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April 17, 2012

The Effect of Provincial Secretaries on GDP Growth

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An abstract of
a thesis submitted to the Faculty of Emory College of Arts and Sciences
of Emory University in partial fulfillment
of the requirements of the degree of
Bachelor of Arts with Honors

Political Science

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Abstract

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In the past few decades, China's GDP growth rates have risen at an unprecedented rate, averaging most recently around 10 percent per year. Scholars argue that these growth rates are the result of institutional experimentation by the Chinese central government; as a result, there is a strong relationship between the Chinese cadre personnel management system and growth. Observing that growth rates are not uniform across all provinces, this paper aims to identify the strengths and weaknesses of this political institution by testing the connection between provincial leadership characteristics and GDP growth using empirical methods. Using age, tenure, and the number of years it takes each individual leader to attain his current position as independent variables, and GDP year-to-year percentage growth as the dependent variable, this paper created an original data set, and found that the age, tenure, and fast-runner variables do not have significant explanatory power over GDP percentage growth. These negative results imply that there are further corrections to be made in the theoretical formulation of this paper's hypothesis as well as in its statistical methods. Suggestions for further studies include adding relevant variables as theoretical alternatives are provided, exploring the interaction effects between the existing variables in this paper's data set, and conducting qualitative case studies that might explain the varied outcomes of this paper's results across provinces over time.

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Introduction and Literature Review

Introduction

One of the most pressing questions facing scholars of modern Chinese politics asks: Is the current Chinese political system, with its unique hybrid of Communist ideology and capitalist economic structure, sustainable in the long run? In the past 30 years, the Chinese Communist Party (CCP) has been able to maintain political power by creating the conditions necessary for constant, rapid GDP growth—as a result, millions of Chinese citizens have come out of the agrarian lifestyle and out of the poverty that so marked the Mao Zedong era of CCP rule. This drastic contrast between an increasingly urbanized, wealthy Chinese state and the starvation and chaos of pre-1979 can be attributed to Deng Xiaoping's willingness to apply broad, experimental policies deviating from the traditional Marxist political-economic formula.

For example, Deng's famous opening and reform initiative allowed foreign investors back into select coastal provinces, prices in those provinces were gradually un-fixed and allowed to drift to market value, and the new capitalist economic system brought a level of wealth and a standard of living inland provinces still have yet to achieve. Although Deng is perhaps most famous for his successful economic experiments (i.e. The market economy, hard budget constraints on regional leaders, and the household responsibility system), he enacted significant political experiments as well, altering the Communist political model. These experiments include a decentralization of power from the Communist central planners to local level leaders. Positive consequences of decentralization have included an increased ability and incentive on the part of local leaders to foster growth and bring in revenues; however, decentralization has also allowed for individual leaders to engage in corrupt practices away from the eyes of the Chinese central government. Clearly there are positive and negative tradeoffs resulting from Deng's

political experimentation, the net result of which is currently not obviously determinable. This paper aims to contribute to the growing body of work on the long-term viability of Chinese political institutions; as leaders form the backbone of CCP rule, this paper intends to examine specifically the Chinese cadre personnel management system and the impact of the flaws and strengths of that institution on the main driver of CCP power—growth.

There is extensive literature examining the relationship between leaders and growth. The logic of studying these two variables lies in the fact that by linking sub-national leaders' career advancement to performance, the Chinese central government is able to use promotion as a means to ensure that local leaders follow central directives (Blanchard and Shleifer 2001; Opper and Brehm 2007; Li and Zhou 2005; Lin 2009). Bo (1995); Landry (2003); Chen et al. (2005); Li and Zhou (2005); and Lin (2009) have written some of the most influential, empirically based articles connecting these two variables; however, these scholars come to vastly different conclusions. Li and Zhou (2005) and Chen et al. (2005), in their study of leaders at the provincial level, both conclude a positive relationship between growth rates and leader promotion—as growth rates increase, the probability that a provincial leader (governor or party secretary) will be promoted also increases. However, Bo (1995) and Shih et al. (2012) both find that growth is just one variable out of many that influences leader promotion—other equally important factors, such as level of education or professional and personal connections, interact in a way so that no one variable can be said to dominate the promotion process.

The results from the literature are various and inconclusive; however, all of these main studies examine the relationship between growth and leaders in the same way: They test the premise that growth is the causal mechanism by which likelihood of promotion is influenced. As this paper intends to examine the effects of the Chinese leader promotion system, this paper

reverses the causal story, and attempts to answer: Do the institutional rules governing cadre appointment, promotion, and retirement have a systematic incentive structure that causes cadres to change their behavior over time? As age limits, term limits, and years it took for a cadre to attain his current position are key institutional features; this study will examine empirically the effect of these specific variables on growth. This paper's hypotheses are presented as follows:

Hypotheses:

1. *Under younger provincial secretaries, growth rates within that province should increase.*
2. *Under secretaries with longer tenure, growth rates within the province should stay the same or decrease.*
3. *Under a fast-runner secretary, growth rates within the province should increase.*

In order to test these three hypotheses, this paper constructed an original data set spanning the years 1990 to 2010 and 31 provinces in an effort to collect data as comprehensive as possible, and to account for changes in leaders' political behavior over time and geography. Growth indicators GDP and GDP per capita were collected from official NBS annual surveys in provincial yearbooks, and the independent variables age, tenure, and fast-runner were independently coded from China Vitae, an online database run by a non-profit organization headquartered in Maryland, U.S.; the facts recorded on this site are derived from Chinese government affiliated Chinese and English language sources. Also, further provincial secretary information was found using the online archives at Xinhua News Agency, the official press agency of the PRC. After coding the independent variables and creating the dataset, the final regression results are divided into a composite result including all provinces, and a province-by-province breakdown. Ultimately, the results for the composite aggregate show no connection

between the independent and dependent variables, and in the province-by-province results, the independent variables are significant in only a few.

In conclusion, there are several flaws in my data collection and conception that, corrected, could help this paper provide meaningful answers and results. In formulating the theory, this paper does not take into account different theoretical explanations for the existing independent variables, but assumes a constant, singular effect. Secondly, this paper's empirical test can be helped by additional variables that might also have an effect on the growth outcome, such as age, education, birthplace, etc. Also, this paper's theory dictates that promotable leaders follow central directives—however, these policy variables are not present in the study itself. For future study, including these variables might improve results. Accounting for the interaction between variables is also an avenue for future study—this paper assumes a fixed and mutually exclusive effect for each independent variable; examining the outcomes of say, age and tenure together might have also yielded different results. Finally, there are negative overall results presented in this paper, but variation in the province-by-province figures. Conducting a qualitative case study on perhaps a province over time, a geographic area, or a comparison of three provinces in each geographic zone might have been able to explain further the variation in significance of this paper's independent variable by province.

The upcoming sections include a literature review, a theory and hypothesis section, statistical methods and interpretation, and finally, a conclusion.

Literature Review

China's economic and political systems are currently undergoing a dramatic evolutionary process. Since 1979, China has transformed from an impoverished agrarian society dominated

by Mao Zedong's dictatorial political style to an increasingly urbanized economy expanding close to ten percent annually. As a result, China's national wealth, citizens' living standards, and international presence have risen at an impressively rapid pace. Many scholars attribute this economic success to effective central leadership, especially the implementation of a "federalist, multi-divisional (M-form)" state structure, in which semi-independent jurisdictions manage their earnings but are subject to the authority of the center (Opper and Brehm 2007, 3).

From the start of Deng's time in office, the Chinese central government has increasingly devolved fiscal and policy responsibilities into the hands of sub-national officials in a process called decentralization (Bao 2002; Jin et al. 2005; Knight and Shi 1999; Lin and Liu 2000; Montinola et al 1995). By adopting an organizational structure in which policy formation and implementation are separated between the central and local governments, Opper and Brehm (2007) and Qian (2006) suggest that this strategy has dual advantages for the Chinese central government: First, it allows "costly, often slow and faulty information exchange between central and local administrative units" to be reduced (Opper and Brehm 2007, 5). Secondly, by linking sub-national leaders' career advancement to performance, the Chinese central government is able to use promotion as a means to ensure that local leaders follow central directives (Blanchard and Shleifer 2001; Opper and Brehm 2007; Li and Zhou 2005; Lin 2009). The literature indicates that indeed, for much of the reform era, the key indicator of cadre career mobility has been his ability to stimulate economic growth—specifically, the cadre's capacity to increase revenue contribution to the central budget (Bo 1995; Fan 2008; Gallagher 2009; Li 2005; Lin 2009). In summary, studies of Chinese provincial leaders generally agree that the central government uses this decentralizing strategy with the intention of simultaneously encouraging higher regional output through competitive "yardstick" comparisons between district leaders, and as an

evaluation tool to assess the competence of potentially promotable leaders (Montinola et al. 1995; Li and Zhou 2005; Opper and Brehm 2007; Chen et al. 2005).

