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The Effects of Political Institutions in China: Evidence from the Mandatory Retirement Age at the Provincial Level

Derek Tai-wei Liu
School of Public Economics and Administration
Shanghai University of Finance and Economics
777 Guoding Road
Shanghai, China 200433
derek.twl@gmail.com
Cell: +86-185-0210-3350
Work: +86-21-3530-1127
Fax: +86-21-6510-4294

ABSTRACT:
This study takes advantage of a "natural experiment" to show how changes in political institutions shape politicians' incentives, and in turn affect important policy outcomes in China. Beijing introduced the mandatory retirement age for provincial leaders in the 1980s, but it did not fully institutionalize the new rule across all provinces until 2000. I therefore use this window to construct a difference-in-differences research design. Based on data from 1978 to 2005, I find that the enforcement of mandatory retirement rule does lead to better development outcomes. Provincial leaders who are eligible for promotion are now motivated to perform better on growth and social welfare provision in order to succeed under the performance-based promotion system. But the evidence also suggests that the mandatory retirement rule results in poorer performances among lame-duck leaders who have no chance for further promotion but to retire soon due to the age restriction. I also find that, contrary to what we expect, provincial leaders with central connection tend to have worse performances on growth. This finding shows that when politicians have connection with the center, they hold the key to promotion already. As a result, they do not need to worry about competing with others under the Chinese model of yardstick competition.

JEL Codes: H11; H77; O43; P27; P

The paradigm in recent study of development economics has been "institutions matter." Societies with "better" economic and political institutions—i.e. those that provide incentives and opportunities for investment—will achieve a greater level of income and other human development objectives (North 1981, 1990; North and Thomas 1976; North and Weingast 1989; Olson 2000). This view receives wide support from cross-country studies on economic institutions (Acemoglu, Johnson, and Robinson 2001, 2002; Knack and Keefer 1995; Mauro 1995; Hall and Jones 1999). Other micro-studies also find significant effects of property rights on investment or output (Besley 1995; Mazingo 1999; Johnson, McMillan, and Woodruff 1999). But the evidence on political institutions is not as consistent. Some find cross-national correlations between democratic institutions and economic performances (Baum and Lake 2003; Besley and Kudamatsu 2006; Besley, Persson, and Sturm 2005; Bueno de Mesquita et al. 2004; Lake and Baum 2001; Schultz and Weingast 2003; Persson and Tabellini 2003, 2006; Kohlscheen 2005; Rodrik 1999). Others find no systematic effects of political institutions on growth or other policy outcomes (Barro 1997; Mulligan, Gil, and Sala-i-Martin 2004; Przeworski et al. 2000; Przeworski 2004a).

Critics of the institutional view tend to use China as a counterexample to argue that political institutions do not have as much explanatory power as we would expect (Sachs 2012). After all, the country is an authoritarian regime without secure property rights or democratic accountability, yet it still managed to sustain spectacular growth for the past three decades despite the lack of "right" institutions. In order to explain China's economic success, scholars propose an argument of market-preserving federalism (Montinola, Qian, and Weingast 1995). The logic is that the Chinese-style fiscal decentralization has effectively created a yardstick competition among local officials, which in turn drives the country's spectacular growth (Jin, Qian, and Weingast 2005; Maskin, Qian, and Xu 2000). However, this view emphasizes the importance of economic arrangement at the macro-level, and it does not pay too much attention to the effects of political institutions on economic performances. Although there are studies focusing on how China's political system affects development outcome, they rely on anecdotal findings rather than systematic body of empirical evidence (Edin 2003; Lieberthal and Oksenberg 1992; Shirk 1993; Whiting 2001).

This study provides systematic evidence on how political institutions affect economic outcomes in China. Specifically, it uses a "natural experiment" made possible by the introduction of mandatory retirement age in China, and it shows how changes in political institutions shape politicians' incentives, and in turn affect important policy outcomes. China is know for its "flexibility" on many of the rules, and much attention to its political order has been devoted to extra-institutional factors, such as factionalism (Nathan 1990; Dittmer and Wu 1995; Shih 2007; Shih, Adolph, and Liu 2012), central connection (Huang 1996; Huang and Sheng 2009), informal politics (Dittmer 1995a, 1995b; Dittmer and Lü 1996), or informal accountability (Tsai 2007). But throughout the past three decades, the Chinese Communist Party (CCP) has initiated a process of institutionalization (Bo 2004; Naughton and Yang 2004; Shirk 1993; Whiting 2001). Among the new political institutions was the mandatory retirement age. Traditionally, provincial leaders in China held power till death because there were no formal rules regarding retirement. In 1982, Beijing proposed a mandatory retirement system, which

requires provincial leaders to retire at the age of 65.[1] But this new regime was not enforced across all provinces at the time of announcement. Most provinces implemented the rule in 1985, with the latest in 2000.[2]

I take advantage of this window to construct a difference-in-differences (DID) research design. I find that the introduction of mandatory retirement rule does result in better development outcomes in China. The new institution motivates provincial leaders who are still eligible for promotion to perform better on growth and social welfare promotion. But the evidence also suggests that after the enforcement of mandatory retirement rule, lame-duck provincial leaders—those who are required to retire soon due to the age restriction—tend to have worse growth and social welfare performances. Additionally, I find that contrary to what we expect, provincial leaders with central connection tend to perform more poorly on growth. This finding lends support to the argument that factional ties and personal connection play an important role in the consideration of promoting political elites (Shih, Adolph, and Liu 2012). When politicians have the right connection with the center, they hold the key to promotion already. As a result, they do not need to worry about competing with others under the performance-based promotion system.

The purpose of this study is to enrich our understanding of the importance of political institutions in shaping economic outcomes. Furthermore, it bridges the institutional view with a broader literature that emphasizes the importance of cadre incentives in shaping the reform process and policy outcomes in China (Blanchard and Shleifer 2001; Bo 2002; Guo 2009; Kung and Chen 2011; Landry 2008; Li and Zhou 2005; Oi 1992; Walder 1995). This study fills the gap of how political institutions shape the incentives of local officials, which then affect important policy outcomes. The study also provides evidence on how mandatory retirement rule promotes growth among most provincial leaders, with the exception of those who are lame ducks already and/or who have the right connection with the center. This improves our knowledge on how the Chinese model of yardstick competition works (Chen, Li, and Zhou 2005; Li and Zhou 2005; Maskin, Qian, and Xu 2000).

More importantly, this study sheds light on how CCP has maintained its sway over a society undergoing massive change as a result of economic reform. Perhaps the enforcement of mandatory retirement age along with other institutionalization events is the key to its political resilience. In addition to the institutionalized fiscal decentralization which has driven the country's spectacular growth, there were fiscal and taxation reforms in 1994 that secured the central control over provincial leaders (Naughton and Yang 2004). The CCP also regulated the rules of elite management to prevent arbitrary personal decision, and it enhanced the institutional decision-making power in leadership succession, which is widely seen as the regime's Achilles heel (Bo 2004; Shirk 2002).

[1] "Dangzheng lingdao ganbu xuanba renyong gongzuo tiaoli" (Regulations on Selecting and Appointing Leading Party and Government Cadres), in *Shiwuda yilai zhongyao wenxian xuanbian* (Selections of Important Documents since the 15th Party Congress), vol. 3 (Beijing: Renmin chubanshe, 2003), p. 2461.

[2] The latest province was Jiangsu. Chen Huanyou stepped down from the Party secretaryship at the age of 66 in January, 2000. Ever since then, all provincial leaders retired (at the very latest) within six months after turning 65, unless they hold national leadership position simultaneously.

Last but not least, the imposition of the two-term limit has allowed Beijing to reshuffle top-level provincial officials around the country and curb localism (Yang 2006).[3]

This paper proceeds as follows. The next section introduces the background of mandatory retirement system in China followed by theoretical discussion. The third section draws upon an extensive case study of Liaoning Province to illustrate how mandatory retirement rule shapes politicians' incentives and then affect policy outcomes. The fourth section explains the research design. The fifth section discusses the data and operationalization. The sixth section presents the empirical findings. The seventh section conducts robustness check. The final section concludes with the implications of this study.

