Sponsored Human Capital:

Bureaucratic Transfer and Economic Performance[1]

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Abstract

Bureaucratic transfer is ubiquitous in modern organizations. This paper studies the impacts of transfers on the performance and career development of Chinese bureaucrats. Using a newly collected data on more than 2,000 officials holding prefecture- and province-level leader positions, the paper finds that pre-mayor transfer experiences have a significant impact on the terminal rank of an official's career. Moreover, more frequently transferred officials have higher ability of managing economic growth. The analyses on bureaucratic transfers suggest that organizations may use favoritism to fulfill various purposes in personnel management and still allow meritocracy to play a role.

Keywords: Bureaucratic transfer, ability, promotion, political human capital

JEL classification: H11, H71, P26, O53

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1. Introduction

In 2016, Tom Barrett was elected to his fourth term as mayor of Milwaukee, Wisconsin, where he was born and raised. Before the mayorship, Barrett served as a state legislator for five years, state senator for four years, and U.S. congressperson representing Wisconsin's 5th district for 10 years. It is commonplace in democracies that local leaders spend a lifetime career in one place.

In China, by contrast, local leaders do not control where they serve. Leaders almost never serve in their hometowns under the rule of avoidance. Moreover, local leaders are transferred among different regions throughout their careers. Geng Yan'bo, the hero in the award-winning documentary *The Chinese Mayor*, served as mayor in four cities before he was promoted as mayor of the provincial capital city of Shanxi province. On average, Chinese mayors and prefecture-level party secretaries of the ruling Communist Party of China (CPC) serve in 2.0 cities, 2.4 local departments, and 7.0 positions at the county level or the equivalent before they are promoted to mayor or prefectural party secretary.[2]

At first glance, transfers and, consequently, short political terms undercut incentives. Canonical models on political agency à la Barro (1973) stipulate government performance as a dynamic moral hazard problem, in which agents may be induced by reelection motives to exert effort and serve the public interest. With a longer time horizon, agents have a higher incentive to pursue the future benefits of holding an office. By contrast, a shorter length of term may render greater uncertainty over the political benefits of enhancing performance and divert politicians' focus toward campaigning for reelection (Dal Bo and Rossi, 2011). Thus, the question: why transfer?

This paper aims to illustrate the logic of bureaucratic transfer in the context of personnel management of local leaders in China. Our analysis suggests that transfers may

[2] A county is an administrative unit one level below prefecture. See section 2 for more details.

play an important role in sponsoring the upward mobility of "good types" and enhancing their capability through exposure to diverse work experiences in multiple jurisdictions and regions. In doing so, the principal invests political human capital in agents who are favorably targeted, for unobserved (by researchers) reasons, as hopeful candidates. In turn, local leaders with richer work experiences before assuming their current position can promote faster economic growth and accumulate an advantage in promotion throughout their future career path. Bureaucratic transfer allows the principal to prioritize certain personal characteristics, presumably including political loyalty, personal connections, and initial capability, and meanwhile maintain meritocracy in political selection.

We use the China Officials Dataset (COD), constructed by the China Center for Economic Research (CCER) at Peking University, to conduct the analyses. With detailed resume information for all officials who served as city leaders between 1994 and 2017, we calculate the total number of cities and departments in which each official has ever served, and use it to measure the richness of their work experience.

The paper organizes several empirical tests on local leaders around the proposed theoretical logic. First, we show that pre-mayor transfer experience is positively correlated with the official's personal contribution to economic performance. The beneficial effects of transfers are moderated by a short-run decline in the economic growth rate for leaders who were newly transferred from other regions. Hence, transfers come with a price.

Second, we analyze the relationship between pre-mayor transfer experience and upward career mobility beyond the prefecture level. We find that transfer experience before mayorship is a significant predictor of the rank of the leader's terminal position. To deal with the potential endogeneity problem, we adopt the provincial average transfer rate and the number of years officials stay at the county level as instrumental variables.

The analysis finds a positive effect of preexisting transfer experience on leaders' final rank upon retirement. Ability is insignificant for promotion when controlling for prior transfer experience.