Thus, empirical studies looking at the effects of the cadre responsibility system have largely tested the effect of growth on leaders' promotion prospects (Bo 1995; Landry 2003; Chen et al. 2005; Li and Zhou 2005; Lin 2009). Scholars have discovered mixed results: Li and Zhou (2005) and Chen et al. (2005) both find a positive relationship between promotion and GDP growth at the provincial level; on the other hand, Bo's (1995) study of provincial deputy secretaries and governors and Shih et al.'s (2012) analysis of Central Committee members conclude that growth is not as strong an indicator of a cadre's promotion as other factors, such as revenue contribution to the central budget, informal *guanxi* ties, and level of education. Still other publications, for example Landry's (2003) article on the promotion pattern of mayors, find no connection between regional growth performance and individual leaders' career advancement at all. However, even though these many studies have come to various and different conclusions, they each look at promotion and growth through the same causal lens. Specifically, they all consider promotion to be the dependent variable, influenced by some explanatory variable—growth, revenue gains, the presence of *guanxi* networks, or different levels of education, depending on the study.

This paper reverses the causal argument by examining the effect provincial leaders have on growth at different stages in their career, proposing that the likelihood of a leader's promotion has an impact on the kinds of policies he pursues. Thus, this paper argues that the result of these policies can be seen in the form of higher or lower growth rates. This approach departs from past research on cadre promotion and retirement in subject, scope, and measurement. By hypothesizing that the chances of a leader's promotion predict cadre performance in regards to

stimulating growth, this paper implicitly aims to test whether or not Chinese leaders change their political behavior over time. As the current institutionalization of Chinese public service enforces strict rules concerning age and term limits, this paper also asks if the current system is unintentionally creating a systematic incentive structure towards growth that excludes a significant component of its leadership, namely officials for which promotion is less likely or no longer an option. Since the Chinese central government has taken great pains in recent years to reduce corruption and graft at the local level, and also achieve comparable levels of growth across all regions, the results of this study might be useful in determining if structural changes need to be made to the cadre management system itself in order for the center to achieve the results it desires.

This paper also differentiates itself from previous research in its statistical relevance and independent variables. Past empirical research collecting data on sub-national leaders have generally studied these leaders over a period of time: Bo's (1995) publication *Chinese Provincial Leaders: Economic Performance and Political Mobility* compiles deputy secretaries and governors' characteristics over the years 1949 to 1994; Landry's (2003) study on mayors looks at data from the period 1990 to 2000; Chen et al. (2005) recreate provincial leader information from the years 1979 to 2002; Li and Zhou (2005) also look at the characteristics of provincial leaders, and they collect figures from 1979 to 1995. None of these studies, or any others found in the literature, seem to have data more recent than 2006—this paper intends to examine more recent information on leaders by using a data set containing growth and leader-characteristic variables from the years 1990 to 2010.

Background, Theory, and Hypothesis:

Background:

Since 1978, the Chinese central government has made a concerted effort to institutionalize the cadre promotion and retirement system. Although there have been term and retirement regulations for official positions since the 1950's, these rules were largely unenforced, resulting in de facto life-long tenure for cadres able to avoid the primary form of office exit at the time—political purge (Manion 1991, 254; Manion 1992). Thus, large-scale, organized personnel management was not initiated until Deng Xiaoping took office. These organizational changes were made largely in response to the chaos and informality of Mao Zedong era politics, and also as a means of promoting Deng's major agenda of economic growth: Since revolutionary zeal and devotion to the party were formerly the most important cadre characteristics, veteran officials—who had “relatively low levels of education, expertise, and physical and mental vigor”—were considered by Deng to be an obstacle to industrialization, growth, and modernization (Manion 1991, 254). As a result, the strict age and term limits imposed on cadres in 1982 were created as a means of both attracting young, educated, capable talent into the party and systematically removing officials unsuited for the growth-oriented goals of Deng-era leadership.

In the years following the implementation of these policies, there have been both positive and negative effects corresponding to the rules and structure of the cadre promotion and retirement system. Blanchard and Shleifer (2001) compare Russia's leadership accountability problem with China's relative success, citing rampant rent-seeking behavior on the part of local officials in the Russian case, and contrasting this principal-agent problem with the Chinese central government's ability to maintain control over local agents by providing them career and monetary incentives. Indeed, many scholars attribute China's current economic strides to this political and fiscal decentralization strategy, concluding that by devolving responsibility into the

hands of provincial and county cadres and linking their promotion with economic growth, province GDP and other growth indicators have risen as a result (Jin, Qian, and Weingast 2005; Lin and Liu 2000; Knight and Shi 1999). However, though the personnel management restructuring of the 1980's has indeed contributed positively to China's governance and economy, this paper intends to examine the perhaps unforeseen shortcomings of the current cadre appointment, promotion, and retirement system. This paper argues that due to the Chinese government's lack of a cadre dismissal system and the structure of its age and term limitations for provincial leaders, leaders at different stages in their career are incentivized to act in different ways. Thus, leaders exhibit a non-homogenous behavioral pattern depending on their relative distance to promotion or retirement in regards to their pursuit of growth-enhancing policies.

Though there has been much study done naming important factors—such as, district GDP growth rates, higher levels of revenue acquisition, and public goods distribution—as key variables influencing the promotion of Chinese leaders, there is almost no contribution to the academic literature focusing solely on cadre demotion or dismissal (Bo 1995; Bo 2007; Gustafsson, Li, and Sicular 2008; Gallagher and Hanson 2009). The reason for this omission is due to the fact that in the Chinese system, because leading cadres often have no viable career alternatives, demotions and dismissal from office are extremely uncommon occurrences. In his publication “Retrospective Economic Accountability under Authoritarianism: Evidence from China,” Gang Guo (2007) illustrates this concept by contrasting the Chinese leadership turnover method with the American electoral system. He writes:

Economic voting in a democracy is mostly about the punishment, and the best possible reward for an elected official is to stay in office.... In contrast, the Chinese system of economic accountability is about the reward, that is, official promotion. Punishment due to incompetence is extremely rare. For the Chinese leaders who are the counterpart of

Western economic voters, the whole enterprise of economic accountability is not about "kicking the rascals out" but rather to "pick the capable out" (382).

In other words, in the Chinese system, a leader's inability to be promoted is an equivalent to demotion and punishment, as it means that one's career is stagnant and unable to advance further; also, incompetent or untalented leaders will usually never face a dismissal from office, but will instead be retained at their current rank (Guo 2007; Zhong 2003). Thus, as leaders are—under normal circumstances—unable to be ousted from their current level post until they reach their age and term limit, Chinese leaders' major incentive to perform is related to their ability to be promoted—as such, leaders fall into two broad categories: there are promotable leaders who due to high performance, connections, or some other mechanism have optimistic career prospects in the future; and there are terminal leaders, whose low performance, lack of *guanxi* connections, and/or proximity to the retirement age and tenure limits, have reached the pinnacle of their career trajectory, and are not expected to advance further (Zhong 2003). These two types of leaders, promotable and terminal, have opposing career expectations, and these expectations officials hold about the future greatly affect their political behavior in the present.

In his examination of county and township level cadres in his book *Local Government and Politics in China: Challenges from Below*, Zhong (2003) speculates that promotable and terminal leaders' behavior are distinct and differentiable in regards to whether they closely follow the policies and agendas set forth by the central government, or whether they pursue policies that maximize their individual gain. He suggests "promotable officials tend to be more willing to comply with and to carry out policies from above and are more careful about their official conduct, while terminal officials tend to exhibit more inertia and rent-seeking behavior" (2003, 125). As appointment to a higher position is largely determined hierarchically, in that a cadre's direct superior holds the most influence over his career advancement opportunities, local

leaders are more likely to adhere to and faithfully administer governmental policies from above (Zhong 2003, 126; Guo 2007; Bo 1995). Conversely, Zhong reasons that “often of advancing age and reduced energy, terminal officials are more satisfied with the status quo and more focused on enriching their self-interest,” and illustrates his point by citing the “60-year-old phenomenon” in which mid-level officials “grab as much as they can” before they retire at age 60. Zhong explains this behavior using a popular Chinese saying: “Power expires if you do not use it while you have it”—indicating that as terminal officials near the end of their career, there is an incentive to use their remaining power in self-gratifying ways that officials concerned with further political advancement would generally avoid (2003, 126). Through these examples, Zhong makes clear that as much as good performance—success in implementing the policies of higher-level cadres in charge of a local official’s career—is an important factor influencing a cadre’s “promotability,” equally important are deadlines outside of a cadre’s control: his age and how long he has served in his current position.

Theory and Hypothesis:

This paper extrapolates Zhong’s (2003) theory concerning township and county officials upwards to explain the behavior of provincial Party committee first secretaries (secretaries, for the rest of this paper) in regards to their policies and efforts related to increasing growth within the provinces they govern. Since provincial leaders’ promotion paths are determined, like Zhong’s county and township officials, by higher-ranking cadres; as provincial secretaries must adhere to age and term limits (retirement at 65 years old is mandatory, and individuals cannot serve for more than two five-year terms in the same locale), secretaries are promoted and retired along the same pattern as county and township cadres, and thus fall into Zhong’s two categories

of promotable and terminal officials, as well as their motivations associated with promotion expectation (Manion 1992; Bo 2007). Promotable secretaries would therefore be more inclined to carry out central directives—due to the fact that they are concerned with gaining the recognition and approval of those hierarchically superior—and terminal secretaries would have less motivation to listen to the center, because they cannot receive the professional benefits of good performance.