THE MANDATORY RETIREMENT AGE IN CHINA

In 1982, for the first time in the PRC history, Beijing introduced an age-based retirement system in the effort to put an end to its lifetime appointment of party and government officials. The general retirement age was set at 55 for women and 60 for men, although leaders in specific positions were to retire later, at 65 for provincial leaders (including provincial Party secretary and governor) and 60 for their deputies. But the CCP also allowed some flexibility in a supplementary rule: only cadres whose health was too poor to work normally should retire, while "cadres who were needed at work and whose health was good could postpone retirement" (Manion 1993:66). In late 1984, Beijing reduced the flexibility by requiring leaders aged 70 and above to retire—even if their health was in good condition. Corresponding to the timing of two announcements, there were two large waves of retirement for provincial leaders in 1983 and 1985 (Li and Zhou 2005).

This, however, does not mean that the mandatory retirement rule was imposed across all 29 provinces.[4] Since many provincial leaders were older than 65 at the time, the actual criterion of retirement was health rather than age of a leader. This can be seen from the individual-level data of provincial Party secretaries. In 1982-83, there were 22 Party chiefs who were overage, but only half of them stepped down after Beijing's initial announcement of mandatory retirement rule. Moreover, among the eleven new successors, three of them were still overage leaders (aged 65, 66, and 73), and another four later on became overage leaders themselves. Even in the post-1985 period, after which the central government limited the flexibility, there were still sixteen Party bosses and nine governors who continued to stay in the position after the retirement age of 65. Eventually, the last overage leader Chen Huanyou was unexpectedly relieved from Jiangsu Party Secretaryship by Beijing in January, 2000.[5] This marks a new era for China to formally institutionalize the age-based retirement system across all provinces.

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[3] This rule was introduced as the same time of mandatory retirement age, but was not strictly enforced until late 1990s. The rule requires that politicians who have stayed in one position for two terms (ten years) can no longer stay in the same position.

[4] There are 31 provincial units in China nowadays, but in 1985 there were only 29 provinces. Hainan and Chongqing did not become one of the provincial units until 1988 and 1997, respectively. One thing to note is that when Hainan first became a province, it did not enforce the mandatory retirement rule until three years later.

[5] *Boxun News*, "Jiangsu Yuan Shengweishuji Chen Huanyou Bei Zhongjiwei Shuanggui," [Former Jiangsu Party Secretary Chen Huanyou receives double regulations by Central Commission for Discipline Inspection], October 22, 2004.

The installment of retirement age has one of the most far-reaching effects on the composition and outlook of the ruling elites in China. It not only prevented the perpetuation of individual power, but also generated some fairness and consistency in leadership succession (Pei 1998). Furthermore, it speeded up the circulation of Chinese political elites, and almost instantly transformed the ruling group from some close-minded and poorly-educated revolutionaries to a group of more vibrant and adaptive young technocrats (Li 2012). Figure 1 shows the trend of average age of provincial leaders during the sample period. As we can see from the blue solid line, the average age of Party secretaries dropped instantly from 66.5 in 1982 to 57.7 in 1986. Although it came back up to 61 in 1992, the average age went down again and has stayed under 60 after 1998. The red dashed line shows that the average age of governors dropped even more drastically, from 65.9 in 1982 to 55.1 in 1987, and then it stayed around 58 for the rest of the sample period. Figure 2 shows that the education level of top-level provincial officials also increased substantially. The green solid line shows that the percentage of leaders with a college degree skyrocketed from 20% in the early 1980s to 80% in the late 1980s, and it stayed above 90% since 1991. The orange dashed line shows that the percentage of leaders with a postgraduate degree also increased from zero in the mid-1980s to above 20% after 1989.

FIGURE 1: Age Trend of Provincial Party Secretaries and Governors

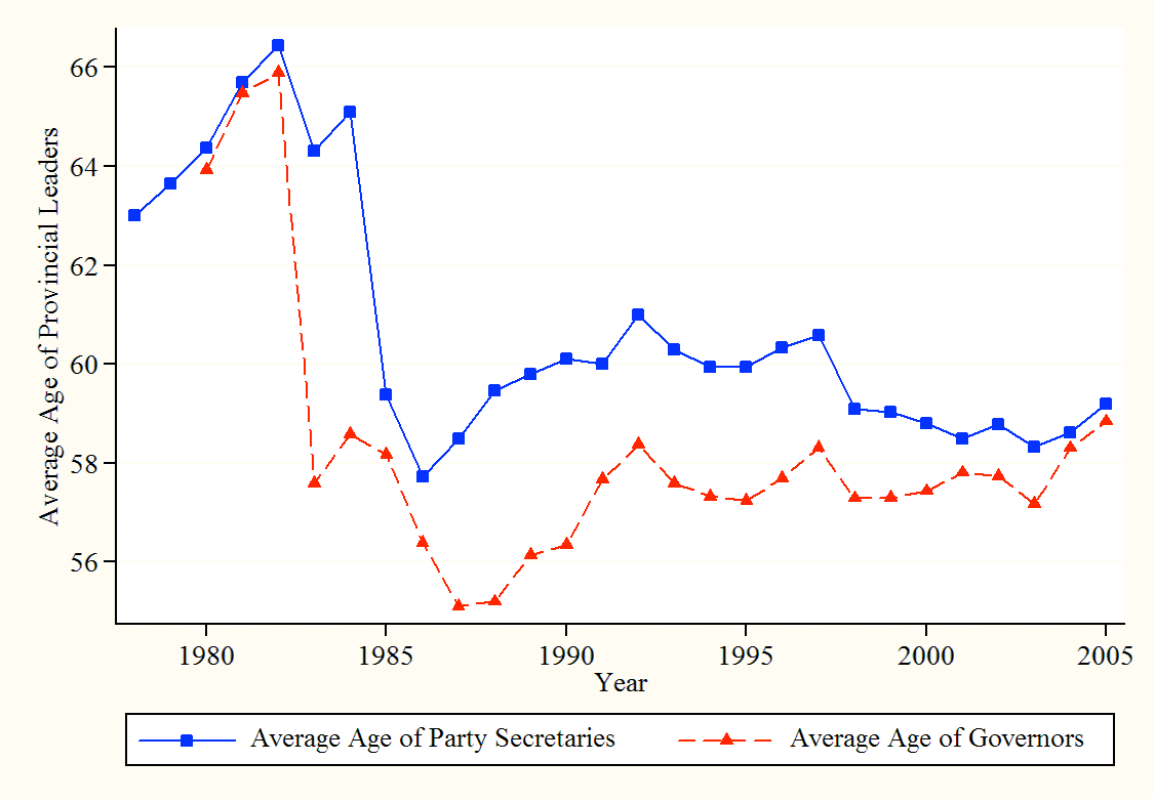
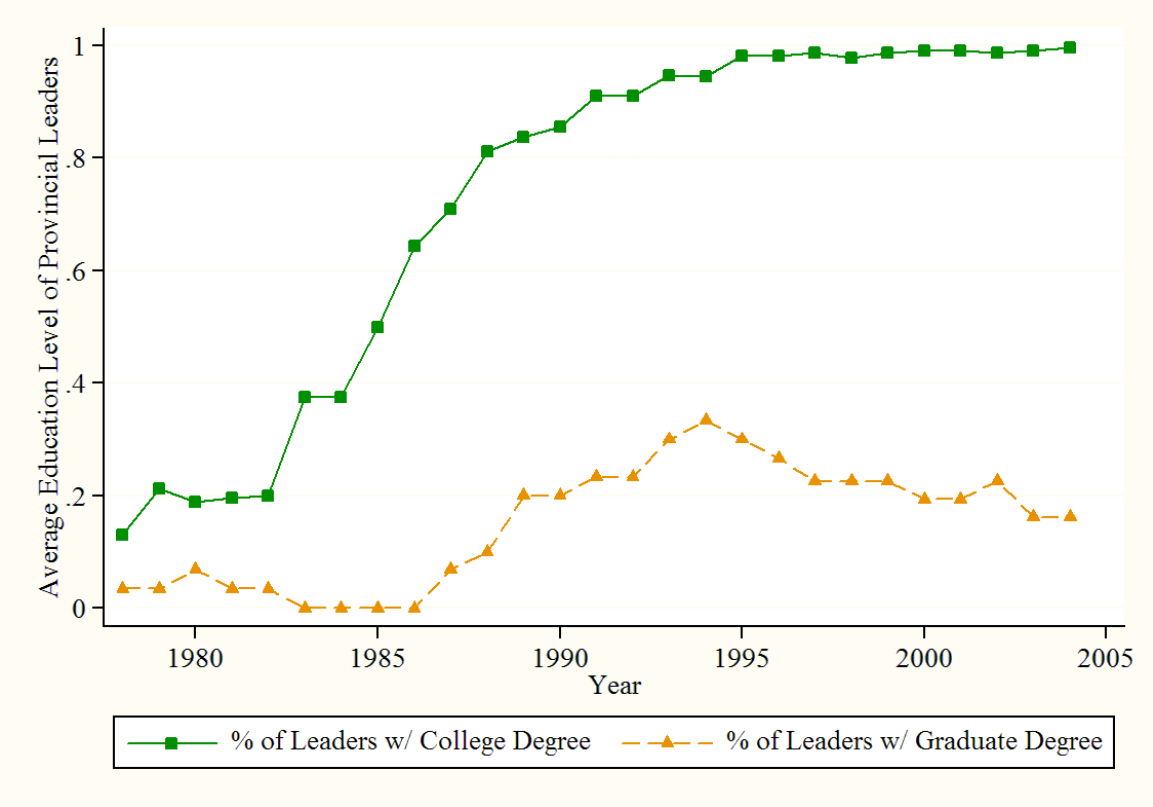


