai’s pioneering scholarship examined the mechanisms of the socialist system. The “soft budget constraint” (SBC) formulated by Kornai (1979, 1980, 1986) has been widely acknowledged in the contemporary economics literature (especially in the literature of socialist economics and economics of transition, e.g. Csaba (1995); Kolodko (2000); Nuti (1986); Qian and Roland (1998), etc. Furthermore, Kornai et al. (2003) give a very detailed review of the literature of the soft budget constraint). Kornai (1992) also systematically discusses the details of the socialist system, especially focusing on the economic factors. Following the collapse of the Soviet Union, Kornai’s main focus was on the transition process in former socialist countries in central eastern Europe, especially his native Hungary (e.g., Kornai (1990, 2006)).

The main goal of Kornai’s work is to provide a positive analysis of the economies within the socialist system, and he connects their political characteristics with their economic circumstances. *The Socialist System: The Political Economy of Communism* (Kornai, 1992) comprehensively examines the sophisticated mechanisms of the socialist system, which were and still are universal. Even though it has been more than two decades since the publication of this masterpiece, many of these mechanisms are still present in modern socialist countries. Kornai (1992) highlights that there are no

horizontal “checks and balances” from outside of the party in socialist regimes, and the party is always striving to maintain its power. Kornai (1986, 1992) also explains the weak “vertical bargaining” (“bargaining between superior and subordinate”) within the party, which leads to the “ratchet effect” (Berliner, 1952).

With the broad picture of the socialist system given, how bargaining within every party branch proceeds can be more clearly illustrated. There are no *de facto* “checks and balances”¹ from outside of the party, and it is mostly vertically ordered obeisance from the top to the bottom within the party. However, how do the politicians in the same party and government branch bargain with each other? More specifically, in the contemporary Chinese political structure, the top two *de facto* powerful figures in different branches on different levels are the party chief of the Communist Party of China (CPC) branch and the leader of the corresponding government sector, who is also a party member in most cases. Are there any “checks and balances” between the two, with intended or unintended designing from the top?

Meanwhile, the division of power between the several central leaders within every political group has existed for thousands of years. There is a lot of research in the political economy literature studying the checks and balances mechanism (e.g. Shapley and Shubik (1954) on how to evaluate the division of power in a committee system, North and Weingast (1989) on the evolutions of institutions governing public choice in England in the seventeenth century, Haney et al. (1992) on conflict resolution combining theory and empirical evidence from lab experiment, and Congleton (2001, 2011) on the king and council template and how the modern western democracy emerged.), while none of these has investigated that in the socialist regime. The socialist system claims to have its unique “democratic centralism”, which defends the existence of “democracy” in socialist regimes. However, the voting process is not real, and most decisions are not made by real voting but rather, various political bargains. Can we borrow any tools from the political economy literature on “western” “checks and balances” to investigate the horizontal bargaining among the central officials within every branch in the socialist system, which has not been as extensively studied?

Therefore, my research contributes to the current literature in four ways. First,

¹“Checks and balances” means competition and mutual restraint among the various branches of government or party, which is typically the result of a designed political mechanism with separated powers.

inspired by and following the analyses on socialist systems by János Kornai, I examine the political system in China, one of the few remaining modern socialist regimes. Kornai (2000) describes two historical types of transitions and notes that China might be a new, third type. However, the political system in China has been changing much more slowly than the economic system, and the political system has continued to become more authoritarian and centralized in the last six years with more power gathered to the top, under the ruling of Xi Jinping. Second, this paper provides an institutional explanation of the bipolar division of power within every branch in socialist regimes, which is also an extension of Kornai's work. Although there are no horizontal "checks and balances" from outside of the party (Kornai, 1992), there are horizontal ones within every cell of the party-state, which is partially enhanced by the vertical bargaining (Kornai, 1979, 1980, 1986). Third, the king and council template (Congleton, 2001) focuses on the assignment of power between the "one-man" and the "committee." However, the king never bargains alone, and there are often confidants serving in his council, either attracted to him by political interests or placed in the positions by himself. This paper expands the king and council template to a more generalized one, where both the king and the premier have their own confidants in the committees. Since this paper illustrates this expanded template with the contemporary politics in China ruled by the Communist Party of China, it is named the "party chief and mayor" template. Last but not least, the party chief and mayor template also provides a new perspective with institutional constraints added into the graphic model. Meanwhile, a "collective decision probability function" is provided based on this template, and the solution shows how the system of "checks and balances" works which ultimately limits the policy space, regardless of whether the policy is exogenous or endogenous. To the best of my knowledge, this is the first paper employing the king and council template to explain political bargaining schemes in socialist regimes.

2.2 The Party Chief and Mayor Template

2.2.1 Horizontal Political Bargaining in the Socialist System

One important feature of politics is partisanship. In a modern democratic regime, there can be many parties. In a one-party regime, there might be other parties but

without real ruling power.² However, even in a one-party regime, officials within the same party or government branch normally fall into different interest and ideology groups. Grouping themselves into small units and defending against the others outside their own small group is a natural human instinct (Hayek, 1988).

China is normally viewed as a one-party state, while there is a mechanism for dividing political power within the governments on the same level and different levels. Although the party is separated nominally from the government, most government officials and leaders are also party members, and there is a party branch in every government sector Kornai (1992, 2000). One interesting phenomenon is that the party, government, congress, and other mass organizations share the same office building on the village, town, county, and city levels in China. On the province and nation levels, they are normally located in different buildings, mainly due to the greater fiscal capacity. This is also how the Communist Party tries to show the relative “independence” between the party and government, congress, and other mass organizations.

For more details of the general features of how the party permeates into every sector of the socialist regime, I strongly recommend the readers to read *The Socialist System: The Political Economy of Communism* (Kornai, 1992), which is an encyclopedia of the socialist system with a main focus on the economic factors. Even though it was published 26 years ago, most of the mechanisms described are still running very similarly in contemporary China.³ The political power of the party chief and the mayor/governor/premier within the same branch are comparable. However, in most situations, the party chiefs have relatively more political power than the mayors/governors/premier on all the levels, while the party chiefs may have less power in universities, bureaus, and the military.⁴ Meanwhile, the People’s Congress is the

²In the Preamble of *the Constitution of the People’s Republic of China* (the 1982 document, amended in 2018), it states that the other democratic parties are led by the Communist Party of China: “...In building socialism it is essential to rely on workers, peasants and intellectuals and to unite all forces that can be united. In the long years of revolution and construction, there has been formed under the leadership of the Communist Party of China a broad patriotic united front which is composed of the democratic parties and people’s organizations and which embraces all socialist working people, all builders of socialism, all patriots who support socialism, and all patriots who stand for the reunification of the motherland...”

³For readers interested in the details of the contemporary Communist Party of China, McGregor (2010) gives an excellent overview.

⁴In the Chinese military, the officials in charge of ideology propaganda are named “political commissars” (above battalion level, inclusive) or “political instructors” (on company level), who have the same level political power as the military commanders of the same military unit. A similar structure has also existed in the Red Army of the Soviet Union, the Republic of China Army, and the German army of the Nazi Germany. It can even be traced back to the “commissaire politique” (political com-

nominal legislature body on every level and the National People's Congress is the parliament. However, they generally do not have real political power. All in all, the party controls the power.

The political legitimacy of the party's leadership has been given by the Constitution. In the current *Constitution of the People's Republic of China* (the 1982 document, amended in 2018)⁵, it highlights the leadership of the CPC in the Preamble:

“...Under the leadership of the Communist Party of China and the guidance of Marxism-Leninism, Mao Zedong Thought, Deng Xiaoping Theory, the Important Thought of Three Represents, Scientific Outlook on Development, and Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, the Chinese people of all nationalities will continue to adhere to the people's democratic dictatorship and the socialist road...”

Using terms from Chinese politics to illustrate, there is a party chief, who is the leader from the Communist Party, and a mayor/governor/premier (for simplicity, mayor will be used as the main term, which stands for all different types of government leaders), who is the nominal leader of every government branch. Both of them have relatively strong political power, and the main reason for the mayor or equivalent to have power is because he/she is also a party member. There are many other officials in the committees, either of the party, government, congress, or other mass organizations, and they also have political power to some extent.⁶ Whether the policy preference of a committee member is closer to the party chief or the mayor is not dependent on his/her position category: being in the party committee does not necessarily mean that this member's preference is closer to that of the party chief's, and this is also true for a government committee member. Meanwhile, some officials serve in more than one committee at the same time. In short, all of the other officials are “distributed” around the two key leaders, regardless of their nominal committee category. Most of these officials in different committees are party members, and the

missary) in the French Revolution (1789-99), who guarded it against anti-Revolutionary thought and action.

⁵The Chinese version of the latest document can be found on the website of the National People's Congress, http://www.npc.gov.cn/npc/xinwen/2018-03/22/content_2052621.htm (accessed May 15, 2018). An English version of the 2018 amendment is not available yet, but the English version of the 2004 amendment can be found on the official website of the State Council of the People's Republic of China, http://english.gov.cn/archive/laws_regulations/2014/08/23/content_281474982987458.htm (accessed May 15, 2018). The English translation is based on the official version of the 2004 amendment and incorporates the changes in the 2018 amendment.

⁶There are generally around 10-15 such officials in the local (province, city, county, town) governments nowadays.

one or two non-party members are needed to show people that there is still some sort of “democracy” left (Xu, 2004). Usually, there are also one or two female committee members for a semblance of political correctness (Goodman, 2002; Xu, 2004). Also, working in a position for the party, government, congress, or other mass organizations does not necessarily decide where his/her (since most politicians in China are male, he/his will be used in the following context for simplicity) position will be in the future, because of the “interweaving” situation (Kornai, 1992).

In this bipolar setting, the party chief has very strong political power, both veto power and agenda control. So does the mayor, albeit slightly weaker than the party chief, but much stronger than the other normal committee members. The party chief takes care of every issue, with a focus on broad ones, e.g. personnel appointments. The mayor also needs to address all issues, with a focus on trivial local issues, e.g. fiscal income and expenditure. Each of the other committee members is in charge of one specific sector: finance, industry, agriculture, commerce, culture and education, public security, military, civil affair, discipline inspection and supervision, ideological publicity, personal organization, etc. In other words, each committee member serves as a specialist in one sector, dealing with issues in that sector and providing advice to the two key leaders. In principle, these non-leader officials can also make policy proposals, especially those in their respective sectors. In most situations, a policy or decision needs a final “unanimous consent” or at least a final “majority consent” to get approved, after a few rounds of implicit and explicit bargaining. The “votes” among the officials are documented and reported to the upper level party and government organizations. However, most of the decisive power is divided between only the party chief and the mayor, while the other committee members provide their specialized knowledge. Especially, since 2013, Xi Jinping has highlighted that the party and government leaders in local governments share the same responsibilities. Either the party chief or the mayor makes mistakes, both of them will share the same responsibilities (Yang, 2015). This further pushes the party chief and the mayor to bargain over every major issue to achieve consent before making the final decision which will be reported to the higher level government.

Though the main focus of this paper is on the bargaining of policies between the party chief and the mayor within the party/government system, it is important to

note that the party chief and the mayor are facing various incentives, including both the inside ones within the ruling political group and the outside ones from the people. For example, Chen et al. (2016) conduct a field experiment in China and find that threats of collective actions and threats of tattling to upper levels of government make county governments more responsive to civil issues. Landry (2008) argues that the Communist Party of China still maintains the ultimate controls of the cadres, even though the “recent” (by 2008) reforms have led to extensive decentralization. Manion (2014) suggests that the local congressional representation in China is functioning more and more as authoritarian parochialism, rather than just a nominal one without real representation. This mechanism is actually an “extra-legislative activity of pork-barrel politics” (Manion, 2014). Pesqué-Cela et al. (2009) also find that self-governing organizations do exist, and are more likely to exist, where the people have less political trust in local governments.

Meanwhile, China’s bureaucracy has grown and responded to social demands for state provision in a way different from the early European bureaucracies. China’s particular form of decentralization, “market-preserving federalism”, provides the critical foundations for market success (Qian and Weingast, 1996). Qian et al. (1999) also explain the differences in reform strategies between China and Eastern Europe, from an organization theory perspective: rather than the centralized “U-form” in relatively small-sized countries in Eastern Europe, China’s “M-form” is more flexible and enables more local experiments. This flexibility for local governments enables the party chief and the mayor to bargain on many local policy issues with a constraint, rather than just obeying the orders from the top.

Also, as explained in Kornai (1992), both price and non-price signals affect officials’ incentives. For example, GDP and fiscal revenue are explicit price signals of the economic and political performances of the local bureaucrats. The civil components are non-price signals of people’s feedback on the current ruling of the local bureaucrats. Both types of signals will be accepted by themselves and will also be transmitted (directly or indirectly) to upper level governments and incorporated into the cadre evaluation system, thus shaping local officials’ decision incentives dynamically. Meanwhile, in order to secure their relative influences, e.g. by providing more benefits to their confidants who serve as normal committee members or by competing

with peers serving in parallel governments, the party chief and the mayor will experience “investment hunger syndrome” (Kornai, 1992). Xu (2015) gives a very detailed overview of investment competition by local governments in China. Officials are political entrepreneurs, who seek political opportunities and also need to “recruit” economic entrepreneurs to their parish. They do so in order to enhance their economic, and thus political performances, and extract more rents.