As mentioned in the Background section above, the literature has drawn connections between the fiscal and political decentralization initiated during Deng's time in office to improved regional growth rates. Other contributions to the literature suggest that this varied increase in growth across provinces is the result of the Chinese central government's deliberate cadre management strategy linking province growth and modernization to promotion. Many scholars conclude that leader performance is evaluated most significantly by change in GDP and revenue growth within a province; thus, a positive increase in these two areas is the most important indicator of provincial secretary promotion, and conversely, a secretary of a province with decreasing GDP or revenues is unlikely to be promoted (Bo 1995; Fan 2008; Lin 2009). This paper reasons that demand for growth can be understood as a top-down directive from the Chinese central government, aimed at provincial leaders, organized in a way that incentivizes promotion-minded leaders to pursue growth as a goal.

Thus, this paper posits the following causal relationship between growth and type of leader:

Hypotheses:

1. *Under younger provincial secretaries, growth rates within that province should increase.*

2. *Under secretaries with longer tenure, growth rates within the province should stay the same or decrease.*
3. *Under a fast-runner secretary, growth rates within the province should increase.*

According to Zhong's (2003) analysis—apart from performance—age and term limitations also factor into leaders' ability to be promoted. These two strict deadlines support this paper's hypothesis through their theoretical implications about cadres' likelihood of promotion: First, the age limitation for secretaries is 65 years old; after that age, secretaries are expected to retire (Bo 2007; Zhong 2003; Manion 1992; Manion 1991). Age can therefore be seen as a continuous scale of a cadre's chances of promotion—as a cadre becomes older and nearer to the age limit, holding his performance level constant, this official is less likely to receive a promotion due to his proximity to mandatory retirement. Secondly, the Chinese system imposes a 10-year term cut-off point on provincial secretaries, after which they cannot stay in the same post; as cadres near the end of their 10-year tenure, they can either retire, transfer laterally to a post of the same rank (Guo [2007] writes that demotions for high-level cadres like provincial first Party secretaries are extremely rare), or obtain promotion to a higher position (Bo 2007; Guo 2007). Thus, ranked from highest promotion possibility to lowest—keeping performance level, *guanxi* ties, and other variables constant—the literature implies the following scenarios:

1. A young secretary at the start of his tenure has high chances of promotion, since he has time to demonstrate his abilities through high performance, and he is not close to the mandatory retirement age. Also, he has the possibility of being transferred before he serves the entire allotted 10 years.
2. A young secretary near the end of his term also has relatively high chances of promotion. Even if he is transferred laterally to another secretary position, he still has time to

demonstrate his talent for fostering growth, and at his new position, this cadre may not serve the entire allotted 10 years.

3. An older secretary at the start of a term is less likely to receive promotion, since his age limits his remaining time as a public official. However, he may be transferred horizontally before the end of his tenure.
4. An older secretary at the end of his 10 year tenure is least likely to receive a promotion, as he is reaching both strict limitations on office-holding simultaneously. However, as long as he is under 65 years of age, there is always a chance he may be transferred.

As evidenced by the listed scenarios above, it seems that the most important indicator of promotion (between age and time served) suggested by the literature is age. Due to the unpredictability of tenure length and timing—there are no set dates in regards to transfers or promotions; these decisions are made at the discretion of higher-level officials (Zhong 2003)—term years do not seem to provide a strong theoretical explanation for likelihood of promotion itself. Therefore, this paper’s breakdown of its hypothesis and theory thus far only explains the motivations of promotable (young) officials—the first part of the hypothesis:

1. *Under younger provincial secretaries, growth rates within that province should increase.*

Tenure length provides a theoretical story for the behavioral patterns of terminal officials proposed by the second part of this paper’s hypothesis:

2. *Under secretaries with longer tenure, growth rates within the province should stay the same or decrease.*

Zhong (2003) and Manion (1992) document the negative effects of *guanxi* and office buying prevalent at the township and county levels, observing that “the most crucial factor in cadre

promotion at the local level is probably *guanxi*” due to the fact that in order “for a cadre in China to be promoted to a key official position, he/she must have a sponsor or patron at higher levels to forward the case to the attention of the Party.” In the Chinese system, important Party officials at each hierarchical level are responsible for promoting cadres from a tier below; thus, “[the higher officials] are usually the targets for lobbying and bribery by aspiring lower level officials for promotion” (2003, 115). To prevent *guanxi* network creation, cadre entrenchment, and nepotism, the Chinese central government uses two preventative measures: First, the CCP periodically rotates cadres between various geographic locations. Second, the central government generally does not allow important secretaries to serve in their home province. The rationale behind these practices theorizes that constant transfers and cadre region avoidance requires leaders to govern over unfamiliar subordinates for a short period of time, thus limiting the likelihood of pre-existing connections between patron and client and simultaneously making it difficult for these ties to cultivate over an uncertain timespan (Zhong 2003; Guo 2007).

This paper posits that these methods have limited effects in discouraging the formation of *guanxi* ties among older and longer serving secretaries. Therefore, secretaries’ incentives to pursue growth-inducing policies over personal gains are reduced. This paper predicts that *guanxi*, or informal, relationships are most likely to develop between terminal secretaries and lower-level officials due to the secretaries’ length of service, lack of legitimate central disincentives dissuading secretaries from pursuing material agendas, and greater susceptibility on the part of terminal secretaries to lower officials’ attempts to gain favor. As discussed above, a secretary’s ability to be promoted can be predicted on some level by his age—with less chances of promotion the closer one is to 65—thus, younger cadres are more likely to fall into the promotable rather than terminal leader category (Bo 1995; Bo 2007; Manion 1992; Guo 2007).

This paper proposes that the opposite is true for terminal leaders—older cadres are least likely to be considered for promotion. If this is the case, older provincial secretaries have both served longer in various government capacities and also have a higher likelihood of having developed working and social relationships with lower cadres, compared to their younger counterparts. The same result holds from a tenure perspective: Each term is 5 years, and there is a limit on serving more than two terms in a single position. Therefore, as older secretaries presumably have been serving longer in the Party, their accumulated number of positions and terms are also likely higher than those of younger secretaries; thus, longer and more numerous terms associated with older officials also indicates increased chances of informal relationships and connections.

The Chinese central government's cadre rotation policy also contributes to the proliferation of *guanxi* webs in longer tenured, older cadres. Even though this system was originally established in order to reduce corruption and the establishment of personal networks for all leaders below the central level (Zhong 2003), in reality cadre geographic transfer is implemented generally to specific types of leaders. These types of leaders, referred to as fast-runners in this paper, make up the basis for this paper's third hypothesis:

3. *Under a fast-runner secretary, growth rates within the province should increase.*

Landry (2003) and Bo (1995) examine sub-national leaders and find that term length and re-appointment figures not uniform across all leaders; rather, it is typical for relatively young, fast-track cadres on the shortlist for promotion to serve less than one term at a local position, gain experience, then receive promotion to a higher level post (Zhong 2003). Thus, it is evident that a predictive variable of a cadre's "promotability" is the number of years he serves in a position—the literature indicates that young, fast-track candidates generally serve less time in each position before promotion to central government posts; conversely, this paper reasons that older, terminal

officials would thus serve longer terms. Serving out the length of the allotted time (10 years) for provincial secretaries allows longer-serving officials—in this case, predicted to be terminal secretaries—more time to develop networks downwards, and also more time for ambitious sub-provincial officials to cultivate an upwards relationship with secretaries. This paper theorizes that a key reason to why terminal secretaries are so inclined to devote their energies to self-enriching projects rather than growth-enhancing policies is due to the implications of their relatively extensive web of *guanxi* ties, whose origins are elaborated on above. The organization of the current cadre promotion system; the absence of explicit discouragements from the central government above and feeling of accountability to citizens below; and the temptation of bribes and favors from local ambitious cadres are all factors that have a reduced impact on promotable secretaries, and an enhanced impact on terminal ones.

In summary, several important points derived from the literature form the theoretical basis for this paper's hypothesis. The first part of the hypothesis predicts the behavior of promotable secretaries, which are described by scholars as generally young (relatively far away from the age limit of 65 years old) and rising quickly through the ranks (as indicated by their short tenures in sub-national posts). Due to the fact that their promotions hinge on their willingness and effectiveness in following the central policy agenda, these young fast-trackers are incentivized to adhere closely to tasks delegated them by the central government, foremost of which is increasing provincial growth and income. Thus, young, fast-rising, promotable secretaries are predicted to have a significant impact on the growth performance of the province they govern. On the other hand, the second part of this paper's hypothesis focuses on older, stagnated, terminal secretaries. Scholars suggest that these secretaries are classified as terminal due to their close proximity to the age limit and their slow, too-late rise through the ranks

indicated by their long terms in office. These secretaries have no incentive to zealously chase after growth; in fact, they have many disincentives to do so. The cultivation of personal networks, grown from their long years of public service as well as their longer tenures, make terminal officials better able to extract benefits of *guanxi* from lower level officials. Lower level officials also have a greater motivation to appease the secretary, who is in power for a longer duration. Therefore, older, terminal secretaries who have diverted their energies towards personal gain and away from public performance are predicted to have a negative or stationary impact on growth.