FIGURE 2: Education Trend of Provincial Party Secretaries and Governors



As the regulations and norms have developed, the age of a politician has become one of the most important indicators of the politician's career prospects (Li 2012). All provincial leaders are required to step down at the age of 65, and only those under 63 are initially considered for the position. Moreover, the 65-rule does not apply to national leadership positions at the Politburo (the 25-person leadership organ that oversees the CCP) and its Standing Committee (the nation's top decision-making body that usually consists of seven people, henceforth PSC). What this implies is that if a provincial Party secretary is not promoted to the Politburo or PSC before 65, he must retire.

The decision on who gets the admission tickets to the Politburo and PSC is usually unveiled at the National Party Congress which meets every five years. Therefore, the timing of leadership selection combined with the politician's age provides a good way to measure the promotional prospect of a leader in China. At the 17th National Party Congress in 2007, for instance, Li Keqiang was promoted from the position of Liaoning's provincial Party secretary to a member of PSC. After Li left Liaoning, Zhang Wenyue, the provincial governor at the time, filled the Party secretary position. In fact, Zhang had been Liaoning's governor since 2004, and Beijing decided to let Zhang serve simultaneously as both Party secretary and governor. This put him in a great position to lead Liaoning as both the number-one and number-two leader of the province. Nevertheless, this did not translate into political prospects for Zhang. He even resigned from the governor post within two months because his role as Liaoning's leader was only a temporary arrangement. He was already 63 when he assumed the Party secretary post,

and the next Party Congress would not meet until five years later in 2012. As a result, he had no prospect of promotion at all, and he only had two years left before he had to step down. He was a lame duck.

I argue that the introduction of mandatory retirement age has changed the incentive structures of provincial leaders in China, which in turn affected their policy choices and also important policy outcomes. Specifically, I hypothesize that the new retirement rule would motivate young provincial leaders to perform better in order to succeed under the Chinese system.

Works on cadre evaluation already show that China is a performance-based promotion system (Chen, Li, and Zhou 2005). Local government officials need to focus on GDP growth in order to score well in their annual evaluations, on which their promotion and sometimes their pay primarily rely (Edin 2003; Whiting 2004). But this pressure of yardstick competition should be much greater when there is a mandatory retirement rule in place.

Prior to the institutional change, young provincial leaders are not required to retire at a certain age, so they do not face a time constraint to pursue growth. Even if they do not outshine each other and get promoted to the central level, they can still hold onto their provincial leadership position after the age of 65. As a result, they do not need to worry about the termination of their careers. But after the installment of retirement institution, the clock is ticking for provincial leaders. There is a foreseeable shadow of the future now. If they do not get promoted to the central level before they turn 65, they will have to retire. Therefore, they have to show spectacular performance on economic growth in order to stand out against other politicians under the Chinese system.

H1: Young provincial leaders tend to have better economic growth after the enforcement of mandatory retirement age

I also hypothesize that the mandatory retirement rule would motivate young leaders to focus more on maintaining social stability, which is at the top of the national priority list. Therefore, they would provide more social welfare to the people to avoid potential discontent and reduce the political risk of mass social unrest.

Social stability has always been a national-level priority. Especially under the current economic conditions, in which rapid economic growth and unequal income distribution have created many social problem. A lot of people cannot even afford the most basic needs, not to mention the skyrocketing medical bills. What concerns Beijing is that if the government does not provide enough social welfare to the people, it may lead to social discontent and jeopardize popular support of the regime.

As a result, social stability has played an important role in cadre evaluation at the sub-national level. For instance, some prefecture-level cities in Guangdong Province divide social stability into two sub-categories—social security and social safety control—and each is worth 10% in their cadre evaluations, whereas growth rate is worth 13% (author's interview). Although it is still uncertain how much social stability is worth in other provinces' cadre evaluations, we know that it is one of the veto targets in which failure to perform well would negate all other good performances of a local official (Birney 2013). In order to succeed in the performance-based promotion system, young

leaders have to focus on social welfare provision besides growth. This way they can keep the people satisfied with the government and maintain social stability.

H2: Young provincial leaders tend to have better social welfare provision after the enforcement of mandatory retirement age

The logic of H1 and H2 could also work the other way around. Some politicians might lack the incentives to perform well, especially those elderly provincial leaders who missed their chances to be promoted, but now due to the new retirement rule have to step down soon. Therefore, I hypothesize that these lame-duck leaders would perform more poorly after the enforcement of mandatory retirement age.

Before the introduction of mandatory retirement age, there were no rules to retire elderly politicians. If an elderly leader did not get promoted to the central level, he could still stay in his position and just wait another five years for the next chance. But under the new institution, these elderly politicians cannot hold onto the leadership position and are required to step down at the age of 65. This inevitably changed their incentive structures and also their policy choices. They are now "lame ducks" who are near the end of their political careers. As a result of the short time-horizon, these lame ducks are not motivated to compete with other politicians on economic performance. Not only do they have no future prospect due to their age, but they also are merely waiting for retirement. Hence, these lame ducks lack the career incentives to pursue economic growth, or even to merely sustain the current growth.

H3: Lame-duck provincial leaders tend to have lower provincial economic growth after the enforcement of mandatory retirement age.

In addition, I hypothesize that lame-duck leaders would focus more on rent-seeking behaviors, and thereby perform more poorly on social welfare provision (Frye and Shleifer 1997; Krueger 1974; Shleifer and Vishny 1999). This is similar to the "59-phenomenon" in pre-reform China, in which high-level officials at state-owned enterprises started to corrupt right before their official retirement age of 60 (Kwong 1997). But since the reform era, this behavior has become prevalent among government officials as well, and the level of officials involved has gone higher while the scale of corruption has become greater (Lü 2000; Sun 2004). One high-profile example is the case of Chen Xitong, the former leader of Beijing who personally pocketed $24 million in the 1990s through investing in construction projects that are tied with his business cohorts.[6]

As Olson's (2000) apt analogy puts it, lame-duck politicians are like "roving bandits" with only a short time-horizon. Because they are not eligible to advance their political careers, they are only interested in squeezing all possible revenues as if there is no tomorrow. Hence, they would not want to invest government spending in social welfare programs, as such investment does not bring them much chance to earn kickbacks. Rather, they want to invest in capital construction or other projects, from which they have more opportunities to derive private rents or cultivate personal connection to secure post-retirement positions.

[6] Seth Faison, 1998, "Jailing of Ex-Mayor Shows a Tougher China." *New York Times,* August 1.

H4: Lame-duck provincial leaders tend to have worse social welfare provision after the enforcement of mandatory retirement age.