Ultimately, there are four main reasons for this bipolar division of power in the socialist system. First, it is a natural result of evolution within the political systems in human history and also a result of the specific modern history of China. In almost all societies, even in the most authoritarian ones, from the past to present, there are always challenging political forces within the core group. It may be strong or weak, and it changes over time. Hu (2005) documents the history of the combination of political and economic management, which is a historical heritage of the “party-leading-all” structure during wartime before the establishment of People’s Republic of China in 1949. During wartime, the party led and controlled the military and the government. After 1949, there was a trend of separating the party and the government in the following several years: instead of giving direct instructions to the government, the party should give just general guidance without touching specific issues. However, since the mid-1950’s, the party gained more power and started giving more direct orders, and both political and economic managements were consolidated into this party-leading-government bureaucratic system. During the Cultural Revolution (1966-1976), the party, the government, and the military sectors were all paralyzed, and all the power was in the hands of the Central Cultural Revolution Group and various revolutionary committees on different levels. After the Cultural Revolution, the division between party and governance returned to a semblance of normality, and the economic growth under the decentralized system since the Reform and Opening-up in 1978 made the economic development an increasingly important issue in the contemporary bureaucracy system.

Second, dividing the power between two or more subordinates in lower branches, which induces fighting, is the best way to make them obey orders from the top in order to maintain or achieve more political power. Similar observations are also documented in Kornai (1992). Though being “horizontal”, this bipolar bargaining is ac-

tually enhanced by the “vertical” bargaining, especially given the decentralization of local governments in China (Qian and Roland, 1998). With the economic development since the Reform and Opening-up in 1978, the local governments have more and more fiscal revenues and self-contained political powers under the regionally decentralized authoritarian system (Xu, 2015). One unintended consequence of the bipolar set up in local bureaucracy system is that allowing the competition within a local government (a party chief, mayor, and many normal committee members) makes these officials obey orders from higher levels better, in exchange for more political support from the upper levels. Thus, the horizontal bipolar bargaining between the party chief and the mayor helps avoid local governments being a kingdom of just one person (either the party chief or the mayor), but keeps them remaining loyal to and obeying orders from upper level governments, ultimately the central government.

Third, no central planners can ever overcome the knowledge or information problem, and they have to make some “natural division of labor” (Kornai, 1992; Kornai et al., 2003). For example, Bendor and Meirowitz (2004) explain why in some situations delegation is the optimal policy for bosses when facing uncertainty and information problems by a spatial model approach, and they also specify a specific case when there is more than one boss.

Last but not least, the “checks and balances” can help maintain the public image of “democracy” in socialist counties, which defends the legitimacy of their regimes. Again, this “democracy” is not only to make the citizens feel they are not dictated by a specific bureaucrat in the town they live in, but also to grant the officials on upper levels more control over the officials on lower levels. Hence, the top-down pyramid is maintained.

2.2.2 The King and Council Template

The “king and council” template defined by Congleton (2001) provides an institutional mechanism for political bargaining, featuring the bipolar division previously described. The allocation of the power of agenda control and veto between the king and the council affects the potential bargaining equilibrium. Based on this template, Congleton (2001, 2007) further illustrates how the western democracy system was gradually achieved “from royal to parliamentary rule without revolution” in the last

several centuries.

More specifically, this template assumes that the king has most of the power in the beginning, controlling most of the agenda and veto. However, due to the informational advantages of consulting the council, both kings with rational expectations and kings who are rationally ignorant would prefer having a council. Thus, the king gives more and more agenda control or veto power to the council over time, and this is how peaceful bargaining between the king and the council evolves.

As Figure 2.1 shows, in the original king and council template, the king's most ideal policy combination is at point K. The distance from the ideal point is assumed to characterize his rank of orders of alternative policies: the further a point is away from his ideal point, the less utility he has. The points on the same circle (indifference curve) thus yield the same utility to the king. Similarly, the council members' respective points of policy combination are A, B, and C, where B stands for both the median voter and his ideal policy combination point. In some situations, the median voter is the leader of the council (the pivotal member, e.g. the premier). Also, B will be the outcome voted within the council because it is the ideal point of the median voter.

Veto power and agenda control are the two main political powers in the king and council bargaining template. When the council is decisive, in other words, both of the branches are actually capable of making policy decisions, either branch of the government's ideal point can be defended by that branch as long as it has either veto power or agenda control (Congleton, 2001, 2007). If the king has agenda control, then he can just propose policy combination K. The council confronts the choice between K and K, and clearly the result will be K regardless of whether the council votes for the policy or not. If the king has veto power and the council has agenda control, then any point deviated from K proposed by the council can be vetoed by the king. A similar situation will still hold for Point B if the council has either the veto power or agenda control. The council can also be non-decisive, or weak. In other words, there is not any pivotal voter in the council. Thus, every possible proposal can be defeated by a counter proposal before it is put into practice by the executive, due to the potential majoritarian cycles. In such situations, the king can also confidently secure his ideal point.

There has been a growing literature analyzing the political institutions incorpo-

rating the king and council template, e.g. Abghari (2007) and Hillman (2007) on the political system in the Islamic regime, Bose (2010) on the evolution of the Indian constitution, and Young (2015) on the early Germanic governance from circa 50 BC to 50 AD. However, there is not any research in the current economics literature using this bipolar political bargaining model to explain the division of powers in the socialist regimes. The rest of this paper will address this context.

2.2.3 The Party Chief and Mayor Template

Similar to the king and council template, each member's respective ideal point yields the highest utility in the party chief and mayor template. Again, the distance from his ideal point is assumed to characterize his rank of orders of alternative policies: the further a point is away from his ideal point, the less utility he will have. The points on the same circle (indifference curve) thus yield the same utility to the official. Without losing generality, let us assume that there are seven officials in this committee, roughly divided into two groups.⁷ Graphically, as shown in Figure 2.2, Point P represents the party chief and his ideal policy combination, and Point M represents the mayor and his ideal policy combination. These two are surrounded by a group of committee members, A, B, C, D, and E, who have their own ideal policy combinations, A, B, C, D, and E, respectively. Since the party chief has relatively more political power in general, I assign three out of the remaining five committee members' ideal points to be closer to his and the other two have closer preferences to that of the mayor's.

Both the party chief and the mayor have the agenda control and veto power, and most decisions need to be made by bargaining and negotiation. Suppose that the party chief proposes his ideal policy combination, P, which is far away from that of the mayor's, M. Thus, the Mayor can just reject Point P and propose Point M. With some compromises, the party chief might propose Point 1 and Point 2, which are indifferent to himself. The mayor will vote for Point 1 rather than Point 2, since the former one is closer to his ideal point, Point M. Or, if the proposal is between Point 2 and Point 3, then the mayor will vote for Point 3, doing a favor for the party chief to garner future support, given the mayor's indifference between the two policy combinations. In the end, a steady state of the bargaining between the two leaders

⁷Another reason for assuming seven people is that there are seven people in the Politburo Standing Committee (PSC) of the CPC currently.

should yield policy proposals on Line Segment PM. Such a geometry pattern under the majoritarian voting system is also identified by Buchanan (1998). Although only two leaders have comparable political power, this majoritarian rule also holds. In the end, the “votes” documented and reported to the upper level party organization and government should indicate a “unanimous consent.”

As explained above, committee members are also endowed with weak agenda control and veto power in principle, while in most situations they can only advise rather than decide. Take member A as an example. Rather than suggesting or proposing his ideal policy combination, Point A, member A knows that it will never get approved. Instead, he knows that his ideal policy combination is closer to that of the party chief’s, Point P, than that of the mayor’s, Point M. Meanwhile, Point 3 is the closest of Points 1, 2, and 3 to Point A. Member A will “vote” for Point 3 when there is a vote between Point 3 and Point 1, or Point 3 and Point 2, because this will result in relatively higher utility for him (by yielding a policy combination closer to Point A) and also has a higher probability of being approved. It is by coincidence that in this situation Point 3 yields the highest utility to member A among all three policy combinations.

In some situations, a normal committee member needs to sacrifice his personal interests to get a “less worse” policy combination.⁸ Take member B as an example, whose most preferred combination of Points 1, 2, and 3 is at Point 2. However, he knows that neither of the two key leaders will vote for Point 2. Thus, he will propose Point 3 and/or vote for Point 3 when it is proposed by either of the two leaders. The steady state is that most of the policy proposals are on Segment PM (there could be a few outliers), and most of the bargaining results fall on the subset of Segment PM closer to the key leader with more political power.⁹

Congleton (2001, 2011) distinguishes the two situations where the king has rational expectations or not. In the party chief and mayor template, a realistic assumption is that all members do not have perfectly rational expectations. In other words, all of

⁸Csanadi (1997) provides an excellent overview of the complicated relationship net between the various officials in party and government sectors both horizontally and vertically. Different committee positions do matter. However, all of them have lower power than the party chief and the mayor. Although the context in Csanadi (1997) is Hungarian, it is general for all the socialist nations, including China.

⁹Though in most cases the party chief has more political power, the mayor might have more power if he has a stronger “political background” and political resources in some rare cases.

them are rationally ignorant to some extent. This is especially true in a socialist regime, where the planners do not have all the knowledge or information they desire (Hayek, 1945; Kornai, 1992). That is also why the leaders need a group of committee members to consult.

The party chief and mayor template applies not only to policy bargaining, but also to position appointments, even political and personal relationships. On the one hand, both the party chief and the mayor want to place officials with professional knowledge into committee positions. On the other hand, both the party chief and the mayor want to nominate their respective confidants or those with closer policy preferences. The voting result for major issues after the bargaining will be reported to the upper level party and government organizations for official approval.

Again, as Figure 2.2 shows, suppose that there are seven officials in the committee, including both of the key leaders. The respective distances from P and M to the member (A, B, C, D, and E) represent the political and personal relationships between the person and the party chief and the mayor, respectively. The further a person is away from P or M, the less close of a relationship he has with the party chief or the mayor, respectively. The members on the same circle (indifference curve) of the party chief or the mayor have similarly close relationships to the party chief or the mayor. These relationship nets do matter, especially in a regime without the rule of law. If there is a promotion opportunity for only one out of the five committee members, who are the party chief and the mayor going to vote for? The mayor prefers member E the most, while the party chief prefers member C the most. The “opinions” from the peers also matter. Members A and B will vote for C if they know that the party chief will nominate member C, because they want to please the party chief who will give them more favorable treatment in the future. Another reason is that C is within their small political group led by the party chief. Member D will vote for member E if he knows that the mayor will nominate member E. Partisanship also matters in this instance. In the end, C will be the winner out of the five normal committee members, and the party chief and the other members in the party chief group will also benefit from the success of their “buddy.”

2.3 Collective Decision Probability Function

2.3.1 Exogenous Policy

This section presents a mathematical form of the probability for approval of the policy when voting under the party chief and mayor template. Using the same notations, P represents the party chief and his most ideal policy combination, and M represents the mayor and his most ideal policy combination. They are the only two members who have veto power, and their powers are not exactly the same but comparable. In most cases, the next step of their political path for the one with less power is to become the one with more power within the same branch or in a neighboring one, which is called the “Z-shape” path (Kornai, 1992). For example, a typical promotion for a city mayor is to be the party chief of the same city or a neighboring city, the decision of which is made by the department of organization in the upper level party organization.

Meanwhile, although committee members in different positions have the same level of relative power, they also have different absolute ones: the department of organization chief has more power than someone in charge of forestry. However, assuming these committee members have the same level of political power is a well-balanced trade-off between taking both the rich reality and the simplicity of mathematical modeling into consideration. In short, the other N committee members also have some limited political power.

In principle, a decision made needs a majoritarian consensus, e.g. two thirds. However, there is one strong but very realistic assumption: if both the party chief and the mayor reach a consensual decision, most of the rest members in the committees will also “agree” with their decision. Although the party chief and the mayor are not the order-givers from the top (Kornai, 1992), they are the two main officials receiving the orders from upper apparatuses and assigning them to the other normal committee members within that branch. In other words, they are the “media” or “order redistributors” between their branch and the upper ones. Normal committee members know that the two leaders have supreme power, and nobody wants to play against either or both of the two bosses unless they have support from one of the two.