These findings provide a new theoretical angle for studying political selection, as a supplement to the conventional juxtaposition of performance and political connection. The literature has placed incentive in a central place of personnel management, with abundant empirical evidence linking public officials' stronger reelection or promotion incentive to enhanced government performance and responsiveness (Alt, Bueno de Mesquita, and Rose, 2011; Bertrand, et al, 2019; Besley and Case, 1995; Ferraz and Finan, 2009; Gordon and Huber, 2007; Lockwood and Porcelli, 2013; Smart and Sturm, 2013). In the Chinese context, although public officials are not motivated by electoral mechanisms, there is an overwhelming consensus from the literature that competition for promotion among local leaders may play a key role in facilitating local economic growth (Landry, Lu, and Duan, 2018; Li and Zhou, 2005; Xu, 2011). Although it is disputable whether political promotion is meritocratic or rather an outcome of political patronage (Chen and Kung, 2016; Opper, Nee, and Brehm, 2015; Shih, Adolph, and Liu, 2012), some recent studies reconcile incentives with patronage in shaping the incentive and promotion outcomes (Jia, Kudamatsu, and Seim, 2015; Jiang, 2018).

However, the role of incentives in competition for promotion does not explain why transfers occur. Frequent transfers may be conducive to various kinds of welfare loss for local constituents, including underprovision of local public goods and wasteful spending on "image projects" (Persson and Zhuravskaya, 2016; Chen and Kung, 2016). Some notorious misgovernance problems in China, such as heavy pollution and massive mine accidents, could be partly attributed to the career concerns of local officials (Kahn, Li, and Zhao, 2015; Jia and Nie, 2017). Besides negative effect, transfer could also provide positive incentive to bureaucrats through performance-based post arrangements (Khan

et al., 2019).

In addition to incentives, ability matters. A fundamental consideration of institutional design is how to select candidates whose capability and personal traits best serve the purposes of political organizations (Besley, 2005; Fearon, 1999; Maskin and Tirole, 2004). Positioning the issue of selection in the Chinese context, Yao and Zhang (2015) study city-leader matched data and report large personal effects on local economic growth. Their empirical strategy takes advantage of the relatively high frequency of local leaders' transfers among cities, which allows separate identification of individual and city fixed effects in local growth. This analysis abstracts from the interaction between transfers and the formation of leaders' capability by assuming that capability is a constant term for each individual.

So, what is new in transfers? Briefly put, we understand transfers as opportunities for on-the-job training. Rather than holding a constant capability, officials accumulate more and more political human capital along their career path. Diverse experience in lower-level governments, such as counties and townships, helps officials accumulate generalist skills for dealing with complicated multitasks at higher levels. Transfers across functional departments, such as tax bureau and environmental agencies, invest in officials more intense trainings on specific skills in a particular policy dimension. This framework allows us to study separately naturally endowed initial capability and the acquired capability from work experience. As the pattern of transfers varies in different organizations and over time, the performance of organizations may be endogenously shaped by the institutional design of which agents should be sponsored and how frequent the transfers should be. To the extent that ability is endogenous and accumulates over an official's career path, the incentive scheme is not the only consideration of institutional design (Rasul, et al, 2019).

The logic of bureaucratic transfers as a sponsoring mechanism has general theoretical

importance for organizational design. Thus, this paper speaks to a large literature on the internal labor market in corporations where transfers are widely adopted to identify and sponsor promising managers (Campion et al., 1994; Ortega, 2001; Turner, 1960). Empirical research on the labor market finds that wages are positively associated with labor market experience (Medoff and Abraham, 1980, 1981). In the context of corporate governance, various studies report that having more diverse work experiences enhances managers' corporate performance, and they achieve higher career success at a later stage (Custodio et al., 2013; Frederiksen and Kato, 2017). These findings are consistent with the argument that a more diverse background of work experience represents an endowment of "general human capital," as articulated by Becker (1964) and developed further by Lazear (2005). Largely due to firm heterogeneity and low frequency of moves between corporations by chief executive officers (CEOs), the impact of transfers on organizational performance is difficult to evaluate. Taking advantage of the frequent cross-region transfers of Chinese officials, we overcome the limitation of firm data and systematically examine the impacts of bureaucratic transfers on performance and promotion.