Research Design, Methods, and Variables

Research Design and Variables:

This study aims to assess the impact of the two types of provincial secretaries (terminal and promotable) on growth rates during their times in office. As other scholars analyzing Chinese leaders' performance have done, this paper utilizes panel data in order to account for the behavior of many leaders, over many years, across different provinces (Bo 1995; Chen et al. 2005; Landry 2003; Li and Zhou 2005; Shih et al. 2012). Specifically, this paper records observations from the years 1990 to 2010; the dependent variable measuring growth is provincial GDP growth rates at 2000 comparable prices; the independent variable is provincial secretary characteristics including age, length of time in a particular position (tenure), and accelerated promotion trajectory. These variables will be elaborated upon in the following section.

Dependent, Independent, and Control Descriptions:

Dependent Variable:

As this project's objective is to test the causal connection between provincial leadership and growth, the dependent variable is a measure of provincial growth. Ideally, this variable would be sensitive to how much the economy of a particular province expanded or contracted based only on policy factors conducted by the secretary in office at that point in time. However, due to the limitations and difficulties of collection (policy outcome indicators such as sector specific revenue allocation figures or the number of new physicians and/or schoolteachers hired per county are not consistently measured for every province for every year; occasionally figures are missing or not in consistent units across provinces or time periods) this paper uses a less exact, but more consistent growth variable that is obtainable for every province for every year this study encompasses: GDP percentage growth.

Data for GDP percentage growth was not obtained directly from a source; rather, this paper calculates percentage growth using provincial GDP figures from the years 1990 to 2010, gathered from the provincial statistical yearbooks provided online by China's National Bureau of Statistics (NBS). Data on GDP is calculated from the village level on up by NBS affiliated satellite bureaus on an annual basis. This paper transforms the provincial, current prices GDP data in several ways in order to create the dependent variable, GDP percentage growth. First, the GDP variable was obtained using the current-prices GDP for each province; using a GDP deflator obtained from the World Bank's online data bank, this paper adjusts provincial GDP for 1990 to 2010 to year 2000 prices; this way, results are comparable across provinces and across years. In addition, GDP percentage growth was chosen as the dependent variable in order to capture the economic performance of each province—therefore, this variable encompasses all represents all sectors within each province. Finally, because this variable calculates growth as a

percent, the observation for 1990 is omitted; thus, GDP percentage growth rates span 1991 to 2010 for all provinces.

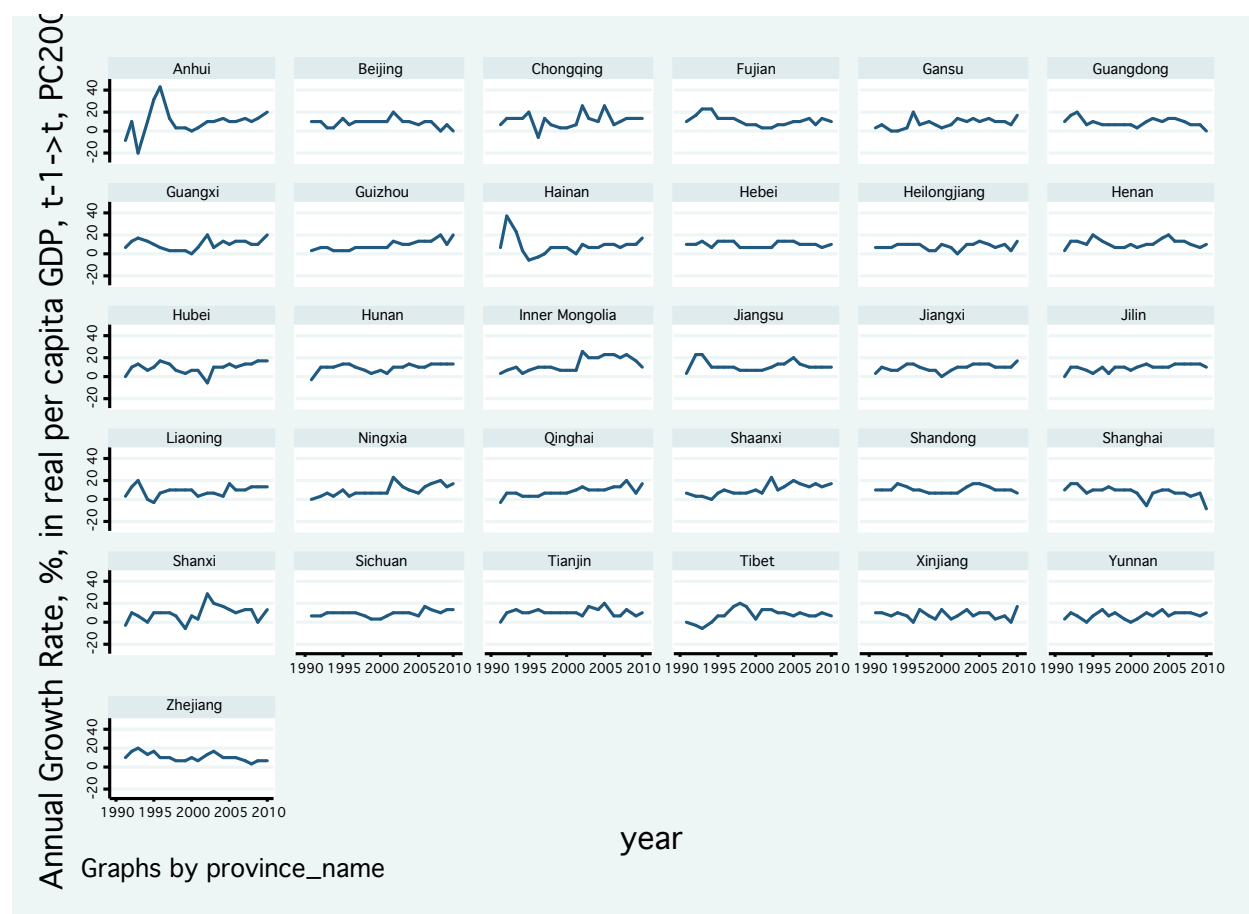
As a result, knowledge of this variable's descriptive characteristics is essential in coming to reasonable conclusions about the relationship between this paper's dependent and independent variable. In order to accurately compare growth in different years and provinces, this paper provides several key variable statistics (shown in the chart below):

Variable	Obs	Mean	Std. Dev.	Min	Max	Median
growth	620	9.662448	5.46104	-21.47054	44.63882	9.513084

From these descriptive statistics, one can see that growth rates for all provinces over all years show varying results. First, as indicated by the mean and the median, most provinces are growing at rates of about 10% or more, corroborating the data provided by other sources. However, there is a wide range of variation in growth rates across provinces across years, ranging from a loss of 20% growth to a gain of 44% growth from some previous year. These numbers only indicate GDP percentage growth as an aggregate figure; in order to gauge a trend in this variable, one must look at a province-by-province breakdown. This way, growth trajectories for each region across time can be discerned visually represented (Graph of annual growth rate, below).

In general, there seems to be three different categories of growth. First, most provinces show a stable or slightly positive growth trend with internal fluctuations, indicating that most provinces' economic expansion has increased at a relatively steady pace. This group seems to include many historically low and middle-income provinces—for example, Guizhou, one of the

poorest regions in China exhibits this positive growth trend. The second category of provinces also show a relatively stable growth trend, but with a slight downward bias indicating falling growth rates. This pattern seems to emerge in the historically wealthier coastal provinces and key municipalities. Beijing, Guangdong, Fujian, and Shanghai—to name a few examples where this phenomenon seems to occur—all have growth rates tapering off towards the year 2010, indicating that in more recent years, these key engines of Chinese economic momentum are generating wealth at a slower rate than before. Finally, in each province there are spikes and dips in growth rate (in some provinces these breaks are more significant than in others). How these three trends in growth are the result of provincial leaders' actions will be elaborated upon in the Results and Data Interpretation sections.



Independent Variables:

The independent variables for this study include secretaries' age for each year they served in office, their length of tenure serving in a specific post recorded each year, and also whether or not they were fast-risers through the hierarchical ranks of the Communist Party—denoted by how long in years it took for each secretary to achieve that rank level. Each variable, its descriptive statistics, collection method, and summary of its theoretical impact on the dependent variable will be explained in the following sections.