Therefore, the probability function of the collective approval decision on an exoge-

nous Policy j can be written as:

$$Pr(V_j = 1) = Pr(V_{pj} = 1) \times Pr(V_{mj} = 1) \times Pr\left(\sum_{n=1}^N V_{nj} \geq \frac{2}{3}N\right) \quad (2.1)$$

$Pr(V_j = 1)$ is the probability that Policy j will be approved. V_{pj} is a binary dummy variable indicating the vote of the party chief on Policy j : 1 means yes and 0 means no. Similarly, V_{mj} is that for the mayor on Policy j , and V_{nj} is that for committee member n on Policy j . Since both the party chief and the mayor have the absolute veto power, the policy will only be approved when both of them vote yes. Thus, $Pr(V_{pj} = 1)$ is the probability that the party chief votes a yes on Policy j , and $Pr(V_{mj} = 1)$ is the probability that the mayor votes a yes on Policy j . Similarly,

$$Pr(V_j = 0) = Pr(V_{pj} = 0) \times Pr(V_{mj} = 0) \times Pr\left(\sum_{n=1}^N V_{nj} \leq \frac{1}{3}N\right) \quad (2.2)$$

Although majoritarian consent is necessary, as explained in the context above, it is reasonable to assume (the “Weak Independent Decision Assumption”):

$$Pr\left(\sum_{n=1}^N V_{nj} \geq \frac{2}{3}N \mid V_{pj} = 1 \& V_{mj} = 1\right) = 1 \quad (2.3)$$

i.e.

$$Pr\left(\sum_{n=1}^N V_{nj} \leq \frac{1}{3}N \mid V_{pj} = 0 \& V_{mj} = 0\right) = 1 \quad (2.4)$$

However, if the party chief has more power, it is also reasonable to assume (the “Strong Independent Decision Assumption”):

$$Pr\left(\sum_{n=1}^N V_{nj} \geq \frac{2}{3}N \mid V_{pj} = 1 \& V_{mj} = 0\right) = \beta, \text{ where } 0 \leq \beta \leq 1 \quad (2.5)$$

i.e.

$$Pr\left(\sum_{n=1}^N V_{nj} \leq \frac{2}{3}N \mid V_{pj} = 0 \& V_{mj} = 1\right) = \beta, \text{ where } 0 \leq \beta \leq 1 \quad (2.6)$$

where β is between 0 and 1, indicating the probability of the party chief’s decision being supported and passed, even when the mayor is against it. A larger β represents higher probability, indicating the party chief’s relative power and support from most committee members. When $\beta = 1$, the party chief’s preference can be satisfied, regardless of the mayor’s. However, when $\beta = 0$, the party chief has no more power than the mayor. Taking the graphic model in this paper as an example, there are five normal committee members, three closer to the party chief and two closer to the

mayor. In this case, $\frac{3}{5} < \frac{2}{3}$, thus the “Strong Independent Decision Assumption” is not guaranteed to hold. However, a potential swing member originally closer to the mayor might support the party chief instead in some cases, where the “Strong Independent Decision Assumption” might hold. In this situation, $0 < \beta < 1$. The Independent Decision Assumptions for the two key officials actually indicate the “soft ‘political’ constraint,” which is similar to the “soft budget constraint” (Kornai, 1979, 1980, 1986) for state-owned enterprises.

Both the party chief and the mayor are “utility” (or “rent”) maximizers. If the group voting outcome is the same as what the party chief or the mayor votes for, then he can enjoy one unit of “utility” or “rent” because that is what he desires. If the voting outcome is different from what he votes for, he will have zero units of rent or utility because this is not what he desires. Note that in this binary set up, zero represents a “no” vote. This is not the same as keeping the *status quo*, leaving the issue unsolved, which also yields zero utility to both parties. Thus, the party chief’s expected utility on Policy j is:

$$\begin{aligned} EU_{pj} = & 1 \times Pr(V_j = 1 \mid V_{pj} = 1) \times Pr(V_{pj} = 1) + 1 \times Pr(V_j = 0 \mid V_{pj} = 0) \times Pr(V_{pj} = 0) \\ & + 0 \times Pr(V_j = 1 \mid V_{pj} = 0) \times Pr(V_{pj} = 0) + 0 \times Pr(V_j = 0 \mid V_{pj} = 1) \times Pr(V_{pj} = 1) \end{aligned} \quad (2.7)$$

Similarly, the mayor’s expected rent on Policy j is:

$$\begin{aligned} EU_{mj} = & 1 \times Pr(V_j = 1 \mid V_{mj} = 1) \times Pr(V_{mj} = 1) + 1 \times Pr(V_j = 0 \mid V_{mj} = 0) \times Pr(V_{mj} = 0) \\ & + 0 \times Pr(V_j = 1 \mid V_{mj} = 0) \times Pr(V_{mj} = 0) + 0 \times Pr(V_j = 0 \mid V_{mj} = 1) \times Pr(V_{mj} = 1) \end{aligned} \quad (2.8)$$

Considering both the Weak and Strong Independent Decision Assumptions, the probabilities of an exogenous Policy j being approved or rejected conditional on the party chief’s vote are:

$$Pr(V_j = 1 \mid V_{pj} = 1) = Pr(V_{mj} = 1) + \beta[1 - Pr(V_{mj} = 1)] \quad (2.9)$$

$$Pr(V_j = 0 \mid V_{pj} = 0) = Pr(V_{mj} = 0) + \beta[1 - Pr(V_{mj} = 0)] \quad (2.10)$$

while those for the mayor are:

$$Pr(V_j = 1 \mid V_{mj} = 1) = Pr(V_{pj} = 1) \quad (2.11)$$

$$Pr(V_j = 0 \mid V_{mj} = 0) = Pr(V_{pj} = 0) \quad (2.12)$$

Thus, the expected utilities of the party chief and the mayor on Policy j are:

$$\begin{aligned} EU_{pj} = & 1 \times Pr(V_{pj} = 1) \times [Pr(V_{mj} = 1) + \beta(1 - Pr(V_{mj} = 1))] \\ & + 1 \times Pr(V_{pj} = 0) \times [Pr(V_{mj} = 0) + \beta(1 - Pr(V_{mj} = 0))] \end{aligned} \quad (2.13)$$

$$EU_{mj} = 1 \times Pr(V_{pj} = 1) \times Pr(V_{mj} = 1) + 1 \times Pr(V_{pj} = 0) \times Pr(V_{mj} = 0) \quad (2.14)$$

Meanwhile:

$$Pr(V_{pj} = 1) + Pr(V_{pj} = 0) = 1 \quad (2.15)$$

$$Pr(V_{mj} = 1) + Pr(V_{mj} = 0) = 1 \quad (2.16)$$

Thus, Equations (2.13) and (2.14) can be rewritten as:

$$\begin{aligned} EU_{pj} = & (2 - 2\beta) \times Pr(V_{mj} = 1) \times Pr(V_{pj} = 1) + (\beta - 1) \times Pr(V_{mj} = 1) \\ & + (\beta - 1) \times Pr(V_{pj} = 1) + 1 \end{aligned} \quad (2.17)$$

$$EU_{mj} = 2Pr(V_{mj} = 1) \times Pr(V_{pj} = 1) - Pr(V_{mj} = 1) - Pr(V_{pj} = 1) + 1 \quad (2.18)$$

For the two utility/rent maximizers, the first order conditions are:

$$\frac{\partial EU_{pj}}{\partial Pr(V_{pj} = 1)} = (2 - 2\beta) \times Pr(V_{mj} = 1) + (\beta - 1) = 0 \quad (2.19)$$

$$\frac{\partial EU_{mj}}{\partial Pr(V_{mj} = 1)} = 2Pr(V_{pj} = 1) - 1 = 0 \quad (2.20)$$

Solving Equations (2.19) and (2.20), we have:

$$Pr(V_{pj} = 1) = \frac{1}{2} \quad (2.21)$$

$$Pr(V_{mj} = 1) = \frac{1}{2} \quad (2.22)$$

Similarly, another variable, γ ($0 \leq \gamma \leq 1$), can be further added into the model, indicating the mayor's relative power. The solutions are the same. Actually, β and γ can be used as the measurements of the relative weights of the two key officials. When “ β ” or “ γ ” is non-zero, it means that the other party loses the absolute veto power but still keeps some power. When “ β ” or “ γ ” is 1, the other party loses all the veto power. However, $0 \leq \beta + \gamma \leq 1$ must hold, since one issue can only be solved (either yes or no) or unsolved (status quo), while the total probability of being solved cannot be greater than 1. In other words, if $\beta > 0.5$, then $\gamma < 0.5$ must hold. A relatively strong party chief must correspond with a relatively weak mayor.

This quantitative solution indicates that in order to maximize their respective utility/rent, the best response for both the party chief and the mayor is not always

agreeing on a decision at the same time, nor always rejecting a proposal at the same time. One of the two key leaders' probability of voting yes or no is independent of the other's. In reality, they might cooperate or bargain with each other, while this result shows how the "checks and balances" work in the party chief and mayor template.

2.3.2 Endogenous Policy

In the former discussion, there is a strong assumption that Policy j is exogenous. However, in many situations, the party chief and/or the mayor have endogenous preferences, especially for policies closely related to their personal interests, including but not limited to political, economic, and ideological preferences.

Suppose there is a new policy proposal i which is endogenous for the party chief; and there is another policy proposal k , which is endogenous for the mayor. Take Policy k as an example. Since k is endogenous for the mayor, he will stick with his endogenous preference, regardless of what the party chief votes. However, Policy k may or may not be consistent with the preference of the party chief. As shown in Figure 2.3, there is a non-zero probability a ($0 < a < 1$) that the endogenous preference, thus the decision of the mayor, is the same as the party chief's preference. Thus, "collude (support the other party's decision)" should be the dominating strategy for the party chief; in other words, $U_{Pk1}(= 1) > U_{Pk2}$.

However, there is still a non-zero probability $1 - a$ that the mayor's decision contradicts the preference of the party chief. Similarly, the party chief faces two options: "collude" with the mayor or not. If the party chief colludes (with a probability p , where $0 \leq p \leq 1$), then the outcome is actually not consistent with his preference, thus his utility is $U_{Pk3} = 0$ (as defined in the former subsection); if he does not (with a probability $1 - p$), it is still possible that he gets the support of most of the normal committee members, with a probability β ($0 \leq \beta \leq 1$, as defined in Section 2.3.1). Thus $U_{Pk4} = \beta$. Note that a is decided by nature (since the party chief and mayor are appointed by the upper level party and government), while p is a probability choice as a mixed strategy of the party chief.

Figure 2.4 displays the decision tree faced by the mayor, where Policy i is endogenous for the party chief. The party chief will stick with his endogenous preference, and b ($0 < b < 1$) is the probability that the mayor's preference is the same as that of

the party chief's, which is decided by nature. Again, m is the probability the mayor chooses, as a mixed strategy. Similarly, $U_{mi1}(=1) > U_{mi2}$: colluding with the party chief is a dominating strategy when they have the same preferences. When the mayor's preference contradicts that of the party chief, if the mayor colludes, then, his utility $U_{mi3} = 0$. If the mayor decides not to collude, it is still possible that he can win, with a probability γ . Because when one party decides to not collude, voting no is a weakly dominating strategy (yielding a non-zero expected utility) compared to doing nothing (yielding a zero expected utility). Therefore, in this scenario, $\beta + \gamma = 1$. β and γ can be influenced by many exogenous and endogenous variables, e.g. their political background, personality, etc. Meanwhile, the political bargaining between the party chief and the mayor is also a repeated game in reality, which also shapes the results of β and γ , while it is outside the scope of this research.

Thus, the expected utilities of the party chief and the mayor on Policies i and k are:

$$\begin{aligned} EU_p = EU_{pj} + EU_{pk} = & [b + (1 - b)m + (1 - b)(1 - m)\beta] \\ & + [a + (1 - a)p \times 0 + (1 - a)(1 - p)\beta] \end{aligned} \quad (2.23)$$

$$\begin{aligned} EU_m = EU_{mj} + EU_{mk} = & [b + (1 - b)m \times 0 + (1 - b)(1 - m)\gamma] \\ & + [a + (1 - a)p + (1 - a)(1 - p)\gamma] \end{aligned} \quad (2.24)$$

Simplifying Equations (2.23) and (2.24) and taking partial derivatives of their utility function with respect to their own mixed strategy variable give:

$$\frac{\partial EU_p}{\partial p} = (a - 1)\beta \leq 0 \text{ ("=" holds only when } \beta = 0) \quad (2.25)$$

$$\frac{\partial EU_m}{\partial m} = (b - 1)\gamma \leq 0 \text{ ("=" holds only when } \gamma = 0) \quad (2.26)$$

Equation (2.25) indicates that the party chief will maximize his own utility when p takes the minimum value available, 0. This suggests that the party chief will always play against the mayor when the mayor's endogenous preference/policy is not the same as his own. Equation (2.26) has a similar implication for the mayor. In conclusion, even when the policies are endogenous, the horizontal "checks and balances" are still in effect in the party chief and mayor template.

2.4 Political Institutions

2.4.1 Institutional Constraints Added

In the king and council template literature, institutions have been heavily discussed, but they have never been explicitly incorporated into the graphic analysis. Institutional constraints might restrict potential policy combinations that the two key officials propose. Meanwhile, some normal committee members' ideal points might also be out of the institutional constraints. This may influence the outcome marginally (and possibly dramatically) in some situations. Typical constraints include the constitution, ideology, etc. This section illustrates the role institutional constraints play in the party chief and mayor template.

As Figure 2.5 shows, there is an institutional constraint (the red shaded ellipse) imposed by the upper level party, government organizations, or the constitution. As explained before, in reality, both the party chief and the mayor are “appointed” by upper level party and government organizations, therefore they have to obey such a constraint in order to maintain the “legitimate” status of their positions. If he dares to cross the constraint, he might be punished by the upper level party organizations, including loss of both his current position and the potential of a future political career (Kornai, 1992).