This paper also enriches the literature on the political economy of bureaucratic transfers. The previous arguments in the literature mainly interpret transfers as a mechanism of political control. For example, Iyer and Mani (2011) study the pattern of transfers in the Indian bureaucracy and find that politicians employ frequent lateral transfers as a tool of political patronage. Huang (2002) argues that the CPC uses transfers to improve information acquisition and harmonize interests among regions. Nevertheless, transfers have been an established practice of personnel management for thousands of years. The Regulations on the Transfer of Leading Cadres of the Party and Government, implemented by the CPC in 2016, explicitly maintains that transfers are a design for improving leadership. Is this statement window dressing? Our analyses suggest that the

meritocratic argument about transfers is worth taking seriously. True, distortion is inevitable to the extent that transfer decisions are affected by patronage and concerns about loyalty. However, this cost is largely paid back by the enhanced capability of officials through on-the-job training.

Finally, this study speaks directly to the debate on the prevalence of political meritocracy in China. Although previous research concentrated on the existence of a robust relationship between economic performance and the promotion of local officials, our paper attempts further to pin down the institutional components driving the performance of local leaders. The essential takeaway message from the Chinese context is that performance depends not only on incentives, but also on a diverse set of attributes of agents who are endogenously selected and trained and accumulate experience along their career path as intended by the principal. Taken together, the formation of political human capital and the capability of bureaucrats to produce robust local growth ultimately reflect organizational capacity. To our best knowledge, we are among the first to conceptualize this mechanism and provide empirical evidence in the context of the Chinese bureaucracy.

The paper proceeds as follows. Section 2 provides a discussion of the institutional background and proposes testable hypotheses. Section 3 introduces the data and variables. Section 4 discusses the estimation strategy. Section 5 presents and interprets the empirical results. Section 6 concludes.

2. Institutional background

2.1 Centralized personnel system

China adopted a centralized system of personnel control (Burns, 1987). The overwhelming majority of public bureaucrats are CPC members who are appointed, evaluated, and promoted by the CPC's organization departments through the Communist nomenklatura system. This system consists of five layers of political hierarchy according

to the scope of jurisdiction: center, province, prefecture, county, and township, with the cohabitation of parallel party and administrative branches at each level. A typical public bureaucrat starts his or her career in a relatively low-level position, at the township level or the equivalent, and is transferred among different positions and moved up the ladder of political success. The political economy literature lends some support to a positive association between economic performance and upward mobility (Bo, 2002; Li and Zhou, 2005; Yao and Zhang, 2015); however, a strand of research also suggests the importance of political connections to superiors for the promotion of bureaucrats (Shih, Adolph, and Liu, 2012; Opper, Nee, and Brehm, 2015). Some studies also report that the association between performance and political promotion may depend on different circumstances of political hierarchy and networks (Jia, Kudamastu, and Seim, 2015; Jiang, 2018; Landry, Lu, and Duan, 2018). Shortly put, the accumulated knowledge on political selection in China is inconclusive on identifying a unique path of upward mobility.

Geographically, China consists of 25 provinces, which are further divided into 333 prefectures and 2,851 counties. This study focuses on leaders at the prefecture level, the subordinate unit of the province. There are three types of administrative units at this level, namely (prefecture-level) city, district (*diqu)*, and autonomous district. The median prefecture as of 2018 has 8.6 counties, a population of 3.4 million, and annual gross domestic product (GDP) of US$19.4 billion. Our analyses center around two types of leaders: the prefectural party secretary, who ranks first in the city's party committee, and the mayor, who is the head of prefectural administration and the second most powerful figure in the prefecture. Because a city is the most common type of prefecture-level administrative unit, we use "city leader" to refer to the prefectural leaders in our sample.

Party secretaries and mayors are key policy makers for economic development of the prefectures. Thanks to the decentralized administrative system in China (Xu, 2011), local governments have substantial policy discretion over budget allocation, infrastructure

investment, urban planning, and other development policies. As a result, prefectures may differ significantly in local industrial policies and economic performance due to leadership turnovers (Yao and Zhang, 2015; Baum-Snow et al., 2017). The division of labor between party secretaries and mayors is not entirely clear. In principle, party secretaries control party affairs, such as personnel management and ideological exhortations, and mayors are responsible for administration. In practice, however, almost every important policy issue must be endorsed by the party secretary. The jurisdictions between party secretaries and mayors thus overlap.

2.2 Transfer of local leaders

Job transfer is a significant and understudied feature of China's nomenklatura system. Although only a portion of bureaucrats have the luck of promotion to upper-level positions, transfers are much more common. City leaders, who typically are first appointed as mayor in their early fifties, expect one or two additional transfers to other cities or provincial government positions before reaching retirement age. Prior to the position of city leader, bureaucrats normally have diverse work experiences in different counties and cities, and between different functional departments in city or provincial governments. The personnel management system follows the rule of "managing one level down," that is, decisions about transfers and promotions are made by the CPC's organization departments that are one level above (Naughton and Yang, 2004). Bureaucrats have no power to decide or resist their appointments.