THE IMPORTANCE OF MANDATORY RETIREMENT AGE

The logic of the hypotheses can be illustrated through the findings from my extensive case study of Liaoning Province, which follows the previous example of Li Keqiang and Zhang Wenyue. From 2007 to 2009, I spent 16 weeks total in Liaoning to interview officials at provincial, municipal, and county-levels to investigate the effects of retirement rule on important policy outcomes. When Li Keqiang assumed office in Liaoning in 2004, he was only 49 years old. As one of the most promising stars at the time, he pumped up a few big policies in order to build a more appealing résumé. For instance, his "five-point-to-one-line" policy linked up Dalian and Dandong as well as a series of other ports into a comprehensive network. The province soon benefited from economies of scale and the corresponding expansion of export, and became a national leader in GDP growth. In 2006, Liaoning had an annual growth of 14.2%, which was its highest growth rate since 1994. The province also sustained a 13% quarterly growth rate for five consecutive quarters, which was again its best since 1994. Furthermore, Liaoning started to lead the nation in foreign trade. In the first half of 2007, the province's foreign exports increased by 35%, which was significantly higher than the 23% national average.

Li also increased the government effort on social welfare issues. Before he arrived in Liaoning, the province had adapted the model of "county-based budgeting" (*xiànjí tǒngchóu*), in which the provincial government grants county governments discretion to plan social welfare budgets. This arrangement was first pioneered by coastal provinces in the 1990s to enhance government response to growing inequality. As the frontrunners of economic reforms, coastal provinces were the first ones to experience widening inequality within the provinces. Since most social goods and services are delivered at the county level, and counties differ greatly in terms of their social needs, these coastal provinces decided to grant discretion to county governments in order to deliver social goods more efficiently. Although later on some provinces (including Liaoning) followed the footsteps of coastal provinces to allow for county discretion, most provinces in China still adhere to the traditional model of "provincial-budgeting" (*shěngjí tǒngchóu*), in which provincial government holds the budgetary planning power. In the neighboring Jilin Province, for instance, the provincial government plans the social security budget, and county governments do not have any discretion but to follow the budget.

One big change Li did after arriving in Liaoning was to retrieve the fiscal power from county governments. Instead of full discretion, counties could only enjoy partial discretion on budgets related to social welfare issues. The provincial government started to demand higher expenditure on social spending such as pensions, education, and health, although county governments could decide the details on how to increase the spending. Counties were rewarded with more budgetary transfers when they followed provincial mandates and increase social spending. Otherwise, they were deprived of the remaining budgetary discretion, in which case the provincial government would plan their budgets for them. Li also advocated the importance of social safety net, and he initiated a series of unemployment assistance programs. As a result of his effort, the province showed a substantial increase in social welfare spending. Between 2006 and 2007, the province spent in total 20.9 billion Yuan ($3.37 billion) on social welfare, which was 34 percent of

total budget.[7] This included the spending on social security, education, and health. Furthermore, the spending on social security and unemployment assistance alone was 14.3 billion Yuan, which was a 51% increase from the previous year. In October 2007, Li Keqiang was promoted to PSC. He is currently the Premier, the number-two leader of the fifth generation of CCP leadership.

After Zhang succeeded the position of Liaoning Party Secretary, however, things began to change. Zhang did not have any promotional prospects because he was already 63 at the time. He lacked the motivation to pursue any significant policies, and as a result, the provincial growth rate dropped from 15% in 2007 to 13.4% in 2008. Some might argue that this followed the national growth trend, which decreased more significantly from 14.2% to 9.6% in the same period due to the world economic crisis. But Liaoning and its neighbors in the northeast area were heavily subsidized by Beijing through the Northeast Revitalization Program at the time. Hence, it would only be fair if we compare Liaoning to a province in the region rather than to the national average. Jilin Province is typically seen as the most similar case to Liaoning because both are in the northeast area, and they share similar historic background and development path. The difference between the two provinces at the time was that Jilin did not experience a change in provincial leadership as Liaoning did. Neither of Jilin's Party secretary and governor was a lame duck at the time (aged 58 and 54 in 2008, respectively). As it turns out, Jilin managed to maintain a steady growth rate in the same period, at 16.1% in 2007 and 16% in 2008.

Additionally, Zhang did not push for social welfare provision at the lower local level the way his predecessor Li Keqiang did. After Li left Liaoning, the provincial government stopped pushing for higher social spending, and some counties started to decrease their social security budget to make room for spending on other categories. Although the provincial government showed some concern in the beginning, it did not take any action against these counties. As a result, all counties cut down their social security budget, and the level of social spending soon decreased substantially in the province. From July to December 2008, the social spending as a share of total budget went down by 21 percent over the same period in 2007. Most counties decreased their spending on all social services.

To be sure, as of March 2009 when I conducted my last in-person interview in Liaoning, there was ongoing discussion about implementing provincial-based budgeting on pension funds. In particular, at the end of 2009, the province passed regulations to transfer the budgetary power of pension funds from county governments to the provincial government. This, however, did not reflect Zhang's effort. Based on my interviews, it was Li Keqiang who brought up this proposal before he left the province. The original idea was to gradually shift the budgetary power regarding all aspects of social welfare to the provincial level, starting from pension funds first. But after Li left the province, the invisible hand behind this ambitious vision was gone. As a result, only the first step of the idea was carried out.

Zhang eventually retired from the Party secretary position in November 2009—one month after he turned 65. He then took a retirement position at the National People's Congress.

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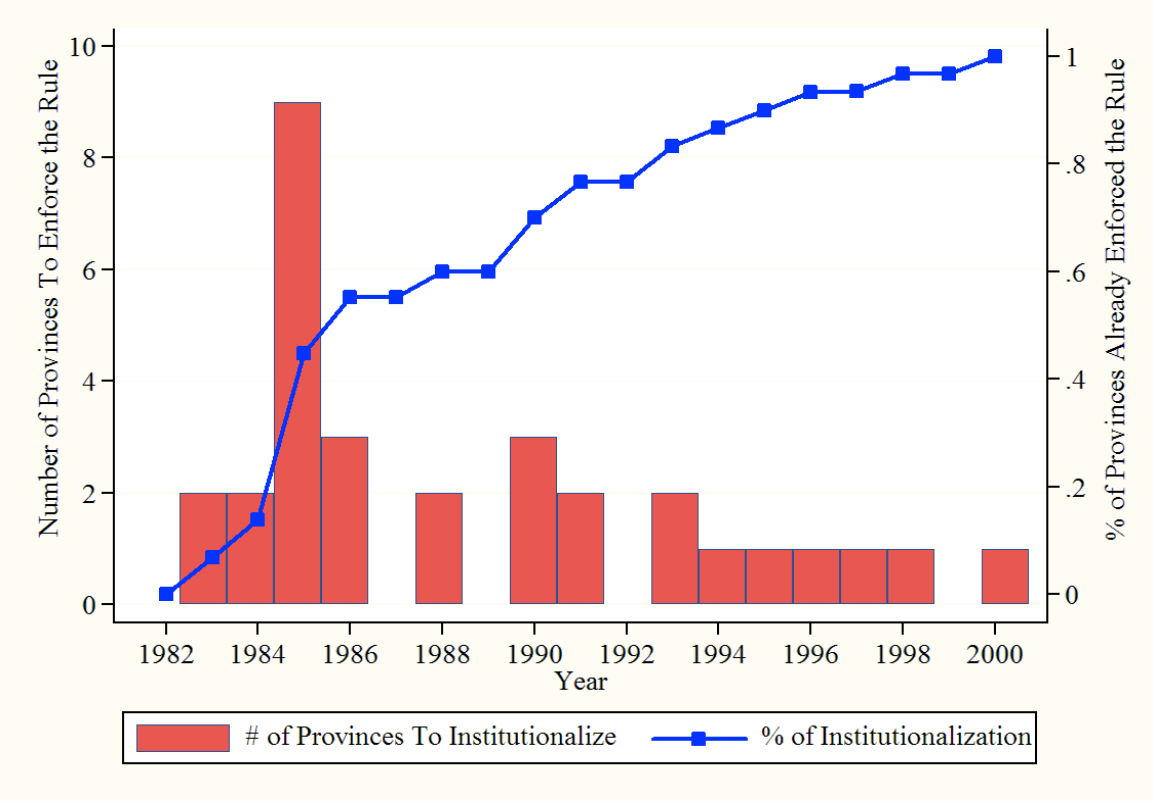
[7] The unit of the Chinese currency *renminbi* is Yuan (currency sign: ¥).