For example, the institutional constraint of the red ellipse part can represent ideology. Any policy combination outside the ellipse may be viewed as deviating from the “socialist ideology.” For example, a reasonable or politically correct combination of policies should maintain a good balance between the central planning and the market system. On the one hand, in order to push economic development forward, the officials may want the private sector to play a more important role; on the other hand, due to ideological constraints, they need to maintain the relative share of state owned enterprises. Member E might have a relatively pro market policy preference and would propose policy combination E. In such a situation he would be viewed as an outlier. Such a system of ideology balance or mixture is reviewed in the Constitution. As the *Constitution of the People's Republic of China* (the 1982 document, amended in 2018) Article 11 states:

“The non-public sectors of the economy such as the individual and private sectors of the economy, operating within the limits prescribed by law,

constitute an important component of the socialist market economy.

The State protects the lawful rights and interests of the non-public sectors of the economy such as the individual and private sectors of the economy. The State encourages, supports and guides the development of the non-public sectors of the economy and, in accordance with law, exercises supervision and control over the non-public sectors of the economy.”

Figure 2.6 gives another similar situation, where policy combination 2 is not tolerable by the party’s ideology. Here, member B is viewed as an outlier and his suggestions will never be taken by his fellows. Meanwhile, neither the party chief nor the mayor may dare to propose or approve policy combination 2, since it is outside the ideology constraint.

2.4.2 Ideological Education, Personality Cult, and Political Movements

These formal and informal institutions play an essential role in socialist politics. As a result, using different approaches to impose ideological or constitutional constraints, or even to shape the officials’ inherent policy preferences, are widely observed. For example, Party Schools of the Communist Party of China are established on various levels across the country, where working party members get ideology education. Such systems and institutions across socialist countries are also documented in Kornai (1992).

Meanwhile, a personality cult can help the party chief and the mayor to attract more confidants. Combined with political movements, top figures may manage to build up the personality cult and even gradually shift institutional constraints. In the early years of the Communist Party of China, Mao Zedong managed to build up the personality cult of his through rounds of political movements since the late 1920s to the middle 1940s. His political power reached the first peak of his lifetime during the Yan’an Rectification Movement in early 1940s (Gao, 2000). Rome was not built in one day, nor was a personality cult. Such a gradual gain of political power through political movements has also been observed in the history of the early years of the former Soviet Union and other socialist regimes. Another famous political movement is the Cultural Revolution under Mao from 1966 to 1976. However, the aftermath of the Cultural Revolution effectively discredited the red ideology movement, and the ruling elites of

the Party realized that policies focusing on economic development should be primary. The Communist Party of China, which rarely admits its mistakes, even concluded that “...the ‘Cultural Revolution’ has made the party, the state and the people suffer the most serious setbacks and losses since the founding of this country...” (Communist Party of China (CPC), 1981).¹⁰ Even recently, gradually obtaining political power via political movements is still seen in the political bargaining among upper-level Chinese politicians. For example, Bo Xilai, the former party chief of Chongqing Municipality from 2007 to early 2012, employed ideology movements and legal intervention to gain more political power and better reputation (Zhou, 2018). The Anti-corruption Campaign under Xi Jinping since late 2012 is another example. It is believed that one main aim of this campaign is to “reduce elder influence” - extinguishing the vestiges of influence from former paramount leader Jiang Zemin (Liu, 2015).¹¹

2.5 Conclusion

Kornai’s pioneering scholarship on the “soft budget constraint” (Kornai, 1979, 1980, 1986), transitions (Kornai, 1990, 2000, 2006), and the overall economic system (Kornai, 1992) described the mechanisms of socialist systems. In this paper, I build on Kornai’s work on socialist systems by analyzing horizontal bargaining between the party chief and the mayor in contemporary China. Specifically, I synthesize both the “no outside checks and balances” (Kornai, 1992) and “vertical bargaining” (Kornai, 1986, 1992) models into my analysis of this bipolar division of power within every party branch, the cell constituting the whole socialist pyramid.

Using the contemporary socialist political system in China for context, this paper extends the original king and council template, where political bargaining occurs between one person and a group of people, to the party chief and mayor template, where political bargaining occurs between two key leaders with confidants. The party chief

¹⁰ *Resolution on Several Historical Questions for the Party since the Founding of the People’s Republic of China*, 1981, the Communist Party of China (CPC). Source: the database of the Central Committees of CPC. <http://cpc.people.com.cn/GB/64162/64168/64563/65374/4526448.html> (accessed May 15, 2018).

¹¹ Bo’s fall is nominally accused of his corruption (in 2013, Chinese authorities charged Bo with bribery, abuse of power, and corruption), but is not a direct result of the Anti-corruption Campaign by Xi which started after Bo’s fall. Moreover, Bo’s fall is the aftermath of losing the “game of thrones” - the 2012 “election” of the 18th National Congress of the CPC, though the winner of which was Xi Jinping (supported by other political forces on the top). Zhou (2018) gives a very detailed study of Bo Xilai’s performances in Chongqing and the economic outcomes.

and mayor template also incorporates institutional constraints, which influence proposals and votes both directly and indirectly. Meanwhile, with the collective decision probability function defined, the solution indicates that “checks and balances” work between the party chief and the mayor, regardless of whether their preferences of the policy are exogenous or endogenous.

This research pushes forward theory in the socialist system and the bipolar political bargaining literature. The party chief and mayor template provides another way of studying political bargaining, and the illustration in this paper shall provide more evidence of how the contemporary politics in socialist China operates. In reality, the party chief and the mayor may cooperate or bargain with each other in a repeated game. More work is necessary to further reveal the economic and political mechanisms in socialist regimes from a positive perspective, à la János Kornai’s work, rather than leaving them unexplored.

Figures

Figure 2.1: Effects of Veto and Agenda Power of the King and Council Model (Congleton (2001), p. 202)

Figure 2.2: The Party Chief and Mayor Template

Figure 2.3: The Party Chief's Decision Tree

Figure 2.4: The Mayor's Decision Tree

Figure 2.5: Institutional Constraints Added – A

Figure 2.6: Institutional Constraints Added – B

Chapter 3

Economic Institutions and Horizontal “Checks and Balances” in Chinese Bureaucratic System: Prefecture City Level Evidence

3.1 Introduction

Principal-agent problem is widely observed in political systems, which often leads the principals to make a loyalty-competence trade-off (Glazer, 2002; Egorov and Sonin, 2011; Zakharov, 2016; Bai and Zhou, 2019). Political leaders would like to appoint competent agents, while they also need to secure the loyalty of agents, regardless of whether the regime is a democracy or a dictatorship. Among the many, contemporary Chinese system is one interesting case. To the academic, Chinese political system is still a “black box” for the most part. One common view of the Chinese political system is that there is no *de facto* democracy. Indeed, the appointment process of officials is full of manipulation, and that of the party and government officials is more autocratic than that of the congressional process. However, the Communist Party of China and the *Constitution* assert their right to practice “Democratic Centralism” from the *Constitution of the People’s Republic of China* (the 1982 document, amended in 2018), which enables the upper-level party and government officials to bargain and appoint the officials in the lower-level sectors and thus construct the political pyramid in this Socialist regime.

The median voter theorem suggests that politicians are elected by the median voter. In the Chinese context, politicians are appointed, i.e. “elected”, by the upper-level ones, through political bargaining. Now that the mid-level bureaucrats are agents of their upper-level officials and personnel appointment procedure has been institutionalized as through the Party’s Organization Department on various levels, no single official can manage to place his/her confidants in all the positions. In the earlier years of this Socialist regime, waves of political movements were employed to purge political enemies and to enhance the loyalty of officials to Mao (Gao, 2000; Bai and Zhou, 2019). In the last three decades, political movements still occur but are very rare. Two exceptions are Bo Xilai’s red ideology and legal intervention movements in Chongqing Municipality (Zhou, 2018) and the recent Anti-Corruption Campaign by Xi Jinping (Zhou, 2020). However, for most part of the last three decades, the bureaucratic system has been running smoothly.

The literature of contemporary Chinese politician promotions and appointments focuses on the effects of economic performance (competence) and political connections (loyalty) of the officials, regardless of the level it is studying: central level (Shih et al., 2012; Bai and Zhou, 2019), province level (Bo, 1996; Maskin et al., 2000; Li and Zhou, 2005; Jia et al., 2015), prefecture city level (Yao and Zhang, 2015), and county level (Chen and Zhu, 2018). However, the connection or relationship investigated is mainly inter-level, while there is little research studying the intra-level political bargaining and competition. Zhou (2020) investigates political bargaining within every cell of the Chinese political system, and he argues that horizontal “checks and balances” in local governments are enhanced due to the vertical political bargaining across levels and the horizontal political bargaining within the upper-level government. On the one hand, upper-level government officials want their agents to be cooperative, which enhances the governing efficiency. On the other hand, they would like to see some inner fights among their agents so that the lower-level officials will trade obedience to the senior ones for support from them, by which “loyalty” is enhanced. Zhou (2020) also highlights that institutions affect the personnel appointment process, while it has never been empirically examined in the literature.

Therefore, in this paper, it empirically investigates the relationship between economic institutions and personnel appointments in Chinese political system. Although

the political system is the same in this one-party state, economic institutions vary across regions. More specifically, with the data available, it tests whether provincial level economic freedom influences the differences between party chief and mayor appointed on the prefecture city level from 2000 to 2009, who are the *de facto* most powerful leaders in every city government. In other words, this paper does not directly study the loyalty of any specific official to their principal (if there is), while it studies how institutions influence the horizontal “checks and balances” (approximated by their “mismatch”) among local leaders.

Results from a fixed effects model suggest that more economic freedom in one province reduces the difference of basic biographical background (composed of gender, race, age, geographical origin, and education level) and career experience (whether they served in military, youth league, or as an assistant or secretary to a senior official) between party chief and mayor. However, more economic freedom in one province increases the difference of ideology component (measured by the major of education, economist or not, engineer or not, and whether the degree is from a party school) between party chief and mayor. It suggests that in regions with more economic freedom, the city leaders appointed are more “matched” regarding their biographical background and career experience, which may help enhance their cooperation and thus efficiency. However, in provinces with more economic freedom, the city leaders appointed are more “mismatched” regarding their ideology component, which suggests that the upper-level government may prefer more “checks and balances” of their ideological preferences. An Instrumental Variable (IV) approach and robustness tests using ordered probit model and lagged effects all suggest comparable results.

This research contributes to the current literature in several ways. First, it is the first paper empirically studying how the province level economic institutions influence the party organization’s decision on appointing prefecture city leaders. Second, it unveils how economic institutions influence the “match” between local political leaders, which further affects their loyalty to the upper-level government. The results deepen understanding of institutions’ role in deciding cadre appointments and the loyalty-competence trade-off in contemporary China, the analysis of which is missing in the current literature.

3.2 Cadre Evaluation and Appointment in Contemporary China

The political appointment process in China is normally viewed as a “black box”, and the contemporary literature mainly focuses on the inter-level relations and promotions of officials. Indeed, the early years of this Socialist regime, especially the Cultural Revolution, witnessed the chaotic era when political fights could take many forms including political movements with purging. For example, Bai and Zhou (2019) study the Communist Party of China Central Committee members from 1945 to 1982 to investigate the loyalty-competence trade-off made by Mao.¹ They find that purging the capable young subordinates was more likely during the Cultural Revolution (1966-1976), who had more outside options and thus expended less effort on loyalty.

However, in the last three decades, the form of political fights and bargaining within the Communist Party has been more “peaceful”. To most mid-level cadres, “game of thrones” on the top is not directly related to them. They are just parts of the bureaucratic machine, while they might be uniformly affected under political movements. Therefore, in the stable institutionalized political system, mid-level officials can only employ “peaceful” and “institutionalized” means to achieve their ends. If they want to place any confidants of theirs in a specific position to be filled, they have to run it through the Organization Department of the Party. Even though it might be just pro forma in some cases, a “voting” procedure by the mass or by the standing committee on the corresponding level is necessary. For example, popular election on the village level has been nationally institutionalized in 1998. In some cases, these elections are just pro forma. In other cases, these elections can be competitive and thus are used to replace the incumbents, which also further enhances local governance (Han, 2014). Meanwhile, officials (principals and agents) move frequently in the current bureaucratic system, which makes it difficult to secure the loyalty of relative agents. Instead of maintaining the loyalty from any specific person, principals continuously work on maintaining the dynamic equilibrium among their agents.

The current cadre evaluation system nominally states that it accounts for the economic performance of the cadres’ ruling. The literature provides supporting evidence of the essential effect of economic performance on officials’ promotion in general, while

¹Mao already seized the supreme power by 1945 (Gao, 2000), and he passed away in 1976.

there is also some evidence against it. Bo (1996) finds that the economic performance of province leaders in China help their promotion, with the observations from 1949 to 1994. Maskin et al. (2000) observe the province level economic growth in 1976 and 1986 and further investigate the relative political power of a province in 1977 and 1987, respectively. They find that the promotion opportunity of a province's leaders (measured as the provincial per capita number of Central Committee members in the Party Congress) is positively correlated with the ranking of the province's economic growth. Li and Zhou (2005) study the province level political turnovers from 1979 to 1995 in China, and they also find that the likelihood of promotion is positively correlated with the economic performances of the officials. Moreover, the average performance over their tenure plays a more essential role than their annual performance.