Rotating bureaucrats among different regions and positions has significant consequences for their incentives and performance. A direct downside of frequent reshuffling is that it forces a relatively brief term length for each position (Dal Bó and Rossi, 2011). In turn, bureaucrats who are concerned about their careers must aim to produce quick and visible outcomes rather than exert effort for the development of long-term projects. Moreover, highly frequent transfers constrain bureaucrats' ability to

develop local political networks, and thus render them less accountable to local elites. Persson and Zhuravskaya's (2016) finding that provincial party secretaries moving in from other provinces spend less of the budget on education and health care items is consistent with the second mechanism.

At the same time, enhanced organizational capability balances the costs associated with transfers. The principal may employ a system of transfers to circumscribe corruption, by undercutting bureaucrats' ability to collude with the private sector (Jia and Nie, 2017). The political principal may also take advantage of the transfer system to empower bureaucrats with social and ethnic ties (Iyer and Mani, 2011). In addition, previous work on the Chinese system suggests that the CPC's organization departments may use transfers as a mechanism for scrutinizing the capability of bureaucrats (Yao and Zhang, 2015).

With these caveats in mind, we propose that the transfer of bureaucrats creates the further benefit of training talent, that is, helping leaders acquire important governing capability through exposure to diverse work experiences in different regions, positions, and functional departments. This mechanism is consistent with a large body of theoretical and empirical literature on political economy and management, according to which the acquisition of general skills is an inherent component of leadership in organizations. Emphasizing the importance of public sector experience for politicians, Besley (2005) argues that "political competence is probably a complex mix of skills." Lazear (2009) studies a theoretical model in which the capability of corporate CEOs stems from a weighted average of diverse skills. Custodio et al. (2013) follow this paradigm and report a large salary premium for CEOs of the generalist type. Shi, Xi, and Yao (2018) employ panel data to show that diverse pre-tenure work experience of national leaders is associated with stronger economic growth. Extending the argument to prefectural leaders in China establishes the following relationship between transfers and capability:

Hypothesis 1: Transfer experiences among different jurisdictions and across functional departments are positively associated with officials' capability.

Official documents have consistently emphasized the instrumental role of transfers in training bureaucrats. The Opinions on Establishing Provincial and Ministerial Reserve Cadres System, which was released in 1983, clearly states that it is necessary for cadres to have experience in the departments and localities and skills for professional and leadership positions. In 1992, it was pointed out that "cadres should be transferred to the coastal open areas or areas with more difficult conditions to exercise," "to fully utilize the advantages of open areas and special economic zones, and train outstanding talents for modern construction." In 2002, a new instruction from the Organization Department of the CPC maintained that, "it is necessary to test the cadres in position in the central city, the important comprehensive department of the party and government … the main leadership positions of the party and government as well as the hard region." Finally, in 2006, the Regulations on the Transfer of Leading Cadres of the Party and Government stated specifically that an important role of the transfer of cadres is to improve their leadership skills.

How do transfers interplay with political promotions? Bureaucrats are heterogeneous in their backgrounds, initial capabilities, and potential for promotion. The Organization Department may implement different rules for transfers according to the fundamental goals of personnel management. Suppose that, in an extreme case, the provincial superiors only care about the aggregate performance of all the prefectures in their jurisdiction. In this case, the principal should increase the probability of transfer for all the bureaucrats with the largest expected growth of personal capability, to the extent that the marginal benefit of transfers equals the marginal cost associated with leadership turnovers for the whole organization. Depending on the correlation between an official's

initial capability and the marginal increase in capability per transfer experience, the principal may prefer first to rotate the bureaucrats with the highest or lowest initial capabilities.

At the same time, the principal may also care about the capability and performance of promoted bureaucrats, who are likely to be the successors of provincial leaders. This second motive gives rise to a tendency of preferentially rotating and promoting the bureaucrats with the highest initial capabilities. In this case, initial capabilities and transfer experiences are complementary to each other in driving the probability of promotion to a provincial position. The personnel system has a feature of sponsored mobility for forerunners, as defined by Turner (1960). Otherwise, when the principals are concerned with the performance of the prefectures today and the capabilities of provincial leaders tomorrow, as they often are, the set of transferred bureaucrats should fall somewhere in the middle range of the talent pool.