RESEARCH DESIGN

This study allows us to observe the counterfactual of mandatory retirement rule because China provides an ideal opportunity for a difference-in-differences (DID) experimental design. It took Beijing nearly 17 years to impose the mandatory retirement rule across all provinces, with the earliest provinces in 1983 and the latest in 2000. Figure 3 shows the institutionalization progress of mandatory retirement rule. The X-axis shows the year, and the Y-axis on the left-hand side and the red bars show the headcount of provinces which enforced the rule in each year. For instance, two provinces enforced the mandatory retirement rule in 1983, and another two provinces in 1984. The R-axis on the right-hand side and the blue connected line show the cumulative percentage of provinces that had already institutionalized the rule. For example, 6.9% of all the provinces had already enforced the rule by 1983, and by 1984 it increased to 13.8%. We can see from Figure 1 that by the end of 1985, only 13 provinces (or 44.8% of all the provinces) had enforced the rule. Even by the end of the 1980s, there were still thirteen provinces in the country that were awaiting institutionalization. It was not until 2000 did China fully institutionalize the mandatory retirement rule.

FIGURE 3: Time Trend of Institutionalization of Mandatory Retirement Rule



As a result of this long window, there are provincial leaders who were not affected by the retirement rule at all. They include leaders from the pre-1983 period,

during which there was no mandatory retirement. There are also leaders from provinces which were awaiting institutionalization between 1983 and 2000. Because these leaders were never affected by the retirement rule and could have served indefinitely as provincial leaders, they are assigned as the control group in this study. As for the treatment group, it consists of leaders whose provinces had already institutionalized the rule. These leaders have a different incentive structure than the control group because they face the restriction of mandatory retirement age.

Defining the two groups still leaves the question of how to identify the pre- and post-treatment period. After all, the key to a DID design is to compare the treatment group with the control group *before* and *after* it receives treatment. If what defines the treatment group is whether or not a leader's province has institutionalized the retirement rule, then what triggers the treatment should be the age of provincial leaders. Leaders from both groups will get old eventually, but only those from the treatment group know when exactly their careers are coming to an end. Thus, these leaders receive their "treatment" when they are approaching 65 and realize they have no future prospects but to retire soon. They receive the treatment when they become lame ducks.

As mentioned previously, the promotional prospect of a politician can be indicated by his age combined with the timing of National Party Congress. Therefore, we can measure the lame-duck status by checking if a leader will turn 65 before the next Party Congress, which is scheduled every five years. For instance, Yang Zhengwu assumed the Hunan Party Secretary position in 1998 at the age of 58. He was not a lame duck yet. The next Party Congress was scheduled to be held in 2002, so he only needed to wait four years for another chance for promotion, and he still had seven years before retirement. In 2002, however, Yang did not get promoted at the Party Congress. This time he was a lame duck. He was already 61 years old, only four years to go before retirement; but the next Party Congress was not until five years later in 2007, so he would turn 65 and retire before he could get another chance for promotion. Hence, he became a lame duck and received his "treatment" in 2002.

On the other hand, leaders from the control group do not face the age restriction. They can continue their careers no matter how old they are, and they do not need to retire at a set-in-stone age like their colleagues in the treatment group. Say there is one leader from each group, and both will turn 65 before the next National Party Congress. The difference between the two leaders is that only the one from the treatment group will become a lame duck because he has to retire, while the leader from control group is not affected. In other words, only leaders from the treatment group will receive the treatment, while leaders from the control group will not. Table 1 summarizes the approach of this DID design.

Table 1: Description of the Difference-In-Differences Research Design

	Treatment Group	Control Group
Pre-Treatment	Young leaders from institutionalized provinces	Young leaders from uninstitutionalized provinces
Post-Treatment	Lame-duck leaders from institutionalized provinces	Elderly leaders from uninstitutionalized provinces

Note: Lame-duck/elderly leaders are those who will turn 65 years old before the next National Party Congress.

The regression framework of a DID design is typical written as equation (i) as follows. The variable Treatment is a dummy variable which equals one if the subject is from the treatment group, zero if from the control group. The variable Post-Treatment is a dummy coded one if the observation is recorded after the treatment, zero if before the treatment.

(i) $Y = \beta_0 + \beta_1$ Treatment $+ \beta_2$ Post-Treatment $+ \beta_3$ Treatment*Post-Treatment $+ e_i$

Because the treatment group is defined by the enforcement of the retirement rule, we can replace the Treatment variable with an "Institution" variable, coded one if the leader is from a province that has institutionalized the rule. Likewise, we can replace the Post-Treatment variable with a "Lame Duck" variable, which equals one if the leader will turn 65 years old before the next National Party Congress. We can then rewrite equation (i) as equation (ii):

(ii) $Y = \beta_0 + \beta_1$ Institution $+ \beta_2$ Lame Duck $+ \beta_3$ Institution*Lame Duck $+ e_i$

The most widely-studied variable in equation (ii) is the coefficient of the interaction term (β_3). It is known as the DID estimator of the treatment effect. In other words, it measures how differently leaders behave as they approach 65 when there is mandatory retirement (so they become lame ducks) versus when there is no mandatory retirement (so they become elderly). Hence, β_3 allows us to test H3 and H4. What people tend to pay less attention to is the coefficient of the Institution variable (β_1). It estimates the effect of mandatory retirement rule on young provincial leaders. Specifically, it measures how differently young leaders behave when there is mandatory retirement versus when there is none. Therefore, β_1 allows us to test H1 and H2.

In order to see this, we can plug zeros and ones into equation (ii) to observe the corresponding estimates. This is illustrated in Table 2. The first row of the 3x3 matrix measures the effects of young leaders (i.e. those from the pre-treatment period) on Y when there is mandatory retirement versus when there is none. The first cell estimates the effect when young leaders are from the treatment group (so with retirement rule). Because the Institution variable equals one, and Lame Duck equals zero, the estimate of equation (ii) is $\beta_0 + \beta_1*(1) + \beta_2*(0) + \beta_3*(1)(0) = \beta_0 + \beta_1$. The second cell estimates the effect when young leaders are from the control group (so without retirement rule). Since both the Institution and Lame Duck variables equal zero, the econometric estimate is $\beta_0 + \beta_1*(0) + \beta_2*(0) + \beta_3*(0)(0) = \beta_0$. The third cell then shows that the difference between the two types (i.e. young leaders with and without retirement rule) is $\beta_0 + \beta_1 - \beta_0 = \beta_1$.

Table 2: Econometric Estimates of Equation (ii), a DID Regression Framework: $Y = \beta_0 + \beta_1$ Institution $+ \beta_2$ Lame Duck $+ \beta_3$ Institution*Lame Duck $+ e_i$

	Treatment Group (Institution=1)	**Control Group (Institution=0)**	**Difference**
Pre-Treatment (Lame Duck=0)	$\beta_0 + \beta_1$	β_0	β_1
Post-Treatment (Lame Duck=1)	$\beta_0 + \beta_1 + \beta_2 + \beta_3$	$\beta_0 + \beta_2$	$\beta_1 + \beta_3$
Difference	$\beta_2 + \beta_3$	β_2	β_3

Note: β_1 estimates how differently young leaders behave when there is mandatory retirement versus when there is no mandatory retirement (H1 and H2); β_3 estimates how differently leaders behave as they approach 65 when there is mandatory retirement versus when there is no mandatory retirement (H3 and H4).

Likewise, the bottom row of the 3x3 matrix measures how differently leaders behave as they approach the age of 65, with the first cell ($\beta_2 + \beta_3$) shows the difference within the treatment group, and the second cell (β_2) shows the difference within the control group. The third cell (β_3) then estimates the difference-in-differences effect of mandatory retirement rule. That is, given that leaders from both groups might behave differently as they approach the age of 65, the third cell uses the control group as baseline comparison, and it estimates how differently leaders behave as they approach 65 when there is mandatory retirement versus when there is none.

DATA & OPERATIONALIZATION

The data used in this study consists of 410 provincial leaders (including 202 provincial Party secretaries and 208 governors) from 31 provincial units during the period 1978-2005.[8] Information on these leaders is gathered and cross-referenced through *Xinhua News* and *People's Daily*, both of which are the official mouthpieces of CCP and hence are reliable sources. The dataset contains detailed information of the leaders' birth month and year, and it also tracks down the month and year in which they assumed and/or left office. Some leaders have held multiple positions at different times or even simultaneously. For instance, some provincial governors were promoted to Party secretary position, and sometimes provincial Party secretaries were transferred laterally to a different province as the new Party chief during the sample period. I treat these leaders as different people from the time they start their new job, because they have to face new incentive structure in their new position as they are getting older. In addition, sometimes Party secretaries might hold the governorship at the same time. I count them as Party secretaries, which reflects their real political rank. In total, there are 1437 leader-year observations with complete information.