Age:

This variable records the age of each provincial leader during their time serving as provincial secretary for a specific province. The theoretical impact of age on growth rates, our dependent variable named above, is significant: According to the Theory and Hypothesis section of this paper, the first part of this paper's main hypothesis states that

1. *Under younger provincial secretaries, growth rates within that province should increase.*

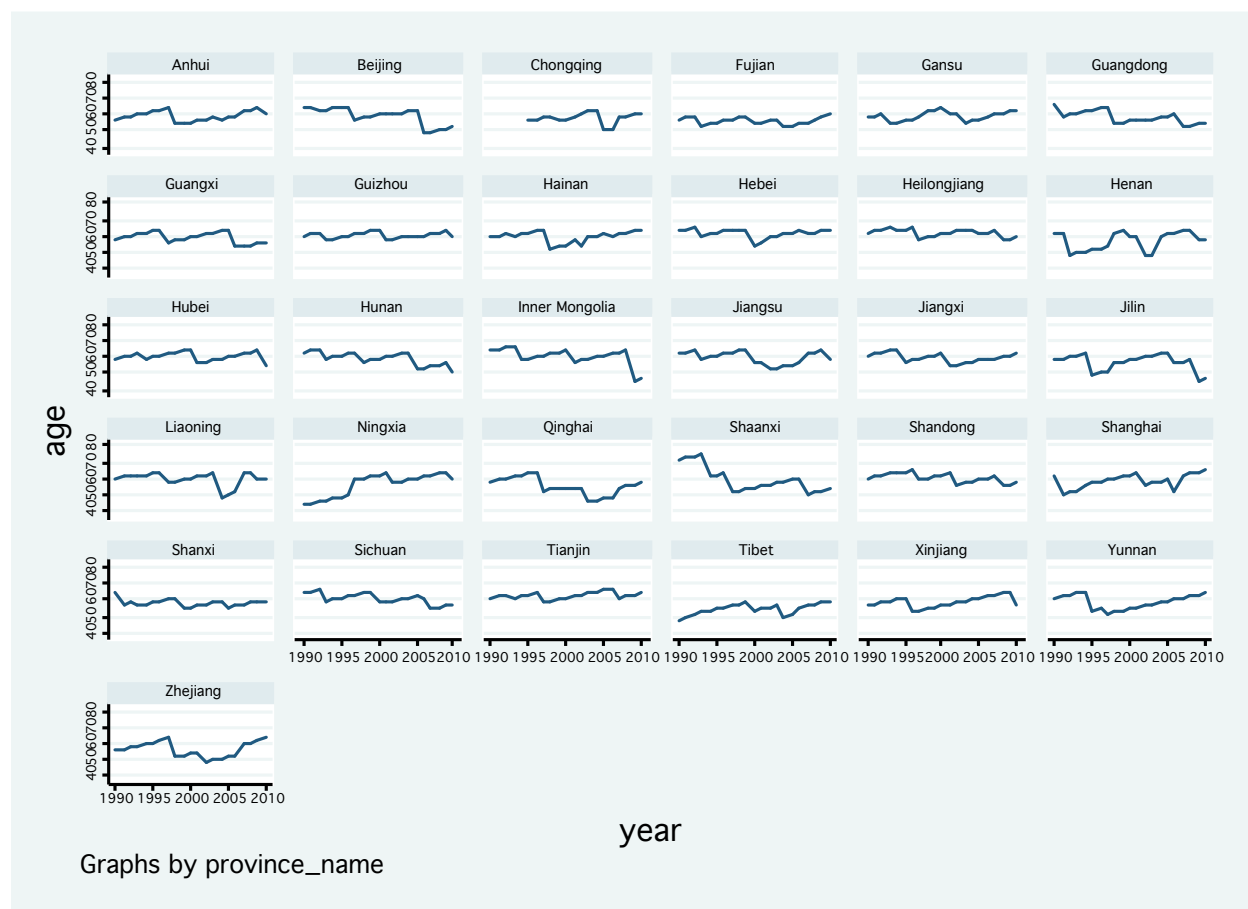
This conjecture is strongly tied to the ability of a provincial secretary to achieve promotion—the only method of career advancement in the CCP cadre system—due to the fact that there is a mandatory age limit on all officials, which has gradually become more strongly enforced throughout the 1990's and is today almost universally observed. As such, this paper postulates that age is a key factor driving the desire of younger provincial leaders to pursue policies that will increase their chances of promotion; in this case, one of the main policies that this paper intends to empirically test is the effect of these promotion incentives on provincial GDP growth rates. Therefore, this study predicts that the lower the age of a provincial leader, the greater an effect his time in office will have on the economic growth of the region under his jurisdiction.

The age variable was collected using the biographical information found on the online database China Vitae, a non-profit organization headquartered in Maryland, U.S.; the facts recorded on this site are derived from Chinese government affiliated Chinese and English language sources. These statistics are checked and scrutinized by China specialists world-wide who use this site as a part of their own research process. In addition to China Vitae, information pertaining to leaders' careers was gathered from Xinhua's (China's official press agency) online archives. From these data sources, this paper was able to determine both individual leaders' years in office, the location of their service, their date of birth, and the date on which they formally joined the CCP. For the age variable, this study simply noted the year in which an official was in office and subtracted this figure by the official's birth date. Thus, for secretaries holding office for multiple years, their age would increase by one for each additional year they retained power; in years where there was a change in secretary, this paper counts the new secretary's age.

From the descriptive statistics listed in the chart below, out of 646 observations, the mean and median age of provincial secretaries is about 59 years old. The oldest secretary to serve from 1990 to 2010 was 75 years old and the youngest, 44 years old. As mentioned above, the hard age limit of retirement was enacted by the CCP in the early 1980's and has gradually become more enforced; thus, there are some provincial secretaries in this study's time frame that exceed the 65 year old age limit while in office. This being said, there may be systematic differences between provinces in regards to the demographic of leaders that are assigned to specific regions; however, the graph below indicates that the trend in leaders' ages in provinces seems relatively random and uncorrelated with the economic condition of the province itself—for example, looking at similarly high-GDP provinces Beijing, Guangdong, Fujian, and

Shanghai, each of these regions supports a different trajectory in secretary ages: Beijing and Guangdong have progressively younger secretaries, Shanghai has increasingly older ones, and in Fujian the age of the ruling secretary has consistently hovered around the late 50's. The purpose of this study is to gauge the predictive effect of provincial leader characteristics, including age, on growth; in the Results section, the nature of this effect will be discussed.

Variable	Obs	Mean	Std. Dev.	Min	Max	Median
age	646	58.73529	4.484553	44	75	59



Length of Time in Office:

This variable describes the number of years a provincial secretary serves in one particular position. Like age, tenure length for each provincial secretary for each province from 1990 to 2010 was calculated using a combination of China Vitae's official biography pages and Xinhua News Agency's online archives. This variable simply counts the number of years an official has served in a position; as he serves one more year, his tenure length increases by one. In the case of years where there is a leadership change, the incoming official starts his tenure count at one. Since the CCP cadre management system sets a limit to the amount of years an official can hold a specific office—10 years—this variable holds important theoretical explanatory value for the second part of this paper's hypothesis. Similar to the way that age is the primary independent variable responsible for predicting the behavior of promotable officials in the first section of this paper's hypothesis, tenure length explains the ambivalence and disincentives to pursuing growth-related policies associated with terminal officials.

2. *Under secretaries with longer tenure, growth rates within the province should stay the same or decrease.*

As discussed in the Theory and Hypothesis section above, tenure length holds predictive value for the behavior of terminal officials because of the increased opportunities and temptations prolonged service fosters. This phenomenon can be seen especially in regards to the *guanxi* networks that have characterized Chinese politics for much of the 20th century; in recent years, as the Chinese central government has sought to strengthen institutional politics and weaken informal practices, there have been efforts to discourage the formation of personal networks and nepotism, including rotating leaders throughout various posts, keeping term limits short (hence, the 10 years rule), and prohibiting leaders from serving too long in their home province.

However, these measures aimed at preventing corruption are not applied equally to every official; indeed, this paper argues that promotable and terminal officials receive different treatments. Promotable secretaries (especially fast-risers, discussed in the next section) targeted by the central government for promotion generally serve less time in one position before they are rotated out or promoted upwards into higher positions. The reason for this strategy is twofold—first, these fast-risers are parachuted in to certain positions as a way for them to simultaneously prove to the central government their performance caliber and to gain experience for their next, presumably higher-level position; secondly, the central government discourages the creation of *guanxi* ties by quickly rotating secretaries before these networks have a chance to coalesce. However, in older, terminal officials, there is no reason for the central government to rotate them out of their positions: Terminal officials nearing the age limit are less likely to reap the benefits of good performance; and, they do not need to gain experience in a short amount of time as young fast-risers do, because terminal officials are not being groomed for central positions. As a result, terminal officials generally have served longer years and stay in their posts for longer periods of time, thereby allowing *guanxi* ties to form. Also, because they have less of a reason to be concerned with evaluation from the center, this paper hypothesizes that corrupt practices are also more widespread within this group of officials. Thus, this study uses tenure length as a predictive variable to explain why terminal officials are less likely to pursue and cultivate growth—at this point in their career, growth is simply not the highest priority.