Moreover, the optimal pattern of transfers may be complicated by other concerns of the principals, including personal connections. In the special case when all the bureaucrats are homogeneous in initial capability but different in their personal connections to provincial leaders, the chance of transfer will be first assigned to the connected bureaucrats. Because transfer experience increases capability, this model of personnel management features a complementarity between performance and personal connections in driving the promotion of prefectural leaders, similar to that described in Jia, Kudamatsu, and Seim (2015). But with the presence of heterogeneity in capabilities and personal connections, the mechanism of transfers is a mix of the special cases sketched above. To the extent that the personal connections and capabilities of future provincial leaders are important considerations of the personnel system, transfer experience should be positively associated with the probability of promotion. Meanwhile, the relationship between capability and promotion may be ambiguous, due to the

endogenous feature of capability. The following hypothesis summarizes this reasoning:

Hypothesis 2: Transfer experiences are positively associated with the probability of promotion for prefectural leaders.

3. Data and variables

3.1 Definitions

For the empirical analysis, we rely on a comprehensive data set on Chinese bureaucrats constructed by the research team at CCER (the COD). The data are from the biographic profiles of more than 5,000 bureaucrats who served at the prefecture level or above between 1994 and 2017. The COD documents bureaucrats' education backgrounds and initial careers, and the details of each position after the bureaucrats were promoted to a county-level leadership position. For the purpose of this research, we focus on prefectural mayors and party secretaries.

3.1.1 Transfer Experience

The main variables of interest in this research concern transfer experience. Prefectural leaders follow diverse career paths prior to the positions of mayor and party secretary. Some started from local grass roots work and moved up by taking small steps, serving first as administrative heads of townships and counties. Some started in the functional departments of provincial governments and were later appointed to preside over counties and cities. Many have extensive experience working in multiple prefectures as vice mayors or vice party secretaries. Although most of the bureaucrats' transfer experiences are confined within the same province, some were transferred from other provinces or the central government. We construct several measures to capture the multifaceted transfer experience.

Exp_Type focuses on the types of bureaucratic positions served by a prefectural leader. We define this variable as the sum of a set of dummy variables that indicate whether a

prefectural leader served in the following types of bureaucratic positions prior to the position of mayor or party secretary: (a) vice mayor or vice party secretary in a prefecture; (b) head of a functional department in a prefectural government or equivalent; (c) vice head of a functional department in a provincial government or equivalent; (d) any position in a functional department in the central government; and (e) any position in the Communist Youth League at the prefecture, province, or central level. This variable aims to capture the effect of endogenous acquisition of political human capital through exposure to different types of work experiences.

Exp_Pos extends the definition of *Exp_Type* to consider the variety of positions for each type. Experience in the fiscal bureau provides an official different human capital than experience in the environment bureau. To this end, we construct *Exp_Pos* as the sum of the following count variables (number of cities or positions) for an official's prior work experience in a prefecture: (a) cities where the official has worked as vice mayor or vice party secretary of a prefecture; (b) department positions in a prefectural government; (c) department positions in a provincial government; (d) department positions in the central government; and (e) Communist Youth League positions at the prefecture, province, or central level. *Exp_Cty* adds to the value of *Exp_Type* another binary indicator on previous experience as a county mayor or county party secretary. *Exp_All* adds to *Exp_Pos* the number of counties where the official worked as a county mayor or party secretary.

In addition to pre-mayor transfers, bureaucrats are transferred across cities as mayors or party secretaries. *Transfer_Prefecture* is obtained by summing the number of prefectures to which the leader was transferred to serve as a mayor or prefectural party secretary. In section 5.3, we show that *Transfer_Prefecture* is strongly correlated with pre-mayor transfer experience.

According to Table 1, the average city leader worked in 1.7 different organizations

(*Exp_Type*) before taking the city leader position; the number becomes 2.1 when taking county leader positions into consideration (*Exp_Cty*). The average transfer frequency is higher when we look at the intensive measurement of transfers (with *Exp_Pos* being 2.1 on average and *Exp_All* being 2.6 on average).