Economic performance data are from China Statistical Yearbooks. I use growth rate of real per capita GDP (at 1978 constant prices) as my first dependent variable. As for my second dependent variable—social welfare provision—I use government spending on social security, education, and health. Moreover, I measure social spending as a share of total budget because it provides a direct measure of provincial leaders' priorities to providing social welfare (Rudra and Haggard 2005). Although some prefer to measure spending as a share of GDP, such measure focuses on the overall allocation of societal resources and is strongly affected by the size of government relative to the economy. In order to capture how provincial governments allocate resources directly under their control, I measure social spending as a share of total budget.

I use two regression models in this study. Model (1) extends on equation (ii), so it follows a conventional DID design. As illustrated previously, the Institution variable is the "treatment" variable, and it equals one if in year t, the province of leader i has already enforced the retirement rule. Lame Duck is the "post-treatment" variable, and it equals one if in year t, leader i will reach 65 before the next National Party Congress.

$$
\begin{aligned}
(1)\ \text{DV (Growth; Social Spending)}_{i,t} &= \beta_1 \cdot (\text{Institution})_{i,t} \\
&+ \beta_2 \cdot (\text{Lame Duck})_{i,t} \\
&+ \beta_3 \cdot (\text{Institution})_{i,t} \cdot (\text{Lame Duck})_{i,t} \\
&+ \beta_4 \cdot (\text{Politburo})_{i,t} \\
&+ \beta_5 \cdot (\text{Central Connection})_{i,t} \\
&+ \beta_6 \cdot (\text{Time In Office})_{i,t} \\
&+ \beta_7 \cdot (\text{Per Capita GDP})_{i,t} \\
&+ \beta_8 \cdot (\text{Native})_{i,t}
\end{aligned}
$$

[8] Please refer to Footnote 4.

$$+ \beta_9 \cdot (\text{Education})_{i,t} + v_i + \varepsilon_{i,t}$$

(2) DV (Growth; Social Spending)$_{i,t}$

$$= \beta_1 \cdot (\text{Institution})_{i,t}$$
$$+ \beta_2 \cdot (\text{Time Before Retirement})_{i,t}$$
$$+ \beta_3 \cdot (\text{Institution})_{i,t} \cdot (\text{Time Before Retirement})_{i,t}$$
$$+ \beta_4 \cdot (\text{Politburo})_{i,t}$$
$$+ \beta_5 \cdot (\text{Central Connection})_{i,t}$$
$$+ \beta_6 \cdot (\text{Time In Office})_{i,t}$$
$$+ \beta_7 \cdot (\text{Per Capita GDP})_{i,t}$$
$$+ \beta_8 \cdot (\text{Native})_{i,t}$$
$$+ \beta_9 \cdot (\text{Education})_{i,t} + v_i + \varepsilon_{i,t}$$

Model (2) is identical to model (1), except that it does not follow the traditional DID design because I replace the Lame Duck variable with Time Before Retirement. This new variable calculates how many years a provincial leader can stay in the same post before reaching the retirement threshold, i.e. the age of 65 or the 10-year limit, whichever comes first. For leaders from the control group who already exceeded the age limit and/or the two-term rule, I use zero instead of negative numbers. The Lame Duck variable assumes that lame-duck provincial leaders would behave similarly in the last few years of their political career. Time Before Retirement, on the other hand, assumes that the effects of lame-duck status may increase *every year* as politicians approach the end of their political careers. This variable therefore assumes that there is a "retirement countdown" effect among lame-duck politicians.

Both models also include other explanatory variables. The variable Politburo is a dummy variable coded one if a provincial leader holds a joint position at the Politburo. The mandatory retirement rule only applies to leaders at the provincial level, but sometimes these provincial leaders also hold concurrent Politburo seats. Since these concurrent leaders are not affected by the 65-rule, they should not be considered as lame ducks. It would also be interesting to see if their Politburo status has any effect on provincial growth and social welfare provision.

Central Connection is also a dummy variable, and it equals one if provincial leaders are associated with the central leaders and belong to the same factions. Having central connection could mean that it is easier for provincial leaders to pull some strings and get central approval or resources to help develop their provinces. Alternatively, it could also mean that these provincial leaders were parachuted in their current positions from the center or another province, so they tend to lack the knowledge of local situations. This might result in a negative effect on growth and social welfare performance.

Additionally, Time In Office measures how many years a provincial leader has stayed in the same position. It is natural to assume that there is a learning curve for every new job. Especially when politicians are dispatched to a new province, the local conditions are different, and they have to work with people they are not familiar with. Hence, it is expected that provincial leaders would improve their performances on growth and social welfare provision as they accumulate more experience.

Finally, there are three control variables in both models. The variable Per Capita GDP represents the level of development of a province, and it is calculated at constant 1978 prices. The variable Native is a dummy variable coded one if a leader is from the province originally, zero otherwise. Education is also a dummy variable that equals one if a leader holds a postgraduate degree, zero otherwise. All variables are expected to have positive effects on provincial growth and social spending. Table 3 summarizes the descriptive statistics of all variables.

Table 3: Descriptive Statistics of Variables

Variables	N	Mean	Std. Dev.	Min	Max
Growth	1439	0.101	0.036	-0.084	0.247
Social Spending	1439	0.184	0.064	0.008	0.362
Institution	1599	0.638	0.481	0	1
Lame Duck	1599	0.262	0.440	0	1
Time Before Retirement	1599	4.715	3.332	0	10
Politburo	1599	0.036	0.187	0	1
Central Connection	1599	0.149	0.356	0	1
Time In Office	1599	3.101	2.091	1	12
Per Capita GDP (1000 yuan)	1439	2.462	2.456	0.100	19.935
Native	1537	0.225	.418	0	1
Education	1548	0.156	0.363	0	1

Note: All GDP measures are calculated at 1978 constant prices. Social Spending and Revenue are measured as a share of total budget of the province.

EMPIRICAL RESULTS

Table 4 reports the regression results on how mandatory retirement rule affects important policy outcomes. First, let us look at columns (1) and (3), both of which use model (1) with a DID design. We can see that the coefficients of Institution in both columns are positive and statistically significant. This indicates that when there is mandatory retirement rule, young provincial leaders tend to perform better on growth and social spending. This confirms H1 and H2.

Table 4: Linear Regression with Random-Effects Estimating the Effects of Mandatory Retirement Rule on Economic Performances in China

	DV_1: Growth (Log)		DV_2: Social Spending (Log)	
	(1)	(2)	(3)	(4)
Institution	0.027***	0.001	0.003***	0.002
	(5.92)	(0.19)	(3.29)	(1.09)
Lame Duck	0.003		-0.000	
	(0.81)		(0.43)	
Institution*Lame Duck	-0.018***		-0.002*	
	(3.62)		(1.92)	
Time Before Retirement		0.002*		-0.000
		(1.71)		(0.88)
Institution*Time Before Retirement		0.004***		0.000*
		(5.59)		(1.77)
Politburo	0.008	0.011	-0.001	-0.001
	(0.91)	(1.32)	(0.50)	(0.27)
Central Connection	-0.009***	-0.008**	-0.000	-0.000
	(2.65)	(2.44)	(0.40)	(0.32)
Time In Office	0.025***	0.028***	0.002***	0.002***
	(50.43)	(25.69)	(16.77)	(6.51)
Per Capita GDP	0.000	0.000**	-0.000	-0.000
	(0.37)	(2.37)	(1.37)	(0.81)
Native	-0.000	-0.000	-0.001	-0.000
	(0.03)	(0.04)	(0.63)	(0.38)
Education	0.008**	0.008***	0.000	0.000
	(2.56)	(2.70)	(0.32)	(0.38)
Constant	-2.143***	-2.171***	-1.123***	-1.122***
	(198.50)	(159.00)	(201.92)	(186.81)
Observations	1437	1437	1437	1437

*p<0.1; **p<0.05; ***p<0.01. Absolute value of z statistics in parentheses.