More recently, Shih et al. (2012) study the advancement of Central Committee members of the Communist Party of China, and they find no evidence that strong economic growth helps promotion. Instead, factional ties with various top leaders, educational qualifications, and provincial revenue collection play substantial roles in elite ranking. Jia et al. (2015) focus on provincial leaders who are in the pool for top political offices on the national level, and they find that both the economic performances and political connections to the top of province leaders affect their promotions. Moreover, performances and connections are complements in the Chinese political selection process, and they argue that "connections foster loyalty of junior officials to senior ones, thereby allowing incumbent top politicians to select competent provincial leaders without risking being ousted" (Jia et al., 2015).

Yao and Zhang (2015) use the decomposition method to study the Chinese city leaders (party chief and mayor) from 1994 to 2010, with a unique city-leader linked dataset developed by themselves. They find that these leaders have significantly different levels of abilities to promote the local economy. They also find that the personal abilities have more important roles in leaders' promotions, and it is most important around the median age (around 50) in the sample. Following that, Xi et al. (2018) further study the political business cycles in China. They find that different city leaders have different capacities ("leader effects") as found in Yao and Zhang (2015), and they further find that more competent leaders are less likely to take opportunistic actions before the Communist Party's nation congress which holds every five years. Their

findings suggest that the Chinese political selections are associated with the long-term reputation of officials, which further provides supportive evidence for the reputation model of political business cycles in the Chinese context.

Jiang (2018) focuses on the economic performances of a prefecture city after a new party chief or mayor is appointed and finds evidence that there is actually a “patron-client” relationship between the province party chief and governor and the city level party chiefs and mayors. The GDP of a city with a newly appointed city party chief or mayor grows significantly faster than the other cities, two years after the appointment as a “payment” back to the promotion made by the province leaders, as long as the province leaders are still holding their tenures.

Chen and Zhu (2018) study the leaders (party chief and mayor) of the county level regions in China from 2000 to 2011. They also find that better economic performance, measured by the ranking of the county in the prefecture city, significantly increases the officials’ likelihood of getting promoted. Meanwhile, if the economic performance of the county is ranked among the top five (a typical prefecture city has about 7-9 county-level regions), the officials are also more likely to get promoted.

One important question that remains open in the current literature is how the politicians on the same level- more specifically, within the same government unit- bargain with each other. In other words, are there institutionalized “checks and balances” with design in this socialist regime, like those in the Western countries (Congleton and Zhou, 2019)? If there are, could that induce the upper-level officials to place “mismatched” officials as city party chief and mayors? Yao and Zhang (2015) suggest that the party chief and the mayor are co-workers and thus jointly contribute to the economic growth, while they do not investigate the competitions between the two local leaders.

Zhou (2020) starts theoretically investigating the horizontal “checks and balances” between party chief and mayor, the top two leaders on various levels. He argues that the horizontal “checks and balances” are reinforced by vertical bargaining between upper level governments and lower level ones. The development of local economies in China under the regionally decentralized authoritarian system after the Reform and Opening-up in 1978 has helped local governments to gain more fiscal and political power (Qian and Roland, 1998; Xu, 2015). On the one hand, the upper level gov-

ernments want the party chief and the mayor in lower levels to get along well, the cooperation of whom can help increase governance efficiency. On the other hand, in order to have more controls over the leaders in lower level governments and avoid the lower jurisdictions being run by factions, the upper level governments may deliberately exaggerate the differences between the two lower-level leaders. For example, if the party chief and the mayor are not “matched” well, they will “collude” less and make more efforts to please the officials in upper level governments to attain more favorable treatment, political support, and possible promotions. Meanwhile, many lower-level officials are representatives of the upper-level ones’ interests, and it is a “patron-client” relationship as indicated by Jiang (2018).

Zhou (2020) further suggests that institutions limit the policy space and influence the appointment and promotion of officials. More specifically regarding the research question this paper is trying to answer, when province level government officials are appointing the prefecture city party chiefs and mayors, the senior officials take the “checks and balances” between the (relatively) junior officials into consideration. Whether it is a “principle-agent” relationship or a “patron-client” relationship between the provincial officials and the prefecture city officials (Jiang, 2018), provincial economic institutions should influence the bargaining process and appointment decisions made on the provincial level. Unfortunately, it cannot capture the detailed bargaining and decision process of these government officials. However, even though China is a one-party state, the economic institutions vary across provinces, which influence not only economic activities (Wu and Teng, 2012) but also political ones. Thus, it is feasible to capture the variation in economic institutions between provinces and investigate whether the economic institutions influence the decisions of designing the “checks and balances” between prefecture city party chiefs and mayors across provinces. In other words, it can investigate whether the economic institutions in different provinces have different effects on the “matching” degrees designed and the role of institutional constraints. By this, it is feasible to uncover some part of this official appointment “black box”.

There is a possible concern for reverse causation. Specifically, will prefecture city party chiefs and mayors influence the province level institutions? On the one hand, the nature of the top-down hierarchical system in China determines that the lower level officials are just obeying the orders from the upper-level officials. On the other hand,

the regionally decentralized authoritarian system also enables officials in lower level governments to have limited autonomy. Therefore, there might be mutual interactions and effects between the provincial and city governments. However, since province level government has supreme power to the prefecture city level government, and the provincial level laws and regulations dominate the outcomes in this regime, it is reasonable to assume that the mechanism with province-to-city direction is the more essential one, which is the focus of this paper.

3.3 Empirical Analysis

This section manages to empirically uncover the economic institutions part of the cadre appointments “black box” in the Chinese political system. As explained in the former section, the provincial level government leaders may deliberately increase or decrease the differences between the city party chiefs and the mayors in the province. It is not certain whether the “cooperation” (competence) incentive dominates, which pushes the province leaders to appoint more similar party chiefs and mayors, or the “checks and balances” (loyalty) incentive dominates, which pushes the province leaders to appoint more different party chiefs and mayors.

3.3.1 Model Specification

When the city party chief and mayor have more similar backgrounds and experiences, it is more likely that they cooperate well and even form a clique, which makes the upper-level government have less *de facto* control. Therefore, less difference between the two leaders can be approximated as that they cooperate well and make their branch running more effectively. Instead, more difference between the two leaders suggests that there is more diversity. This diversity might bring more specialized knowledge to the specific government unit, while it also brings more difference between the two leaders thus makes them less likely to form a united clique.

The main model used is a fixed effects model with year fixed effects. It explains the differences of the party chief and the mayor of prefecture city c in province p in year t , and it is specified as

$$Dif_{cpt} = \beta EI_{pt} + \psi X_{pt} + \rho Z_{ct} + \delta_t + u_{cpt} \quad (3.1)$$

where Dif_{cpt} stands for the difference measures of the party chief and the mayor of city c in province p in year t . EI_{pt} is the economic institutions (marketization in this context, i.e. economic freedom) of province p in year t . X_{pt} represents the economic, demographic, and geographic control variables for province p in year t . Z_{ct} is the logged city GDP of city c in year t . δ_t is a year fixed effect, controlling for heterogeneity over time. Last but not least, u_{pct} is the unexplained error term for the difference measures of party chief and mayor of city c in province p in year t .

The main reason for not including province fixed effects is that the sample studied only covers 10 years (2000-2009), which means that on average there are about three different party chiefs and about three different mayors in every city. Although the overall economic freedom developed in most provinces over the time period studied, there is strong persistence of economic freedom across regions. As Figure 3.1 shows, the relative ranking of provinces' economic freedom is consistent over the 10-year period. Provinces with relatively higher economic freedom at the beginning of the 21st century end up still having relatively higher freedom 10 years later, though the average for the whole of China increased, too. Facing this endogeneity and sparse observations in the sample, province fixed effects factor out too much variation. Meanwhile, even in Equation (3.1) where the province fixed effects are not included, a border dummy variable and a minority dummy variable are included, and there are also various provincial level economic and demographic control variables. For the provinces with the Han race as the majority, the social norms and ruling structures are very similar. That being said, the model in Equation (3.1) should address the concerns of heterogeneous characteristics across provinces well.

An instrumental variable (IV) approach is also employed to further address the potential endogeneity concern for exploring the relationships between these difference measures and economic freedom and its areas. It is not only a technique but also an art to pick the appropriate instrumental variable. The one I employ for this research is a "marriage index." More specifically, the number of people who divorce and/or remarry is related with institutions which include culture and economic freedom, especially in China where a large number of people still see divorce and remarriage as anti-traditional. However, it should not directly relate to the background differences of the top two leaders in a city. The Marriage Index for province p in year t is calculated as

$$Marriage Index_{pt} = \frac{Divorce_{pt} + Remarry_{pt}}{FirstMarry_{pt}} \quad (3.2)$$

Where $Divorce_{pt}$ represents the number of people who divorce in province p in year t . $Remarry_{pt}$ is the number of people who marry but not for the first time in province p in year t (they have divorced or lost spouse before). $FirstMarry_{pt}$ is the number of people who marry for the first time in province p in year t , to control for the overall marriage rates in every province.

The first stage regression of the IV approach is as

$$EI_{pt} = \phi Marriage Index_{pt} + \psi X_{pt} + \rho Z_{ct} + \delta_t + u_{cpt} \quad (3.3)$$

Where the control variables X_{pt} and Z_{ct} , year fixed effects δ_t , and error term u_{cpt} are the same as that in Equation (3.1). The second stage regression of the IV approach with the estimated economic freedom $\widehat{EI}_{pt}$ (standard errors adjusted) is as

$$Dif_{cpt} = \beta \widehat{EI}_{pt} + \psi X_{pt} + \rho Z_{ct} + \delta_t + u_{cpt} \quad (3.4)$$

3.3.2 Prefecture City Party Chief and Mayor Data and Difference Measures

In general, Chinese politician data are very limited. However, a recent data set released by Chen (2016) contains the basic information of party chiefs and mayors of prefecture cities in China. The data cover part or all observations of 334 prefecture cities (and sub-provincial cities, autonomous prefectures, and regions) in 27 provinces.²

³ The average *de facto* term of party chief in the sample is 3.88 years, and that of mayor is 3.72 years (Chen, 2016). That being said, the observations are city-year ones, and two consecutive observations of a city may be the same for some years if neither the party chief nor the mayor left office. Although there are general “elections”

²There are 31 province level regions in Mainland China. Beijing, Chongqing, Shanghai, and Tianjin cities are municipalities directly controlled by the central government and are excluded in this data set.

³In a recent paper, Jiang (2018) provides access to the Chinese Political Elite Database (CPED), “a large biographical database that contains extensive demographic and career information of over 4,000 key city, provincial and national leaders in China since late 1990s.” The variables of Jiang (2018) include officials’ name, gender, race, province and city born, education, year of joining the Party, military experience or not, and working experiences. However, it does not have the specific majors of their education, nor whether the degrees are of party school or not. It also does not have the information of being an economist or engineer. Therefore, to include more characteristics of the officials in my analysis, I decided to use the data of Chen (2016).

for both the party and the government every five years, many promotions decided by upper level governments happen between the two general “elections”.

The party chief observations in this data set are from 2000 to 2010 (3,032 observations with part or full information), and the mayors are from 2000 to 2012 (3,916 observations with part or full information). The information of the politicians is collected from publicly available sources and includes: provincial code and name, city code and name, year, year born, month born, province born, city born, gender, race, education level (high school, college, etc.), degree from party school or not, education major, economist or not, engineer or not, year joining the party, year starting work, military experience or not, youth league experience or not, and assistant or secretary to a senior official experience or not. Many party chiefs and mayors in this data set do not have full observations for all variables. Given the current situation of Chinese political data in general, this data set is not perfect but is definitely a great contribution to the literature of Chinese political economy. Though it is a relatively new data set, it has been used in the literature, e.g. Lyu et al. (2018) on GDP management to meet or beat growth targets in China and Jin et al. (2018) on inter-jurisdiction political competition and green total factor productivity.

After dropping observations with missing values for the variables used in the study, there are 1,786 paired party chief & mayor observations with full information left, on the city-year level. The summary statistics of the information of party chiefs and mayors are displayed in Table 3.1. The summary statistics of the differences between the party chief and the mayor of the same city in the same year are displayed in Table 3.2. More specifically, “Party_variable” and “Mayor_variable” in Table 3.1 stand for the value of the variables in the original data set for party chief and mayor, respectively. “P&M Dif_variable” in Table 3.2 stands for the absolute value of the difference of that variable between the party chief and the mayor of that city in that year. The meanings of most variables are self-evident by the names, while some others need some explanations which are provided below.

Gender is coded as 0 for male and 1 for female. As shown in Table 3.1, only 2.5% city-year party chief observations are female, and it is slightly higher for mayors, 4.3%. If the party chief and the mayor have different genders, then P&M Dif_Gender is coded as 1; otherwise 0.