3.1.2 Ability

According to the argument presented in section 2.2, ability accumulates over time and is a function of transfer experience. Hence, the ability of a prefectural leader upon taking the position should be positively associated with his or her diverse transfer experiences prior to the current position. To measure the ability of prefectural leaders, we adopt the strategy proposed by Yao and Zhang (2015) to estimate the effects of leaders' personal characteristics on economic growth. This approach takes advantage of frequent lateral transfers among prefectures and disentangles the prefecture fixed effects and personal effects in a growth estimation. Specifically, we use the following equation to estimate the annual growth rate of GDP:

$$\mathbf{Growth_{ict} = \beta_1 \ln(GDP\_per_{ict-1}) + \beta_2 \ln(Pop_{ict}) + \alpha_c + \eta_t + \omega_i + \varepsilon_{ict}} \qquad (1)$$

In the estimation, $Growth_{ict}$ is the rate of growth of real per capita GDP of city c under the governance of leader i during year t. $\ln(GDP\_per_{ict-1})$ is the logarithm of per capita GDP in the previous year. $\ln(Pop_{ict})$ is the logarithm of the prefecture population. α_c is the city fixed effect. η_t is the year fixed effect. ω_i is the leader's personal fixed effect. ε_{ict} is the term of random disturbance. The identification of leaders' effects comes from transfer experiences across prefectures, which allows us to estimate separately the contributions of individual leaders and cities. Suppose that leaders' ability remains unchanged after they are promoted to the prefecture level. An econometrician can compare and rank the abilities of leaders in two different cities that are connected by a transferred bureaucrat. Reiterating this procedure, we can construct a set of prefectures that are connected through transferred leaders. The largest connected sample contains

2,401 leaders in 267 cities over 1994–2017. Due to missing information, the final sample used for the empirical investigation reduces to 2,047 individuals.[3] This accounts for 70 percent of the prefectural leaders in the data set. Figure A1 suggests that there is wide dispersion in the estimates of leaders' abilities.

3.1.3 Political promotion

The data we use have the advantage of tracking the entire career paths of the bureaucrats. This allows us to take a long-term perspective in examining their career achievements, as indicated by the highest-ranking positions they achieved upon retirement. For this purpose, we focus on bureaucrats who are beyond the age limit for promotion, to avoid the sample truncation problem.[4] We define *Final_Rank* as a categorical variable as the following: 1, prefecture level; 2, sub-province level; 3, province level; 4, sub-national level; and 5, national level. As Table 1 shows, among the officials who were over age 57 in 2017, nearly 45 percent of the prefectural leaders acquired another position of higher rank throughout their career. About 37 percent stayed at the sub-province level. Slightly less than 8 percent reached the province level or higher.

3.1.4 Other variables

We control a set of biographic variables that are potentially correlated with bureaucrats' ability and promotion. The variables include dummies indicating that the leader was a *female* and had *education* level of college degree or above. We also consider *Rural Experience*, which indicates whether the individual had migration experience in the countryside as an educated youth in the 1960s or 1970s, as a confounding variable of ability. To address the problem that the effect of transfers on promotion may be confounded by the influence of political patronage, we construct the measure *Connection*. The variable follows Meyer et al. (2015) to define the personal connections of prefectural

[3] Among the prefectural party secretaries, 451 served as a mayor during the sample period.

[4] Chinese bureaucrats face a binding retirement age, which is 60 for prefectural leaders and 65 for provincial leaders. Because the transfer rules of the CPC's organization departments require that officials complete a three-years term before being promoted or transferred, prefectural leaders over age 57 would normally be considered lame ducks and expect retirement at age 60.

leaders according to broad political ties, that is, whether the leader worked within the ministerial-level jurisdiction of the provincial party secretary in the same year within two administrative steps. Finally, we control for *City Age,* the official's age when he or she was first promoted to a position at the prefecture level. Table 1 provides the summary statistics for the key variables.