In addition, the coefficients of the interaction variable (Institution*Lame Duck) are negative and significant in both columns. This suggests that the enforcement of mandatory retirement rule does result in poorer performances on growth and social welfare provision among lame-duck politicians. This confirms H3 and H4. On the other hand, the Lame Duck variable in columns (1) and (3) examine only the leaders in the control group, and it measures if they would perform differently when they are near the age of 65. We can see the coefficients in columns (1) and (3) are statistically insignificant, indicating that provincial leaders do not perform differently as they get old when there is no mandatory retirement rule.

Now let us look at columns (2) and (4). Both columns do not use a DID design, but instead they follow model (2) to track down how differently provincial leaders perform *every year* before they reach the age of 65. Since the coefficients are positive and significant, this shows that the further away from retirement a provincial leader is, the better he/she tends to perform. The flipside of this finding suggests that leaders tend to have worse performances every year as they approach the end of their tenure.

Furthermore, the variable Time In Office shows positive and significant effects in all models, indicating that the experience level of a provincial leader is positively associated with the leader's performance. What these findings imply is that even after controlling for the experience level of provincial leaders, there is still a "retirement countdown" effect, in which provincial leaders tend to perform more poorly every year before they have to retire. But if we compare the results with the Time Before Retirement variable, which measures the yearly effects only in the control group, we can see that the coefficients are insignificant. This again confirms that without mandatory retirement rule, leaders do not perform in a different manner as they become old.

These findings are not surprising, especially if we consider the incentive structures of the two groups based on the institutional difference. Leaders from the control group do not see a known end to their careers because there is no retirement rule. Even if they are pushing 65 years old, they can still remain in their positions. For all they know, their tenures could only be terminated if they do not perform well, not because they are approaching a specific age point. This allows them to perform more consistently throughout all ages. On the other hand, leaders from the treatment group have a known end to their careers. Once they hit the age threshold and become ineligible for promotion, it does not matter how well they perform. They have to retire anyway. Hence, before they hit the age cap, they have a stronger incentive to perform well; but after they pass the age threshold and become lame ducks, they lack the incentives to maintain their good performances.

One surprising finding from Table 4 is that the coefficients of the Central Connection variable are negative and statistically significant in columns (1)-(2). This indicates that provincial leaders who are well-connected with the center tend to perform more poorly on growth. This is counterintuitive, as having central connection usually means that it is easier for provincial leaders to acquire more central approval and resources to help develop their provinces. One possible explanation is that these provincial leaders are typically parachuted into their posts, so they tend to lack sufficient local knowledge. But we already control for the Native variable in all models. All else being equal, we would expect the center to grant more privileges to leaders with central connection in order to help them accelerate the provincial development and build a more appealing résumé.

What this finding entails is that the performance-based promotion system does not apply to everyone. If politicians already have the right factional ties or strong connection with the center, they have the key to promotion already (Li 2010; Nathan 1990; Shih, Adolph, and Liu 2012). As a result, they do not need to compete with others under the Chinese-style yardstick competition, which is for people who are left out in the game of personal connection. The finding also lends support to studies that find both growth and central connection matter in climbing up the career ladder in the Chinese Communist Party (Li and Zhou 2005).

Another interesting finding is that economic development might not necessarily lead to good governance as we would hope. As the economy improves and the resource available to the province increases, provincial leaders do not necessarily translate it into public goods provision. Most of the coefficients of Per Capita GDP appear to be statistically insignificant in Table 4. Only column (2) reports positive and significant result. The implication is that although good governance often fosters growth and social development, the reverse may not be true. The government performance on growth and social welfare provision is more of a political decision, rather than a result of economic development.

ROBUSTNESS CHECK

The validity of the regression results in Table 4 is based on the assumption that leaders from both the control and treatment groups are certain about whether or not the mandatory retirement rule will be enforced. For instance, leaders from the control group should believe that they are not affected by the retirement rule whatsoever, and they would behave accordingly as they do not see an end to their careers in the near future. But in reality, they might have doubts about how long they can remain in their posts. Say they come from one of the provinces that are awaiting institutionalization between 1983 and 1995, and that their neighboring provinces have already enforced the rule. Even if their provinces are not affected by the 65-rule, it could be just a matter of time. These leaders might wonder if the center would impose the retirement rule in their provinces soon, and they would be forced to retire by then. Once this is the case, these leaders might have a shorter time-horizon than we would assume, and they would not be so different from the leaders in the treatment group.

Likewise, the logic could work the other way around. Leaders from the treatment group might think that there is ambiguity in the enforcement of retirement rule. Perhaps they see that a neighboring province is still not affected by the mandatory retirement rule, and the leader of that province still remains in the position even after the age of 65. This makes them doubt if Beijing is really determined to enforce the rule consistently. Or perhaps they think this is just like many other policies in China, in which there could be enough flexibility for them to "make an exception" and not step down when the time comes. Therefore, even if these leaders are approaching the retirement age in provinces that have already institutionalized the 65-rule, they might believe that they still have time, and they could behave like they are not at the end of their careers. This in turn poses some serious threats to the validity of the study. If there is no distinction between the control group and the treatment group in terms of their incentive structures, all the previous conclusions are in question.

In order to make sure that the main findings of this study are robust, I divide the whole sample into two subsamples: pre-1983 and post-1999 periods. The first subsample includes the observations from 1978 to 1982, during which there was no mandatory retirement rule among any of the provinces. Because the retirement rule did not exist back then, and no leader from this period retired as a result of the age restriction, it is safe to assume that everyone from this subsample is not affected by mandatory retirement age, and that everyone should have a long time-horizon. These observations are assigned as the new control group. The second period includes observations from 2000 to 2006, during which all provinces abided by the mandatory retirement rule without any

exception. Now that everyone in this period had to retire at the age of 65, we know that all provincial leaders would have a sense of the shadow of the future based on their age. They are assigned as the new treatment group.

Then I run the same regressions with models (1) and (2), but with the new control and treatment groups this time. Now the coding of the Institution variable becomes very simple and straightforward. Instead of checking separately for each leader to see if his/her province has enforced the rule, all we need to do is to check which subsample a leader is from. If a leader is from the post-1999 subsample, in which all provinces have enforced the rule, the variable Institution is coded one. If, on the other hand, a leader is from the pre-1983 period, then the Institution variable is coded zero.

Table 5 presents the new regression results. We can see that although there are minor differences compared to the findings in Table 4, the major conclusions remain the same. The coefficients of Institution are positive and statistically significant in columns (1) and (3). This shows that the introduction of mandatory retirement does result in better performances on growth and social spending among young provincial leaders. This again confirms H1 and H2. Additionally, the first interaction variable (Institution*Lame Duck) reports negative and significant results just like Table 4; the estimated effects of the second interaction term (Institution*Time Before Retirement) also match the ones from Table 4. Both variables indicate that the mandatory retirement rule does result in poorer performances among lame-duck provincial leaders, thus affirms H3 and H4 again.

Table 5: Linear Regression with Random-Effects Estimating the Effects of Mandatory Retirement Rule on Economic Performances in China (Pre-1983 & Post-1999 Subsamples)

	DV_1: Growth (Log)		DV_2: Social Spending (Log)	
	(1)	(2)	(3)	(4)
Institution	0.531***	0.410***	0.048***	0.031**
	(23.31)	(16.78)	(3.11)	(2.04)
Lame Duck	0.020**		0.001	
	(2.05)		(0.92)	
Institution*Lame Duck	-0.034***		-0.003**	
	(3.23)		(2.36)	
Time Before Retirement		-0.002		-0.000
		(1.46)		(1.43)
Institution*Time Before Retirement		0.011***		0.001***
		(8.67)		(11.41)
Politburo	0.007	0.007	-0.001	-0.001
	(0.71)	(0.84)	(1.45)	(1.60)
Central Connection	-0.000	0.002	-0.001***	-0.000*
	(0.14)	(0.73)	(2.84)	(1.67)
Time In Office	0.020***	0.021***	0.002***	0.002***
	(33.19)	(26.00)	(24.68)	(21.69)
Per Capita GDP	-0.000*	0.000***	-0.000***	0.000***
	(1.84)	(4.17)	(4.28)	(4.83)

Native	0.004	0.002	0.000	-0.000
	(1.23)	(0.55)	(0.94)	(0.15)
Education	-0.001	0.000	0.000	0.000
	(0.15)	(0.11)	(0.40)	(0.79)
Constant	-2.401***	-2.392***	-1.149***	-1.150***
	(140.31)	(153.94)	(100.16)	(101.17)
Observations	501	501	501	501

*p<0.1; **p<0.05; ***p<0.01. Absolute value of z statistics in parentheses.