Race is coded as 0 for Minorities (55 different ones in China) and 1 for Han Race. As shown in Table 3.1, 91.9% party chiefs and 94.3% mayors are Han Race. If one of the party chief and the mayor is Han Race and the other is a Minority, then P&M Dif_Race is coded as 1; otherwise 0.

Age displayed in Table 3.1 is the real age, calculated by the year of observation subtracting the year the official was born from the original data set. As Kou and Tsai (2014) describe, there is an age dilemma in the Communist Party of China cadre appointment system. Official limits on the age of cadres is used to address the gerontocracy as in earlier years (Berton and Panel, 2017). Most party chiefs and mayors of prefecture cities are holding the “Bureau Director (zhèng tīng)” rank, who have to step down by 55 years old unless being promoted to a higher rank. “Step down” means that they still need to work in the government as normal employees with their former rank until the age of 60 before they can officially retire; however, they lose their *de facto* position and power. For example, the party chiefs and mayors of sub-provincial cities—typically the capital city of a province—hold the “Deputy Minister (fù bù)” rank and must step down and retire by the age of 60 unless they are promoted to a higher rank. Thus, the maximum age of officials in the sample is 60 years old. The official terms for both party chief and mayor are both five years, since the general “elections” occur every five years. Thus, when calculating the differences of age between the party chief and the mayor of the same city, P&M Dif_Age, I use a binary dummy variable: if the age difference is no less than five years, then it is given value 1; otherwise 0. The main reason is that if the two figures have a large age difference, they are not at the same point in their political career, given the age dilemma for cadres in China.⁴ Xi et al. (2018) also highlight the political business cycles in the Chinese political system, and passing some specific ages (57 studied in Xi et al. (2018)) changes officials’ incentives thus actions. Meanwhile, using this binary coding method helps address the “inflation” issue of age, since all other measures are coded as 1-0 binary variables and the large age differences constituting the difference scores as dependent variables would otherwise overweight age.⁵

⁴There is also an idiom in China: there is already a generation gap between people with a three year age difference. However, five years is used as the cutoff, which is the official term. Age differences coded as the absolute differences divided by 5 also yield comparable results.

⁵Chen (2016) also includes the year the officials started working and the year they joined the Communist Party of China. However, since age is already included and they are already either prefecture city party chief or mayor, those two measures shall not play a direct nor important role in

The city of an official's birth place is also included in the data set. In Chinese culture, if two officials are from the same region, it is likely that they will form a clique because of their common hometown. As a result of this, most city party chiefs and mayors work in a different city other than the city they were born, designed by the authoritarian system to reduce potential cronyism. Therefore, I construct a binary variable P&M Dif_City Born, which is coded as 1 if they are from two different cities, and 0 if they are from the same city. As shown in Table 3.2, City Born difference has the highest mean among all the individual difference measures: 0.916, which means that 91.6% paired party chiefs and mayors don't share the same origin.

Education score stands for the highest degree an official has received. If it is lower than high school, then it is coded as 0; 1 for high school; 2 for junior college; 3 for four-year college; 4 for masters; 5 for Ph.D. When calculating the difference score between party chief and mayor, if their degrees are different for at least 2 points which is a "reasonable" gap, then the P&M Dif_Edu Score is coded as 1; otherwise 0. For example, if the party chief's highest degree is high school, while the mayor's is college, then the difference is coded as 0; however, if the party chief's highest degree is high school and the mayor's is masters or Ph.D., then it is coded as 1. I have also conducted different education score coding with 3 points' difference, or just using the real point difference instead of the binary coding method, and results are robust regardless of the coding method. Similar to the coding philosophy for age, the main reason for using this binary coding method is to address the "inflation" issue of the education score.

Chen (2016) also documents officials' career history: whether they have ever served in the military, in the youth league, or as an assistant or secretary of senior officials. Having served in the military might shape the official's ruling style and change the chance of promotion. The youth league is viewed as an express way of promotion, which can also help avoid the age dilemma (Kou and Tsai, 2014). Having been an assistant or secretary of senior officials endows an official with a stronger political network and more support from senior government officials in the upper level governments. To take this into account, I constructed P&M Dif_Military, P&M Dif_Youth League, and P&M Dif_Assistance to measure the career differences between party chief and mayor.

the appointment decision process. My interview of several Chinese government officials also verified this.

In addition, it is also possible to observe the majors of officials' degrees: humanities, social science, natural science and technology, agriculture, or medical. The major of higher education may also influence the way they perceive the world and the way they handle issues. Therefore, I also construct a binary variable P&M Dif_Major, which is 1 if there is no overlap at all between the degrees of the party chief and the mayor (some of them have more than one post-secondary degree and therefore there is a possibility for more than one major); as long as there is an overlapping major between the party chief and the mayor, which means that they at least have some "common language" regarding their higher education, then it is coded as 0.

The data set also documents whether a party chief or mayor is an economist or engineer (officially certificated in the Chinese system), and both are coded as a 1-0 binary variable. Thus, similarly, I construct the differences on these two perspectives between party chief and mayor as 1-0 binary variables. Being certificated as an economist or an engineer suggests that this "technocrat" has very specialized knowledge in that area, and this specialized knowledge might influence the official's ideology. An "economist" might rule his jurisdiction with more economically correct policies, while an "engineer" might rule the jurisdiction with more planning due to the potential "fatal conceit" (Hayek, 1988).

Party Schools of the Communist Party of China are established on various levels across the country, where working party members get ideology education. Rather than most party members who only have occasional or regular training at various party schools, some have more formal education and receive official degrees from party schools which are equivalent to those from normal higher education institutions. For the officials who receive their degree from a party school, Chen (2016) codes it as 1; otherwise 0. Similar to the former variables in my analysis, if there is a difference between the party school degree identifications of the party chief and the mayor, then P&M Dif_Party School is coded as 1; otherwise 0. Getting an official degree from the party school system means that the official has had a much more significant amount of time learning red ideology materials by the Communist Party of China, which may in turn influence their policies.

As Table 3.3 shows, all of the 12 difference variables are relatively independent of each other.⁶ Most correlation coefficients are below 0.10, and the highest one is only

⁶Please refer to Table 3.2 for the "codebook" of the names of the variables. Original variable names

0.16. Therefore, without concerns of multicollinearity of these difference variables, I further construct three main measures of the differences between party and mayor based on the category of these individual difference variables: (1) Basic Biography Information, which sums the gender, race, age, city born, and education score; (2) Career, which sums the scores of whether they have served in the military, in the youth league, or as an assistant or secretary; (3) Ideology, which sums the degree's major, economist or not, engineer or not, and party school degree or not. I also construct a Total index, which is the summation of the former three main measures. The summary statistics of these main measures are in Table 3.2. On average, the Basic Biographical difference measure between paired party chiefs and mayors is about 1.8 points, the Career difference is about 1.1 points, the Ideology difference is also about 1.1 points, and the Total difference is about 4 points. Section 3.3.5 provides an example showing how to calculate the difference measures for paired party chief and mayor.

Figures 3.2, 3.3, and 3.4 show the provincial level averages of their cities' Basic Biographical Difference, Career Difference, and Ideology Difference overtime, respectively. Each panel in these figures is shown with that panel's own scores divided into five quantiles, which is more straight forward to compare the relative ranking changes. Checking the range of these panels also provides inter-temporal trends of the whole of China: it is evident that there are inter-temporal variations for all these three measures. In general, Figure 3.2 shows that the relatively more developed provinces in the east have less Basic Biographical Difference than the central and northeastern ones. Northwestern province regions have the most Basic Biographical Differences, where many officials moved from other central and eastern provinces, as "assist frontier cadres". Furthermore, the relative ranking of Basic Biographical Difference also changes overtime.

Figure 3.3 also shows evidence of the inter-temporal variations of provinces' rankings on Career Difference. The "Central Plain" and southern provinces seem to have relatively more Career Difference than others. Xinjiang Uygur Autonomous Region always has relatively high Career Difference, which is due to its political uniqueness and the large number of "assist frontier cadres" from other provinces.

Besides a similar inter-temporal variation pattern, Figure 3.4 suggests that the relatively more developed regions in the east do have more Ideology Difference as defined.

are not displayed due to a typesetting issue.

Except those boundary and/or minority provinces, most provinces in the east do have a relatively higher Ideology Difference. Pan and Xu (2018) find that respondents from more developed provinces are more likely to prefer democratic institutions and support market reforms, based on a large online survey of normal citizens. Therefore, it is possible that the ruling party deliberately imposes more difference regarding the ideology of the party chief and mayor, to prevent potential ideologically outlying outcomes.

3.3.3 NERI Index: Province Level Economic Freedom Data

The second main data set is the *Marketization of China's Provinces: NERI Report 2011* by Fan et al. (2011), which contains China's province level marketization index from 1997 to 2009. "Marketization" is the synonym of "economic freedom" in the Chinese context, while "marketization" is more politically correct and safer in China.⁷ The latest NERI Index report (Fan et al., 2017) covers years 2008 to 2014, but its construction methodology is slightly different from the former one (Fan et al., 2011). The NERI Index from the latest two reports cannot be merged. Given that the party chief and mayor data set by Chen (2016) also only covers paired observations from 2000 to 2010, the years 2000-2009 are used as the time period in this research.

The scaling methodology of the *Marketization of China's Provinces: NERI Report 2011* takes the year of 2001 as the base year, when all the components are scaled from 0 to 10: a higher score means that the region performs better in marketization (economic freedom) regarding that component. The scores in the later years are using those in 2001 as the baseline with the same methodology. However, the scores are not normalized, leading to values of less than 0 or greater than 10 in the following years. The 2011 Report (Fan et al., 2011) mainly studies the marketization in Chinese provinces from 2007 to 2009, while it also adjusts the scores for the earlier years reported in earlier reports and thus provides scores with consistent methodology from 1997 to 2009. The NERI Report has five main areas, comprised of 18 components (a few of which have sub-components). The five areas are: (1) "relationship between government and market", the size of the government in the regional economy; (2) "development of non-state economy (ownership structure)", concerning the growth of

⁷During a conference conversation with Dr. James Gwartney, one of the coauthors of the widely cited Economic Freedom of the World annual report (e.g. Gwartney et al. (2018)), he told me that he actually gave advice and suggestions to the coauthors of the NERI Index along the construction process.

the non-state sector and provincial-level reform of state enterprises; (3) “goods market development”, trade barriers and the regional-level price control; (4) “factors market development”, the development of mechanisms of allocation of resources including capital and labor; and (5) “legal frameworks”, includes data on the setting-up of a legal framework for property-rights protection and contract enforcement. The summary statistics of province regions’ overall marketization and the five areas are reported in Table 3.4.⁸

Figure 3.1 shows the temporal changes of provinces’ economic freedom. The overall economic freedom of Chinese provinces has been improving over this 10 year window, while the relative ranking has not changed much. The east coastal provinces relatively have the highest economic freedom all the time, the central ones follow, and the western and northwestern ones have the lowest.

3.3.4 Province Level and City Level Data

The provincial level economic and demographic control variables include: province GDP, province population, province fixed capital investment (% , calculated from raw data), province trade ratio to GDP (% , calculated from raw data), and province college employee share of total population (% , calculated from raw data). I also create two more dummy variables for provincial regions to capture the potential ethnic or geographic peculiarity. Minority: coded as 1 if it is an autonomous region of minority, and 0 otherwise. Border: coded as 1 if it is neighboring another country on land, and 0 otherwise. I also include city GDP data as a control variable for the heterogeneity of cities in China.

The provincial level data are from the National Bureau of Statistics of China.⁹ The city level annual GDP data are from the Wind Data¹⁰, which is an online macroeconomic data service provider (with data collected from official sources) in China. The summary statistics are also reported in Table 3.4.

⁸For readers who are interested in more details about the NERI Index, Zhou and Hall (2019) give a very detailed overview of the NERI Index, especially the detailed explanation of the components of the five areas. Zhou and Hall (2019) explain the entrepreneurship changes in Chinese provinces using the *Marketization of China’s Provinces: NERI Report 2016* (Fan et al., 2017): although a couple of measures in the 2011 and the 2016 reports are not exactly the same, they are still very comparable in general.

⁹<http://www.stats.gov.cn/english/>

¹⁰<http://www.wind.com.cn/en/wft.html>

3.3.5 An Example of How to Calculate the Difference Measures

Take Nanjing City of Jiangsu Province as an example. Nanjing is the capital city of Jiangsu Province (an Eastern province). During the 2000-2009 time period studied in this paper, Nanjing has paired observations with full information from 2002 to 2009.¹¹ During the 8 years observed, Nanjing has had three different party chiefs and three different mayors. For example, in 2002, the party chief is Li Yuanchao, who is: male, Han race, 52 years old, born in Huai'an City of Jiangsu Province, Ph.D., no military experience, with youth league experience, no assistance experience, major is social science, not an economist, not an engineer, has party school degree. The paired mayor of Nanjing City in 2002 is Luo Zhijun, who is: male, Han race, 51 years old, born in Chaoyang City of Liaoning Province, has a Masters degree, with military experience, with youth league experience, with assistance experience, major is social science, is an economist, not an engineer, not party school degree.