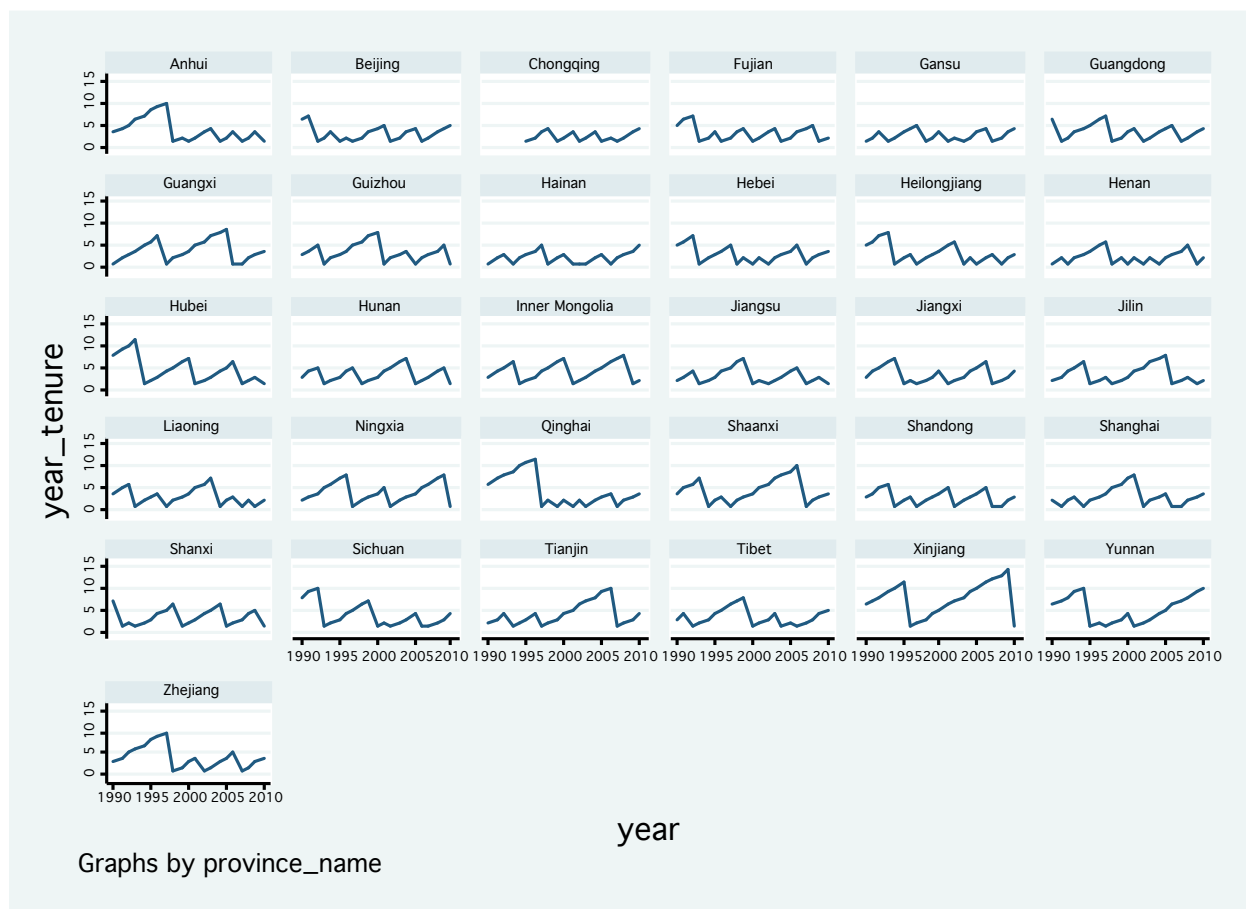
Even though within provincial leaders there are both fast-track officials and leaders with a slower career trajectory, achieving the level of provincial secretary is still considered a very high position within the CCP cadre hierarchy. Also, since provincial secretaries have a heavy responsibility in terms of approving all local policy and budget implementation, this paper

postulates that the central government would pay special attention to the individuals it places in this role. As such, the descriptive statistics of the tenure variable reflect this paper's hypothesis. In Figure 5, the mean and median statistics suggest that out of ten possible years of service, most provincial secretaries only serve three to three and a half years before moving on to another post. However, as the maximum amount of time served is 14 years, this statistic indicates that some secretaries still remain in office for the entire allotted duration. In this case, the 14-year tenure (four years over the term limit) corresponds with service in Xinjiang province (shown in graph below). Reasons for lengthening the tenure in this instance may be related to the ethnic tensions present in this particular province; the central government might have prolonged secretaries' service years in order to create political and social stability in an otherwise turbulent environment. Indeed, by simply examining the trends presented in the below chart and graph, one can see that leader turnover is generally higher in coastal and Han dominated provinces while in the autonomous regions Tibet, Ningxia, Inner Mongolia, Guangxi, and especially Xinjiang, tenures last for much longer.

Variable	Obs	Mean	Std. Dev.	Min	Max	Median
year_tenure	646	3.585139	2.420461	1	14	3

Fast-Riser:

This independent variable is related to the previous section's variable tenure length, as both of these variables are part of this paper's theoretical story regarding terminal officials' behavioral patterns. This paper uses the fast-riser variable as an attempt to capture the speed of an individual secretary's rise to the position of provincial secretary—thus, a leader coming to



power in a shorter amount of time is, by this paper's reasoning, likely to be more promotable.

This logic underpins this paper's third hypothesis:

3. *Under a fast-runner secretary, growth rates within the province should increase.*

The reason for this is because in the CCP cadre promotion system, the next-highest level of personnel determines who get promoted; in order to organize candidates, the most promising (by performance or personal relations) individuals are placed on a promotion short-list, ensuring that they are noticed and advanced at a faster rate compared to their counterparts (Zhong 2003). This fast-runner variable aims to capture these targeted candidates. Due to the difficulty of obtaining access to these short-lists, it is impossible to collect the names of individual leaders groomed by the central government; however, because the literature indicates that these fast-track officials

ought to exhibit a faster rise to top positions, this study calculates this variable in the following way: First, this variable uses the biographical information provided by China Vitae and Xinhua News Agency's online archives to ascertain the year in which the party secretary officially gained membership into the CCP; second, the year in which individual secretaries first achieved the rank of provincial secretary was determined. Finally, the number of years between the time when the secretary came into the party and when he first rose to the high-level rank of provincial secretary was calculated—this final calculation was recorded into this study's data set as the fast-runner variable.

The second part of this paper's main hypothesis posits some theoretical expectations regarding a secretary's length of tenure:

2. *Under secretaries with longer tenure, growth rates within the province should stay the same or decrease.*

The fast-runner variable provides some of the explanatory basis for this argument, as it holds implications for both likelihood of promotion and tenure length. As discussed earlier, a fast-riser moves up through the cadre hierarchy at a faster pace than other individuals, because—through performance or connections—he has been identified by the central government as a potential figure to groom for central positions; therefore, the speed of his promotions result in shorter tenures in lower-level positions. For the fast-runner, these lower level posts represent a channel through which to signal their competency to central decision-makers, as well as a means by which to gain the experience necessary to succeed in higher offices, where there is need for greater responsibilities and expertise.

The descriptive statistics for this variable are listed in the chart below. From these numbers, it is clear that the average amount of time it takes for a secretary to obtain his position

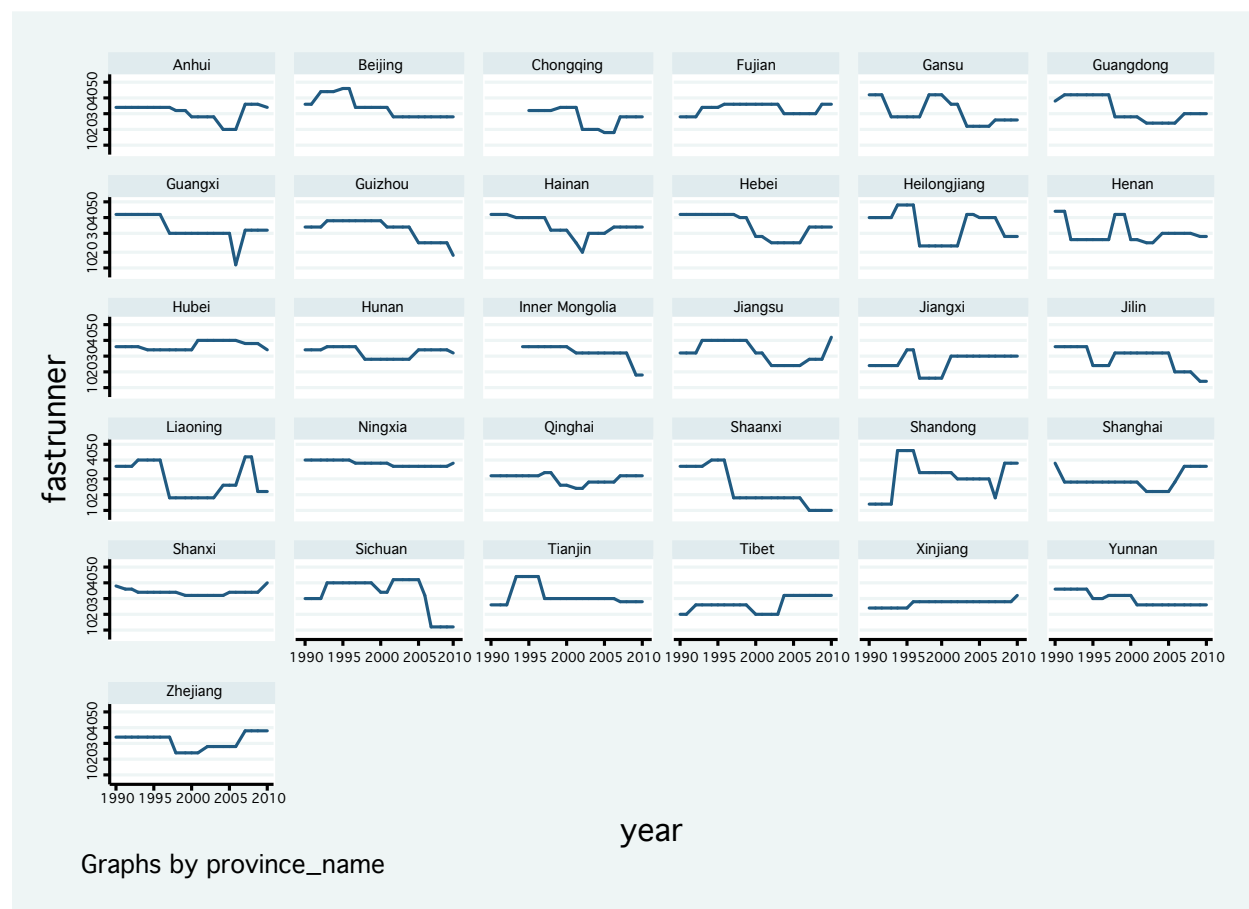
is about 32 years; however, one can see from the difference between the minimum number (9) of years and the maximum number (49) of years that within provincial secretaries there are indeed slow and fast runners.