A potential problem for both Tables 4 and 5 is that the size of the control group is not as big as the size of the treatment group. In Table 4, for instance, the control-treatment ratio is 1:1.76, so out of every one leader in the control group, there are 1.76 leaders in the treatment group. Although the ratio drops to 1:1.58 in Table 5, the size of the control group is still slightly smaller than the treatment group. In order to study the effects of mandatory retirement age more comprehensively, I run regressions on the two subsamples separately. Specifically, I use the following two models:

$$
\begin{aligned}
(3)\ \text{DV (Growth; Social Spending)}_{i,t} &= \beta_1 \cdot (\text{Lame Duck})_{i,t} \\
&+ \beta_2 \cdot (\text{Politburo})_{i,t} \\
&+ \beta_3 \cdot (\text{Central Connection})_{i,t} \\
&+ \beta_4 \cdot (\text{Time In Office})_{i,t} \\
&+ \beta_5 \cdot (\text{Per Capita GDP})_{i,t} \\
&+ \beta_6 \cdot (\text{Native})_{i,t} \\
&+ \beta_7 \cdot (\text{Education})_{i,t} + v_i + \varepsilon_{i,t}
\end{aligned}
$$

$$
\begin{aligned}
(4)\ \text{DV (Growth; Social Spending)}_{i,t} &= \beta_1 \cdot (\text{Time Before Retirement})_{i,t} \\
&+ \beta_2 \cdot (\text{Politburo})_{i,t} \\
&+ \beta_3 \cdot (\text{Central Connection})_{i,t} \\
&+ \beta_4 \cdot (\text{Time In Office})_{i,t} \\
&+ \beta_5 \cdot (\text{Per Capita GDP})_{i,t} \\
&+ \beta_6 \cdot (\text{Native})_{i,t} \\
&+ \beta_7 \cdot (\text{Education})_{i,t} + v_i + \varepsilon_{i,t}
\end{aligned}
$$

Both models are modified versions of models (1) and (2), just without the Institution variable and its interaction term. Now the first subsample is the control group, and the second subsample is the treatment group, there is no need to include the Institution variable to indicate which observation belongs to the treatment group.

Similarly, there is no need for the interaction term. The purpose of models (3) and (4) is mainly to investigate if the Lame Duck or Time Before Retirement variables have different impacts on growth and social welfare performances in the two subsamples that are from two different periods.

The regression results are presented in Table 6. Again, the overall results fit our expectations. During the pre-1983 period, neither Lame Duck nor Time Before Retirement is significant because mandatory retirement rule did not exist back then. Provincial leaders did not have a specific age threshold in mind that would affect their shadow of the future, and as a result, they behave consistently throughout all ages. But if we look at the post-1999 subsample, both Lame Duck and Time Before Retirement have significant effects on growth and social spending. The signs also match our findings from the two interaction variables in Tables 4 and 5. This confirms our finding on the effects of mandatory retirement rule. During this period, everyone has to retire at the age of 65 without any exception, so lame-duck leaders who cannot further advance their careers would lose the incentives to work hard. In turn, they tend to have worse performances on public goods provision.

Table 6: Linear Regression with Random-Effects Estimating the Effects of Mandatory Retirement Rule on Economic Performances in China (Two Subsamples)

	Pre-1983 Subsample				Post-1999 Subsample			
	DV_1: Growth (Log)		DV_2: Social Spending (Log)		DV_1: Growth (Log)		DV_2: Social Spending (Log)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Lame Duck	0.010		-0.000		-0.006**		-0.001**	
	(0.94)		(0.11)		(2.26)		(2.33)	
Time Before Retirement		-0.001		-0.000		0.005**		0.001***
		(0.87)		(0.83)		(2.31)		(3.01)
Politburo	0.142	0.133	-0.107	-0.106	0.008	0.008	-0.001*	-0.001
	(1.10)	(1.04)	(1.34)	(1.38)	(1.40)	(1.43)	(1.65)	(1.62)
Central Connection	0.000	0.000	-0.001	-0.001	0.004*	0.004*	-0.000	-0.000
	(0.06)	(0.03)	(1.07)	(1.10)	(1.87)	(1.72)	(1.03)	(1.14)
Time In Office	0.018***	0.017***	0.002***	0.002***	0.013***	0.017***	0.001***	0.001***
	(12.45)	(10.78)	(10.15)	(8.78)	(18.11)	(8.45)	(5.85)	(4.71)
Per Capita GDP	0.000***	0.000***	0.000**	0.000**	0.000***	0.000***	0.000***	0.000***
	(4.12)	(4.17)	(2.39)	(2.28)	(5.41)	(5.84)	(5.39)	(6.04)
Native	0.004	0.004	0.000	0.000	0.000	0.000	-0.000	-0.000
	(0.75)	(0.63)	(0.68)	(0.53)	(0.06)	(0.18)	(0.84)	(0.77)
Education	-0.009	-0.009	0.000	0.000	0.001	0.002	0.000	0.000
	(0.88)	(0.91)	(0.40)	(0.33)	(0.57)	(0.96)	(0.39)	(0.80)
Constant	-2.462***	-2.452***	-1.151***	-1.151***	-1.899***	-1.941***	-1.107***	-1.114***
	(99.16)	(101.20)	(95.44)	(97.72)	(161.55)	(91.58)	(115.84)	(113.43)
Observations	225	225	225	225	276	276	276	276

*p<0.1; **p<0.05; ***p<0.01.Absolute value of z statistics in parentheses.

CONCLUSION

The findings presented in this paper have important implications to the study of political institutions. Critics of the institutional view tend to use China as a counterexample to argue that political institutions do not have as much explanatory power as we would expect. After all, the country is an authoritarian regime without all the "right" institutions. This study shows that even in China, there are "right" political institutions that promote good economic outcomes. The enforcement of mandatory retirement rule results in better development outcomes such as growth and social welfare provision among provincial leaders who are still eligible for promotion. But such institution is still not perfect in fostering growth. For provincial leaders who are too old to be considered for promotion or who already have connection with the center, they are not motivated by the Chinese promotion system. As a result, they tend to perform more poorly on public goods provision.

This study also shows that institutions matter even in China, where its political institutions are traditionally considered as informal or nonexistent by most scholars (Dittmer 1995a, 1995b; Bo 2004). One of the biggest challenges in studying Chinese political economy is to find the effects of formal political institutions on important policy outcomes. The challenge stems from the fact that the country is known for its "flexibility" on many of the rules, and a lot of its economic achievements were not a result of formal political institutions, but merely byproducts of ad hoc and personalistic attempts by Deng Xiaoping and other elderly politicians to consolidate control and overcome the political vacuum after the Cultural Revolution (Nee and Opper 2012). Because the political system is so opaque and uninstitutionalized in China, scholars have been unsuccessful in finding systematic evidence on the effects of political institutions, and how institutions generated regularity in the country. This paper takes advantage of a "natural experiment" made possible by the introduction of mandatory retirement age, and it presents systematic evidence on how changes in political institutions affect politicians' incentives, and in turn shape important policy outcomes.

Last but not least, this study overcomes the issue of endogeneity, which is a critical concern in studying the effects of political institutions. Either we do not know which way the causality runs between political institutions and economic outcomes, or there is an omitted variable bias, in which there could be unobserved variables causing both the independent and dependent variables. Scholars even argue that because political institutions are endogenous, they should only be treated as intervening variables (Cusack, Iversen, and Soskice 2007; Przeworksi 2007; Rodden 2009). In order to address the issue of endogeneity, recent econometric analyses use selection models and instrumental variables (Acemoglu, Johnson, and Robinson 2001; Hall and Jones 1999; Persson and Tabellini 2003). But these novel instruments have also been called into question (Acemoglu 2005; Djankov et al. 2003; Glaeser et al. 2004; Sachs 2003). The fundamental problem is that we do not have a control group to observe the counterfactuals (Przeworski 2004b). China provides us a great opportunity to observe the counterfactuals, and therefore addresses the endogeneity problem. The long window of institutionalization allows us to conduct a difference-in-differences design, and thereby demonstrate clear causal relationships between political institutions and economic outcomes.

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