Therefore, the constructed P&M Dif_ variables for Nanjing City in 2002 are: P&M Dif_Gender = 0 (V1), P&M Dif_Race = 0 (V2), P&M Dif_Age = 0 (V3), P&M Dif_City Born = 1 (V4), P&M Dif_Edu Score = 0 (V5), P&M Dif_Military = 1 (V6), P&M Dif_Youth League = 0 (V7), P&M Dif_Assistance = 1 (V8), P&M Dif_Major = 0 (V9), P&M Dif_Economist = 1 (V10), P&M Dif_Engineer = 0 (V11), and P&M Dif_Party School = 1 (V12). Therefore, P&M Dif_Basic Bio = 1, P&M Dif_Career = 2, P&M Dif_Ideology = 2, and P&M Dif_Total = 5.

3.4 Results

3.4.1 Fixed Effects Model Results

The fixed effects model results from Equation (3.1) are displayed in Table 3.5. Column 1 suggests that in a province with higher economic freedom, a prefecture city's party chief and mayor are less different regarding their Basic Biographical character-

¹¹An ironic excursion. In late 2013, the current mayor of Nanjing, Ji Jianye, was removed from office and charged of corruption. In early 2015, the current party chief of Nanjing, Yang Weize, was also removed from office and charged of corruption. One rumor is that Mayor Ji and his father in law, Gao Dezheng who was the vice governor of Jiangsu Province, thought it was Party Chief Yang who reported the corruption issues of Ji to the upper level government. In order to exact revenge, Ji and Gao also reported Yang's corruption issues to the upper level government. What a unique case of the "checks and balances" between the party chief and the mayor. Yang Weize https://en.wikipedia.org/wiki/Yang_Weize. Ji Jianye https://en.wikipedia.org/wiki/Ji_Jianye

istics. The magnitude of effect is also reasonable: the measure of difference caused by the difference of economic freedom can be as large as about 0.9 point (the coefficient estimated times the difference of economic freedom, $-0.095 \times 9.13 = -0.87$). From another perspective, one standard deviation change of economic freedom corresponds to about 0.2 standard deviation change of the Basic Biographical difference.

Column 2 suggests a similar negative effect on Career Experience. One explanation is that in a province with more economic freedom the daily ruling of local governments is likely to have more “rule of law” (more accurately, “rule by law” in China) and less “rule of man”. The administrative procedures in a province with more economic freedom are more normalized. Thus, the party chiefs and mayors appointed are needed to be more “matched” to have less infighting and thus have higher ruling efficiency. It is also “economically/politically” significant: one standard deviation change of economic freedom corresponds to about 0.11 standard deviation change of the Career difference. For the province with the most economic freedom and the one with the least economic freedom, it may lead to a 0.43 point difference of the Career difference, which is about half of its standard deviation.

However, as shown in Column 3, party chiefs and mayors are more different regarding the Ideology measure in provinces with higher economic freedom; one standard deviation of economic freedom corresponds to 0.14 standard deviation of the Ideology difference. Officials in provinces with higher economic freedom are more likely to adopt pro-free-market thoughts and policies. Zhou (2020) argues that the authoritarian system is embedded with institutional constraints, including ideological ones. Thus, possibly due to the ideology regulating concerns, the ideological differences between party chief and mayor are designed to be larger in provinces with higher economic freedom. Another alternative explanation is: in a province with more economic freedom, the provincial level appointment committee is more likely to consider and give opportunities to officials with various backgrounds; while in a province with less economic freedom, they still would like to appoint the officials from a pool of officials with limited diversity. Regardless of which reason, more ideological diversity will increase the potential “checks and balances” between party chief and mayor.

Column 4 suggests that overall economic freedom does not have a significant effect on the total index. The total index is the summation of 12 different characteristics,

and the effects of these characteristics with different signs counteract one another. In short, results in Table 3.5 indicate that economic freedom influences the different main measures of the differences of party chief and mayor, i.e. it influences the horizontal “checks and balances” designed across provinces. However, it does not have a significant effect on the aggregated total index.

As explained in the earlier section, the marketization index by Fan et al. (2011) is comprised of five areas. Even though the five areas are highly correlated, a specific area may have a different effect from another one, e.g. the size of government may affect the cadre appointment differently from the development of legal frameworks.

The results of further investigation of the detailed economic freedom areas are reported in Table 3.6. Column 1 results suggest that three out of the five areas have significant effects on the Basic Biographical measure: ownership structure (privatization), goods market development, and legal frameworks. Column 2 suggests that four areas have significant effects on the Career measure: government and market, ownership structure (privatization), factors market development, and legal frameworks. All the signs in Columns 1 and 2 are consistent with those in Table 3.5: more economic freedom reduces the designed differences between party chief and mayor.

Column 3 in Table 3.6 also suggests consistent results: government and market and ownership structure are the two main driving forces increasing the ideological differences between party chiefs and mayors. In a province with smaller government size and more private economy, the ideological backgrounds of the party chief and the mayor in their cities are more diverse. This ideological “checks and balances” should help enable the ideological directions of these cities to be on the “right” track, following direction from the central government. Moreover, factors market development and legal frameworks also have significant effects on the total index now, as shown in Column 4.

3.4.2 Instrumental Variable (IV) Approach Results

The second stage IV results for economic freedom are reported in Table 3.7, so are the diagnostic tests for the first stage results. Overall, the signs and statistical significances of economic freedom on Basic Biographical characteristics and Ideology are comparable to those in Table 3.5. The p-value for F-test is less than 0.000, which

rejects the null hypothesis that the Marriage Index is a weak IV. In other words, it is a strong IV.

Three out of four p-values of the Wu-Hausman tests are greater than 0.1, which fail to reject the null that economic freedom is exogenous at the 0.1 significance level. Therefore, we should use OLS to estimate these three models which is more efficient. The OLS model in this context is the fixed effects model with year fixed effects, and the results are reported in Table 3.5. However, for Ideology, it is the only one with a p-value (0.013) smaller than 0.1. Therefore, economic freedom is endogenous in this case, and thus it is correct to use IV. The IV result for Ideology is comparable to that in the main results section as reported in Table 3.5, positive and significant, while the magnitude of IV coefficient is larger. Overall, the economic freedom's effects from the fixed effects models are robust.

I also conduct IV analyses for all the five areas of economic freedom, and the diagnostic tests statistics are reported in Table 3.8. The F-test p-values for all the five areas are under 0.05, which suggest that the Marriage Index is a very strong IV for all the five areas. Regarding the Wu-Hausman test statistics, Career and Total are exogenous, and Basic Biographical characteristics and Ideology are endogenous, for almost all the five areas. Thus, the IV results suggest the real causal relationships between economic freedom areas and these two measures: the negative relationships between economic freedom areas and Basic Biographical characteristics are not significant anymore, while the positive relationships between economic freedom areas and Ideology are still significant and thus robust.

3.4.3 Robustness Tests

The constructed measures of the differences of party chief and mayors are discrete and the gaps are all integers, which enables the analysis using an ordered probit model. A year effect capturing the heterogeneity over time is also included when conducting the ordered probit model analysis, and the results are reported in Table 3.9.

Table 3.9 shows that the overall economic freedom still reduces the Basic Biographical difference, which is consistent with that of the main model. Economic freedom does not have a significant effect on the career experience difference nor the ideology difference anymore. Table 3.9 also reports the results for detailed areas of economic

freedom. The results for Basic Biographical and Ideology are very comparable to those of the main model as reported in Table 3.6. Four out of five areas are having a significantly negative effect on Basic Biographical difference. For ideology difference, both government and market and ownership structure have a significantly positive effect. Again, only factors market development has a significant effect on the career experience difference.

It is possible that economic freedom has time lagged effects, i.e. the economic freedom of province p in year $t - 1$, EF_{pt-1} , influences the province level government's appointment decisions of prefecture city party chiefs and mayors in year t . Meanwhile, it also takes some time for the province level committees to bargain, decide, and execute these appointments. Therefore, I also conduct robustness tests while using the lagged terms of economic freedom and its areas.

Table 3.10 reports the regression results of the fixed effects model with year fixed effects for economic freedom and its areas, respectively. Unsurprisingly, they are very comparable to those reported in the main results tables, Tables 3.5 and 3.6.

3.5 Discussion and Conclusion

Facing the principal-agent problem, politicians need to take a loyalty-competence trade-off in their personnel appointment decisions. In contemporary Chinese bureaucratic system, mid-level cadres are appointed via collective bargaining and decision of the corresponding cadres above, and there are also horizontal bargaining on and vertical bargaining across various levels of local governments. These make principal-agent relationships more complicated. Cadres also move often, which makes continuous long-term principal-agent or patron-client relationship even more difficult to maintain. Therefore, more than focusing on one specific principal-agent relationship, cadres also need to work on the horizontal "checks and balances" between local governments leaders when making personnel appoints.

On the one hand, principals want their agents to be "matched" well, which will enhance the cooperation and governing efficiency. On the other hand, principals also want their agents to have some sort of "checks and balances", thus principals can always secure their loyalty by providing support when there are inner fights between agents. By manipulating the "matching" between local leaders the agents, principals manage

to control them. As suggested in Zhou (2020), institutions play an important role in personnel appointments of local leaders in Chinese bureaucratic system. Therefore, this paper focuses on how economic freedom influences the “matching” degree between local leaders.

Using a recent data set documenting the biography information of prefecture city party chiefs and mayors in China by Chen (2016), this research uses the biography information of these officials as an approximation of their difference perceived by the provincial level officials, which might further influence the appointments of city party chiefs and mayors. Using the provincial level economic freedom data by Fan et al. (2011), and a fixed effects model with year fixed effects also an instrumental variable (IV) approach, this research finds that more economic freedom in one province reduces the difference of basic biographical background (composed of gender, race, age, geographical origin, and education level) and career experience (whether they served in military, youth league, or as assistant or secretary to a senior official) between party chief and mayor. However, more economic freedom in one province increases the difference of ideology component (measured by the major of education, economist or not, engineer or not, and whether the degree is from party school) between party chief and mayor. It suggests that more “matched” city party chiefs and mayors are desired in regions with more economic freedom, where governing efficiency is important. However, more ideological difference also exists in regions with more economic freedom.

This research contributes to the current literature in several ways. First, it is the first paper empirically studying how the province level economic institutions influence the party organization’s decision on appointing prefecture city leaders. Second, it is also the first paper investigating how economic institutions influence the designed “match” between local leaders, which play an important role in the intervened principal-agent relationships in the contemporary Chinese bureaucratic system. This research also has limits. The biography difference of party chief and mayor does not equal the real “matching” degree and the “checks and balances” between paired party chief and mayor, while it is probably the closest measure available so far. Furthermore, it is impossible to attain the real ideology of every official studied, while the current measure used in this paper provides a good approximation. However, as the spirit this research is following and developing, more work is necessary to further reveal the

economic and political systems in socialist regimes.

Tables and Figures

Table 3.1: Summary Statistics of Party Chiefs and Mayors (2000-2009)

Statistic	Mean	St. Dev.	Min	Max
Party_Gender	0.025	0.157	0	1
Party_Race	0.919	0.272	0	1
Party_Age	51.254	3.713	39	60
Party_Edu Score	3.801	0.770	0	5
Party_Military	0.097	0.296	0	1
Party_Youth League	0.336	0.472	0	1
Party_Assistance	0.613	0.487	0	1
Party_Economist	0.073	0.260	0	1
Party_Engineer	0.063	0.244	0	1
Party_Party School	0.569	0.495	0	1
Mayor_Gender	0.043	0.203	0	1
Mayor_Race	0.943	0.231	0	1
Mayor_Age	49.291	3.990	37	60
Mayor_Edu Score	3.396	1.425	0	5
Mayor_Military	0.070	0.255	0	1
Mayor_Youth League	0.392	0.488	0	1
Mayor_Assistance	0.615	0.487	0	1
Mayor_Economist	0.088	0.284	0	1
Mayor_Engineer	0.118	0.323	0	1
Mayor_Party School	0.604	0.489	0	1

N=1,786

Table 3.2: Summary Statistics of the Difference between Party Chiefs and Mayors (2000-2009)

Statistic	Mean	St. Dev.	Min	Max
P&M Dif_Basic Bio	1.812	0.888	0	5
P&M Dif_Career	1.109	0.821	0	3
P&M Dif_Ideology	1.088	0.930	0	4
P&M Dif_Total	4.008	1.562	0	9
P&M Dif_Gender (V1)	0.068	0.252	0	1
P&M Dif_Race (V2)	0.123	0.328	0	1
P&M Dif_Age (V3)	0.434	0.496	0	1
P&M Dif_City Born (V4)	0.916	0.277	0	1
P&M Dif_Edu Score (V5)	0.271	0.445	0	1
P&M Dif_Military (V6)	0.143	0.351	0	1
P&M Dif_Youth League (V7)	0.499	0.500	0	1
P&M Dif_Assistance (V8)	0.466	0.499	0	1
P&M Dif_Major (V9)	0.352	0.478	0	1
P&M Dif_Economist (V10)	0.143	0.351	0	1
P&M Dif_Engineer (V11)	0.152	0.359	0	1
P&M Dif_Party School (V12)	0.440	0.497	0	1