Variable	Obs	Mean	Std. Dev.	Min	Max	Median
fastrunner	642	31.46262	7.149791	9	49	32

However, looking at province-specific fast runner trends in the graph below can explain some of this variation—historical events such as the Cultural Revolution may explain the numbers on the high-end; lax implementation of age and term limits at the beginning of the study period may also account for these high numbers. As evidenced by the graph, most of the exceedingly high fast-runner entries occur in the early 1990's at a time where Deng's cadre personnel management had not yet begun to take full effect; also, at the start of Deng's time in office, many officials who had been purged in the Maoist era were rehabilitated and reinstated. This combination of factors may have led to abnormally long durations of time before certain capable leaders obtained the position of provincial secretary.

However, in observing the trends, there seems to be evidence that fast-risers (those with a low fast runner year variable) are indeed parachuted in to certain provinces, serve for a brief period of time (usually less than the 10 years allowed), then transfer to another position either within the central government or laterally to another provincial secretary role. In middle-income provinces that are less economically developed than the coastal regions (observe Guangxi, Tibet, and Shandong) it seems evident that a fast riser comes in and serves for a few years. Since in the Chinese system, demotions and dismissals are rare, it can be inferred that these fast risers, after

servicing their term, go on to officiate in another province, or move up into a central government position.



Control Variables:

Aggregate GDP and Per Capita GDP:

Aggregate GDP and Per Capita GDP were chosen as control variables for several reasons. First, in order to properly gauge the effect of this study's independent variables on the dependent variable, the influence of certain economic factors must be held constant. Thus, as leaders have no control over the economic performance of their province before their term in office, this paper includes indicators of economic performance in order to mitigate this effect.

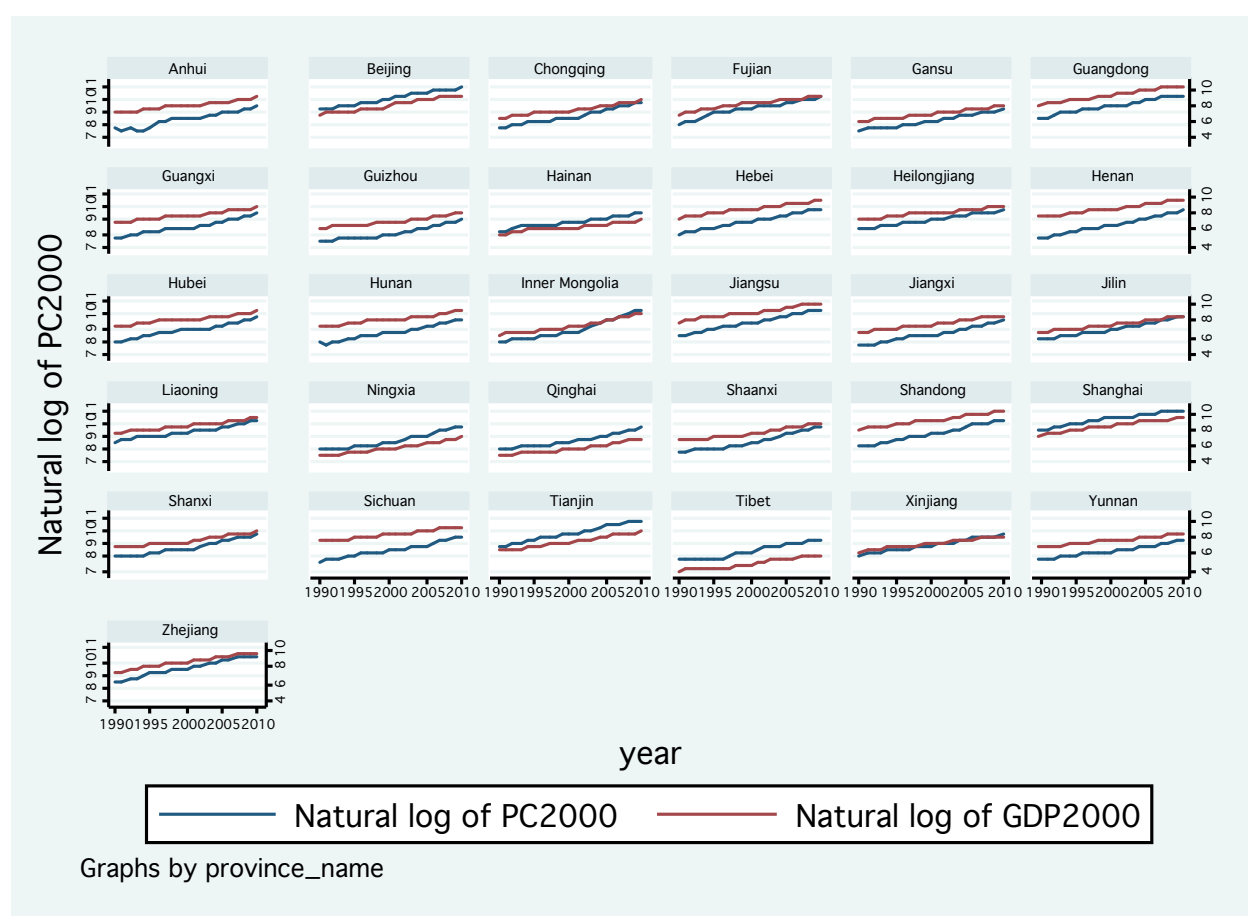
Both GDP and GDP per capita data are gathered from NBS statistical yearbook in unadjusted, current year figures; GDP is in 100 million yuan and GDP per capita is in yuan. This study uses China's GDP deflator obtained from the World Bank's database in order to convert both of these variables into year 2000 comparable figures; thus, results pertaining to GDP and GDP per capita can be compared across years as well as across provinces. The descriptive statistics for these two variables are presented in the chart:

Variable	Obs	Mean	Std. Dev.	Min	Max	Median
GDP2000	651	3957.68	4488.331	54.61364	30818.68	2503.912
PC2000	651	10283.14	9255.987	1597.005	56397.91	7275.722

Comparing the mean and the median in the case of each variable confirms that some provinces have much greater wealth than others, thereby disproportionately weighting the average GDP and GDP per capita towards the higher end. Thus, in order to correct for this positive skew, this paper applies a logarithmic transformation to the GDP and GDP per capita raw data in order to make these two variables conform to a more normal distribution. This method was accomplished by taking the natural log of both GDP and GDP per capita data; the chart below shows the new descriptive statistics for the transformed data. Comparing the mean and the median after applying the natural log to these two variables, one can see that the distribution is much more normal and there is less of a rightwards skew. Looking at the graphs containing both GDP and per capita trends, the reason for having both of these variables serve as controls

becomes clear: Including GDP per capita as a control variable accounts for the effect of population growth or contraction, given that the level of GDP remains relatively stable.

Variable	Obs	Mean	Std. Dev.	Min	Max	Median
lnGDP2000	651	7.716631	1.175816	4.000284	10.33588	7.825609
lnPC2000	651	8.936345	.7547102	7.375885	10.94019	8.892299



Data Results and Interpretation

Results:

After establishing the theoretical explanations for this study's choice of variables, empirical results and an analysis of those results are the subjects of this section. First, aggregate and province-specific regression co-efficient results of the three main independent variables and two control variables are included in Figure 12 below. P-values with a significance of .05 to .01 are recorded with one star (*); values from .01 to .001 are represented with two stars (**); p-values significant at the .001 level are notated with three stars (***). The aggregate number of observations is 613, and the number of groups within this aggregate regression is 31—each province consists of a group; therefore, accounting for missing values, each province has 20 observations. The R-square value within the groups is .2396; between the groups is .0770; and overall is .0006.

	age	tenure	fastriser	lnPC	lnGDP	n	Rsqr
Aggregate	0.08	0.00	-0.05	23.43***	-13.69**	613	0.0006
1. Beijing	0.39	-1.12	-0.60	1.46	-4.74	20	0.4350
2. Tianjin	0.12	0.23	0.29	29.65	-23.85	20	0.3003
3. Hebei	0.28	0.02	-0.08	187.85	-176.67	20	0.1374
4. Shanxi	-1.86	3.47	1.48	13.61	-9.64	20	0.2381
5. N. Mongolia	18.45**	-16.27**	-15.19**	119.12***	-129.94***	17	0.9255
6. Liaoning	0.08	-0.30	-0.16	657.02*	-619.39*	20	0.4371
7. Jilin	0.35	-0.12	-0.19	17.13	-12.83	20	0.5528
8. Heilongjiang	-.22	-0.39	0.17	41.86	-39.70	20	0.3263
9. Shanghai	-1.02	0.48	0.28	43.83	-34.14*	20	0.5575
10. Jiangsu	-0.25	-0.65	0.10	586.37	-553.11	20	0.2804