N=1,786

Table 3.3: Correlation Coefficients of the 12 Difference Variables between Party Chief and Mayor

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12
V1	1	0.03	-0.03	0.02	-0.02	-0.01	0.05	0.03	-0.10	0.05	-0.02	-0.01
V2	0.03	1	0.01	0.06	0.06	-0.03	-0.04	-0.05	0.04	0.04	0.03	-0.01
V3	-0.03	0.01	1	0.06	0.12	-0.004	-0.03	-0.02	0.10	-0.07	0.04	0.08
V4	0.02	0.06	0.06	1	-0.01	0.10	0.10	0.07	0.05	0.03	0.03	0.11
V5	-0.02	0.06	0.12	-0.01	1	-0.03	-0.03	-0.06	0.05	0.02	-0.01	0.08
V6	-0.01	-0.03	-0.004	0.10	-0.03	1	-0.04	0.06	0.03	0.01	-0.09	-0.02
V7	0.05	-0.04	-0.03	0.10	-0.03	-0.04	1	0.09	-0.02	-0.03	-0.07	0.08
V8	0.03	-0.05	-0.02	0.07	-0.06	0.06	0.09	1	-0.03	-0.01	-0.06	0.02
V9	-0.10	0.04	0.10	0.05	0.05	0.03	-0.02	-0.03	1	-0.01	0.12	0.16
V10	0.05	0.04	-0.07	0.03	0.02	0.01	-0.03	-0.01	-0.01	1	-0.04	0.02
V11	-0.02	0.03	0.04	0.03	-0.01	-0.09	-0.07	-0.06	0.12	-0.04	1	0.08
V12	-0.01	-0.01	0.08	0.11	0.08	-0.02	0.08	0.02	0.16	0.02	0.08	1

Table 3.4: Summary Statistics of the Control Variables (2000-2009)

Statistic	Mean	St. Dev.	Min	Max
Economic Freedom	6.599	1.848	2.670	11.800
Government and Market	7.969	1.423	3.190	10.530
Ownership Structure	7.472	3.049	0.680	13.730
Goods Market Development	7.713	1.460	-0.160	10.230
Factors Market Development	4.366	1.646	0.800	8.730
Legal Frameworks	5.481	2.907	1.150	19.850
Border	0.236	0.425	0	1
Minority	0.059	0.236	0	1
Province GDP(10k CNY)	10,049.990	8,355.712	295.020	39,482.560
Province Population(10k)	5,937.704	2,486.767	552	10,130
Province Fixed Investment(%)	46.974	13.514	25.764	89.346
Province Trade(%)	29.488	37.613	3.707	158.078
Province College Employee(%)	0.121	0.046	0.040	0.259
City GDP(10k CNY)	736.867	909.095	31.770	9,138.210
Marriage(10k)	43.288	20.323	2.970	91.720
First Marriage(10k)	79.799	37.880	5.440	166.240
Remarriage(10k)	7.054	4.243	0.250	21.420
Divorce(10k)	14.816	7.712	0.780	39.940
Marriage Index	0.293	0.137	0.105	0.904

N=1,786

Table 3.5: Year Fixed Effects Model Results

	Basic Bio	Career	Ideology	Total
Economic Freedom	−0.095*** (0.034)	−0.047*** (0.018)	0.071* (0.037)	−0.072 (0.044)
Log Province GDP	−0.463*** (0.132)	0.160 (0.099)	−0.200 (0.130)	−0.504** (0.209)
Log Province Population	0.444*** (0.128)	−0.035 (0.089)	0.040 (0.167)	0.449 (0.281)
Province Fixed Effects (%)	0.001 (0.002)	−0.002 (0.002)	0.004*** (0.001)	0.003 (0.004)
Province Trade (%)	0.005*** (0.001)	−0.000 (0.001)	−0.001 (0.001)	0.004** (0.002)
Province College Employee (%)	1.769** (0.820)	−0.644* (0.388)	−1.530** (0.738)	−0.405 (0.882)
Minority	0.635*** (0.082)	0.060 (0.055)	0.036 (0.129)	0.730*** (0.123)
Border	0.292*** (0.029)	−0.283*** (0.052)	0.120** (0.057)	0.129* (0.069)
Log City GDP	0.028 (0.028)	−0.026 (0.032)	0.122*** (0.021)	0.124*** (0.034)
Year FE	Y	Y	Y	Y
Num. obs.	1786	1786	1786	1786
R ² (full model)	0.135	0.032	0.025	0.043

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3.6: Year Fixed Effects Model Results for Economic Freedom Areas

	Basic Bio	Career	Ideology	Total
Government and Market	−0.049 (0.033)	−0.031*** (0.011)	0.097*** (0.025)	0.017 (0.050)
Ownership Structure	−0.033* (0.018)	−0.018* (0.010)	0.061*** (0.016)	0.010 (0.028)
Goods Market Development	−0.043** (0.018)	0.017 (0.015)	0.008 (0.010)	−0.017 (0.025)
Factors Market Development	−0.024 (0.015)	−0.049*** (0.017)	−0.013 (0.036)	−0.086* (0.052)
Legal Frameworks	−0.026** (0.012)	−0.021* (0.012)	0.003 (0.014)	−0.044** (0.020)
Economic Controls	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y
Geographic Controls	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Num. obs.	1786	1786	1786	1786

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Table 3.7: Instrumental Variable (IV) Approach Results and Diagnostic Tests

	Basic Bio	Career	Ideology	Total
Economic Freedom	−0.400*	0.242	0.651***	0.493
	(0.213)	(0.219)	(0.252)	(0.438)
Log Province GDP	0.295	−0.558	−1.644***	−1.907*
	(0.535)	(0.558)	(0.630)	(1.106)
Log Province Population	−0.163	0.539	1.196**	1.572*
	(0.439)	(0.463)	(0.516)	(0.911)
Province Fixed Investment(%)	0.006	−0.007	−0.006	−0.007
	(0.004)	(0.005)	(0.006)	(0.009)
Province Trade(%)	0.009***	−0.004	−0.008**	−0.003
	(0.003)	(0.003)	(0.003)	(0.006)
Province College Employee(%)	−0.240	1.257	2.295	3.313
	(1.566)	(1.530)	(1.816)	(3.111)
Minority	0.318	0.359	0.639**	1.316**
	(0.234)	(0.258)	(0.300)	(0.517)
Border	0.123	−0.124	0.442***	0.441*
	(0.132)	(0.128)	(0.152)	(0.259)
Log City GDP	0.024	−0.023	0.129***	0.131**
	(0.030)	(0.028)	(0.033)	(0.052)
	(0.595)	(0.622)	(0.694)	(1.116)
F-Test P-value	0.000	0.000	0.000	0.000
Wu-Hausman Test P-value	0.141	0.165	0.013	0.177
Year Factor	Y	Y	Y	Y
R ²	0.096	−0.008	−0.103	0.000
Num. obs.	1786	1786	1786	1786

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 3.8: Instrumental Variable (IV) Approach Results and Diagnostic Tests for Economic Freedom Areas

	Basic Bio	Career	Ideology	Total
Government and Market	−0.810 (0.493)	0.489 (0.479)	1.318** (0.652)	0.996 (0.952)
F-Test P-value	0.005	0.005	0.005	0.005
Wu-Hausman Test P-value	0.075	0.224	0.011	0.255
Ownership Structure	−0.543 (0.331)	0.328 (0.321)	0.884** (0.430)	0.668 (0.634)
F-Test P-value	0.004	0.004	0.004	0.004
Wu-Hausman Test P-value	0.073	0.227	0.010	0.255
Goods Market Development	−0.670 (0.443)	0.404 (0.393)	1.090* (0.628)	0.824 (0.810)
F-Test P-value	0.018	0.018	0.018	0.018
Wu-Hausman Test P-value	0.075	0.278	0.006	0.237
Factors Market Development	−0.843 (0.540)	0.509 (0.490)	1.371* (0.708)	1.037 (0.980)
F-Test P-value	0.005	0.005	0.005	0.005
Wu-Hausman Test P-value	0.065	0.212	0.006	0.211
Legal Frameworks	−0.148* (0.079)	0.090 (0.080)	0.241*** (0.090)	0.183 (0.160)
F-Test P-value	0.000	0.000	0.000	0.000
Wu-Hausman Test P-value	0.110	0.151	0.006	0.142
Year Factor	Y	Y	Y	Y
Num. obs.	1786	1786	1786	1786

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 3.9: Ordered Probit Results

	Basic Bio	Career	Ideology	Total
Economic Freedom	−0.132*** (0.045)	−0.063 (0.045)	0.074 (0.045)	−0.047 (0.042)
Government and Market	−0.068* (0.036)	−0.038 (0.037)	0.101*** (0.037)	0.012 (0.035)
Ownership Structure	−0.043* (0.025)	−0.022 (0.025)	0.067*** (0.025)	0.007 (0.024)
Goods Market Development	−0.059** (0.026)	0.024 (0.027)	0.012 (0.026)	−0.011 (0.025)
Factors Market Development	−0.035 (0.039)	−0.072* (0.039)	−0.015 (0.039)	−0.057 (0.037)
Legal Frameworks	−0.036* (0.019)	−0.029 (0.019)	−0.001 (0.019)	−0.030 (0.018)
Economic Controls	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y
Geographic Controls	Y	Y	Y	Y
Year Effect	Y	Y	Y	Y
Num. obs.	1786	1786	1786	1786

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Table 3.10: Year Fixed Effects Results - Lagged EF

	Basic Bio	Career	Ideology	Total
Economic Freedom _{<i>p</i><i>t</i>-1}	-0.109*** (0.029)	-0.046** (0.018)	0.102** (0.043)	-0.054 (0.052)
Government and Market _{<i>p</i><i>t</i>-1}	-0.040* (0.024)	0.001 (0.022)	0.092*** (0.025)	0.053 (0.045)
Ownership Structure _{<i>p</i><i>t</i>-1}	-0.034** (0.014)	-0.011 (0.013)	0.075*** (0.019)	0.030 (0.030)
Goods Market Development _{<i>p</i><i>t</i>-1}	-0.065*** (0.023)	0.000 (0.016)	0.014 (0.017)	-0.051 (0.040)
Factors Market Development _{<i>p</i><i>t</i>-1}	0.001 (0.014)	-0.024 (0.029)	0.000 (0.039)	-0.022 (0.063)
Legal Frameworks _{<i>p</i><i>t</i>-1}	-0.040** (0.016)	-0.043*** (0.012)	0.015 (0.024)	-0.069*** (0.024)
Economic Controls	Y	Y	Y	Y
Demographic Controls	Y	Y	Y	Y
Geographic Controls	Y	Y	Y	Y
Year Effect	Y	Y	Y	Y
Num. obs.	1495	1495	1495	1495

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Figure 3.1: Economic Freedom in Chinese Provinces

Note: Blank areas suggest that the data are missing. Hong Kong, Macau, and Taiwan are not included in the analysis, since they are not in “Mainland China”. Beijing, Chongqing, Shanghai, and Tianjin are not included in the Chen (2016) data set, because the government leaders of these four direct-administered municipalities are called “mayors”, while they are actually “governors” of these provincial level regions and thus have a *de facto* higher rank; so are the party chiefs of them. The figures are only for economic analysis and do not represent the political views of the author.

Figure 3.2: Basic Biographical Difference in Chinese Provinces

Note: Blank areas suggest that the data are missing. Hong Kong, Macau, and Taiwan are not included in the analysis, since they are not in “Mainland China”. Beijing, Chongqing, Shanghai, and Tianjin are not included in the Chen (2016) data set, because the government leaders of these four direct-administered municipalities are called “mayors”, while they are actually “governors” of these provincial level regions and thus have a *de facto* higher rank; so are the party chiefs of them. The figures are only for economic analysis and do not represent the political views of the author.

Figure 3.3: Career Difference in Chinese Provinces

Note: Blank areas suggest that the data are missing. Hong Kong, Macau, and Taiwan are not included in the analysis, since they are not in “Mainland China”. Beijing, Chongqing, Shanghai, and Tianjin are not included in the Chen (2016) data set, because the government leaders of these four direct-administered municipalities are called “mayors”, while they are actually “governors” of these provincial level regions and thus have a *de facto* higher rank; so are the party chiefs of them. The figures are only for economic analysis and do not represent the political views of the author.

Figure 3.4: Ideology Difference in Chinese Provinces

Note: Blank areas suggest that the data are missing. Hong Kong, Macau, and Taiwan are not included in the analysis, since they are not in “Mainland China”. Beijing, Chongqing, Shanghai, and Tianjin are not included in the Chen (2016) data set, because the government leaders of these four direct-administered municipalities are called “mayors”, while they are actually “governors” of these provincial level regions and thus have a *de facto* higher rank; so are the party chiefs of them. The figures are only for economic analysis and do not represent the political views of the author.

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