11. Zhejiang	-1.15***	0.71*	0.83***	-1.13	-2.19	20	0.6345
12. Anhui	-0.98	4.37	0.18	24.87	-6.41	20	0.4399
13. Fujian	0.54	-1.65	-0.62	67.05	-64.84	20	0.2592
14. Jiangxi	0.19	0.18	0.51*	-197.10*	184.76*	20	0.5872
15. Shandong	0.10	0.35	0.10	-169.27	160.51	20	0.1093
16. Henan	0.12	0.21	-0.41	76.43	-73.39	20	0.3236
17. Hubei	0.21	0.14	-0.80	21.55	-15.12	20	0.3199
18. Hunan	3.63	-5.28	1.10***	70.96	-44.67	20	0.6186
19. Guangdong	2.28***	-4.05***	-0.11	25.12	-14.98	20	0.5988
20. Guangxi	1.36	-1.63	-0.04	147.14*	-132.78*	20	0.6114
21. Hainan	0.20	-1.12	-0.24	175.27	-144.52	20	0.1530
22. Chongqing	0.08	-1.01	-0.20	78.77	-78.32	16	0.4004
23. Sichuan	2.59***	-2.85***	-0.44***	103.83***	-99.9***	20	0.8299
24. Guizhou	-1.91	1.95	-0.60	6.76	-1.63	20	0.7885
25. Yunnan	1.29	-2.47	-0.20	257.00***	-222.75***	20	0.6803
26. Tibet	-0.70	2.46**	-0.12	-139.21**	126.07**	20	0.6564
27. Shaanxi	-0.42	1.10*	0.09	39.00*	-33.10*	20	0.7318
28. Gansu	-1.48	2.06*	0.61	-11.00	22.16	20	0.4146
29. Qinghai	-0.05	-.18	-0.16	3.72	2.16	20	0.6940
30. Ningxia	-0.51	-.25	-1.86	-19.16	22.72	20	0.6403
31. Xinjiang	-2.62	-1.75**	-9.94	271.39**	-181.25*	20	0.7645

As one can see from the results above and the R-squared values, the effects of age, length of tenure, and being a fast-riser are largely insignificant; especially at the aggregate level, the only variables with any significant impact in the aggregate regression are the GDP and per capita variables, which indicate that an increase in per capita income results in higher growth, and a decrease in overall province GDP results in higher growth. Examining the province-specific regressions show that the majority of this study's independent variables do not have a significant effect on provincial growth rates; however, there are some instances where the independent variables seem to have some influence: Inner Mongolia, Zhejiang, Jiangxi, Hunan, Guangdong, Sichuan, Tibet, Shaanxi, Gansu, and Xinjiang show a significant p-value at the .05 level and higher for age, tenure, and fastrunner; Inner Mongolia, Liaoning, Shanghai, Jiangxi, Guangxi, Sichuan, Yunnan, Tibet, Shaanxi, and Xinjiang have significant p-values at the .05 level and higher for lnGDP2000 and lnPC2000 control variables.

Interpretation:

The aggregate regression clearly shows that for the data collected in this study, there is no significant relationship between the independent variables and the dependent variable, growth. In other words, provincial leader characteristics (age, tenure length, and the number of years it takes for an individual official to gain the provincial secretary position) do not adequately explain the variation in GDP growth rates across provinces across years. In the aggregate regression, only the controls GDP and GDP per capita have explanatory power—a unit increase in GDP per capita raises growth by 23.4 percent; a unit increase in GDP lowers growth rates by 13.7 percent. These numbers suggest that as each member of the population becomes wealthier,

GDP growth tends to rise; however, as GDP numbers for the entire province grow, growth rates slow down.

In the province-by-province regressions, the results in Figure 13 show that in some provinces this paper's independent variables are significant at the .001 level; however, in examining the province-specific results, the possibility of falsely significant results also rises. Therefore, the province-specific analysis in the rest of this section must keep the higher likelihood of false positives in mind. Under the age variable, Inner Mongolia, Guangdong, Zhejiang, and Sichuan have significant results. However, the coefficients for these provinces are not all the same—Inner Mongolia, Guangdong and Sichuan have positive coefficients, and Zhejiang has a negative coefficient—which indicates opposite relationships to the dependent variable. For the three provinces with a positive coefficient, in these regions older provincial secretaries seem to cause an increase in the GDP growth rate of the province they serve in (the opposite effect of what this paper's theory predicts); in Zhejiang, younger provincial secretaries cause an increase in the GDP growth rate. The reason for this divergent outcome might be because there could be another variable that holds greater explanatory power over both age and growth rate, and this variable varies across provinces. Or it is possible that “young” and “old” are too broad categories, and a more specific sub-variable might be needed to provide significant results. For example, within young and old secretaries, family background and career connections play an interacting role with age—it may be possible that older secretaries from well established political families may in fact pay more attention to growth and forgo forming *guanxi* networks with lower-level officials, as they may be concerned about public image, especially if their children or relatives are also within the political sphere. In any case, it is clear that age is not the strongest variable capturing provincial leaders' incentive to promote growth rates.

The same is true for this paper's tenure length variable. Inner Mongolia, Guangdong, Sichuan, and Xinjiang have negative coefficients, indicating that fewer years in office cause higher growth rates—affirming this paper's hypothesis. However, Zhejiang, Tibet, Shaanxi, and Gansu have positive coefficients, suggesting that longer tenures increase growth rates—an outcome contrary to this paper's prediction. Like in the case of the age variable, these discrepancies may be explained by alternate or more specific variables. Even though this paper's theoretical premise states that provincial leaders with longer tenures become more entrenched and corrupt, an alternate effect of longer tenures could also be that policy agendas are more consistent, and therefore more effective, resulting in higher growth rates (Zhong 2003). An explanation for these different outcomes in different provinces possibly indicates the prevalence of specific effects of long tenure in certain areas as opposed to others—perhaps an alternate variable such as a leader's education background might account for more influential policies when coupled with long term lengths.

Finally, in the case of the fast-riser variable, results are also contradictory. Inner Mongolia and Sichuan have negative coefficients, suggesting the leaders on the fast track contribute to higher growth rates within the provinces they govern; on the other hand, Zhejiang and Hunan exhibit positive coefficients for their fastrunner variable, indicating that slower rising officials cause greater growth rates. These contrasting results seem to say that, like in the first two independent variables age and tenure length, another variable or multiple variables hold more explanatory influence over growth rates than the fast-riser variable alone.

Conclusion:

Since the end of Mao Zedong's time in power, China's institutional rules have changed in many ways. As the CCP leadership has sought to find a mixture of the Communist political system and capitalist economic incentives, rules concerning the appointment, promotion, and retirement of key government figures have also undergone a transformation in just a few decades. Currently, these rules have brought about mixed results. This paper attempts to connect one of the key drivers of China's newfound world presence—GDP growth—with the main institutional rules regarding cadre personnel management; this paper also reasons that these rules are linked to cadres' decision-making and political behavior, thus, systematically testing the effects of age, tenure length, and whether or not a leader is a fast-riser should provide insight into the flaws and strengths of the Chinese system of promotion and its ability to provide political incentives to leaders in order to accomplish central priorities.

This study has yielded inconclusive results. The aggregate regression of all provinces find that the independent variables used by this paper are insignificant in explaining growth rates. However, examining the results on a province-by-province basis reveals that the independent variables are a significant explanatory factor for some provinces, but not other; also, the relationship between the independent variables and the dependent variable fluctuate in terms of direction, depending on the province. These results seem to indicate that age, tenure length, and being a fast-riser alone do not capture the underlying motivation behind provincial secretaries' varying behavioral patterns. Indeed, the lack of significance in the results may derive from a faulty theoretical base, incomplete empirical data, or a combination of both.

For example, different theoretical effects of the independent variables included in this study might account for the inconclusive results. This paper draws heavily on Zhong's (2003) theoretical arguments for village, township, and county leaders. Perhaps the theoretical

implications for that subset of leaders cannot be extrapolated to provincial secretaries, who may have a different incentive structure. The effects of *guanxi*, which are used to explain the influence of tenure length on growth, might also be more various than assumed in this paper—here, the effects are wholly corrupt and negative; however, it is possible that *guanxi* might foster an increase in efficiency, as leaders who are familiar with each other possibly would work better together or bypass red-tape faster. Furthermore, the interaction of these variables, which was unaccounted for in this study, might have also yielded meaningful results, if examined. For example, perhaps tenure length has a different effect in younger provincial leader than it does in older ones; this is another area of inquiry not covered by this study.

Also, in further studies, inclusion of other variables that might account for political behavior would strengthen the empirical findings of this study and perhaps find a stronger causal relationship in regards to systematic differences in officials and the effect these leaders have on growth related policies—variables that could possibly cause leaders to pursue alternate policies might be useful to gather: An official's education, his familial or professional involvement with other political figures, his exposure to foreign environments (for example, if he studied abroad or worked in a foreign company before his appointment), and other factors could make the relationships between leader and policy outcome more clear. Also, policy-specific variables, such as sector-specific revenues or a variable measuring a leader's stance on migrant immigration might more clearly delineate a provincial secretary's impact on a policy related outcome—in this paper's case, GDP growth can be caused by a number of factors outside a leader's influence and control; in another study, if a leader's effect on a specific outcome was more expressly evident, then the relationship between the independent variables and dependent variable would also be less obscure.

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