Table 1: Summary Statistics

	Full sample			Subsample (age > 57)		
Variable	N	Mean	St. dev.	N	Mean	St. dev.
			Final rank			
Final Rank	2,047	1.45	0.63	1,214	1.56	0.7
National	2,047	0.00	0.04	1,214	0.00	0.05
Sub-national	2,047	0.01	0.08	1,214	0.01	0.11
Provincial	2,047	0.05	0.21	1,214	0.07	0.26
Sub-provincial	2,047	0.33	0.47	1,214	0.37	0.48
Prefecture	2,047	0.62	0.49	1,214	0.54	0.50
			Transfer experience			
Exp_Type	2,047	1.67	0.86	1,214	1.61	0.82
Exp_Pos	2,047	2.05	1.18	1,214	1.93	1.11
Exp_Cty	2,047	2.13	0.95	1,214	2.09	0.91
Exp_All	2,047	2.61	1.30	1,214	2.48	1.20
Type_Avg	2,047	1.66	0.46	1,214	1.60	0.45
Pos_Avg	2,047	2.04	0.67	1,214	1.90	0.62
Cty_Avg	2,047	2.07	0.53	1,214	2.00	0.51
All_Avg	2,047	2.54	0.75	1,214	2.37	0.68
Ability	2,047	0	4.00	1,214	-0.31	4.12
Female	2,047	0.05	0.21	1,214	0.03	0.18
Education	2,047	0.53	0.50	1,214	0.48	0.50
Rural Experience	2,047	0.16	0.37	1,214	0.25	0.43
City Age	2,047	48.07	4.32	1,214	48.24	4.24
Connection	2,047	0.02	0.15	1,214	0.02	0.15
County Year	2,047	12.65	4.20	1,214	11.85	4.20
GDP	13,746	88.32	145.85			
Population	13,746	370.48	241.76			

Note: This table shows the summary statistics of the main variables. The unit of observation is at the individual level except that gross domestic product (GDP) and Population are city-year-level data. The full sample includes all the officials who served as mayor or city party secretary between 1994 and 2017, while the subsample (age > 57) only includes officials who were over age 57 in 2017 in the full sample. National = 1 if a prefectural leader's highest political rank reached the national level, otherwise 0. The same goes for the rest of the variables in Final Rank. Exp_Type = whether the official served as vice mayor or vice party secretary in a prefecture + whether the official worked in a functional department in a prefectural government + whether the official worked in a functional department in a provincial government + whether the official worked in a functional department in the central government + whether the official worked in the Communist Youth League at the prefecture, province, or central level. Exp_Pos = number of cities in which the official worked in vice mayor or vice party secretary positions + number of functional department positions in a prefectural government + number of functional department positions in a provincial government + number of functional department positions in the central government + number of the Communist Youth League positions at the prefecture, province, or central level. Exp_Cty = Exp_Type + whether the official served as county mayor or county party secretary. Exp_All = Exp_Pos + number of counties in which the official worked as county mayor or party secretary. Type_Avg, Pos_Avg, All_Avg, and Cty_Avg correspond to the average transfer experience (Exp_Type, Exp_Pos, Exp_Cty, Exp_All) of other city leaders in the same province in the same year, respectively. Female = 1 if the official is female, otherwise 0. Education = 1 if the official has a college degree or above. Rural Experience = 1 if the official worked in the countryside or mountain areas as an educated youth in the 1960s or 1970s. City Age = age when the city leader first took over the prefecture-level position. Connection = 1 if the city leader worked in the same province-level unit in the same year as the provincial party secretary before he or she took the first leadership position, otherwise 0. GDP (unit: billion yuan) = city-level GDP. Population (unit: 10,000) = city-level population.

3.2 Aggregate patterns

Figure 1 provides the intuition about the importance of transfer experience for the final rank of officials. We divide the city leaders into two groups according to their transfer frequency before leadership: low-frequency group (below median level) and high-frequency group (above median level). The horizontal axis represents the year when a city leader first took city leadership, and the vertical axis shows the average terminal rank of the officials who first took leadership in the same year. It appears that prefectural leaders with more frequent transfer experience reach higher terminal ranks compared with those with less frequent transfer experience in most year-cohorts.

Figure 1: Final Rank: High- versus Low-Frequency Pre-Mayor Transfers

Note: The figure shows the trend of average final rank of city leaders who were born before 1959. We divide city leaders into two groups according to their transfer frequency before leadership (*Exp_Type*): low-frequency group (below median level, represented by the solid line) and high-frequency group (above median level, represented by the dashed line). Each point represents the average final rank of all city leaders who took city leadership for the first time in the year indicated by the horizontal axis.

Figure 2 suggests that the pattern of correlation between transfers and promotions extends further to prefecture-level positions. Dividing the prefectural leaders into two groups according to their transfer experiences as prefectural leaders across different regions per year, we find that more frequently transferred leaders had a higher chance of promotion to a higher final position. The only exceptions occurred in a few years in the 1990s and in 2009. We attribute the discrepancy to a small number of stars who were promoted much faster than their peers were and did not have many transfers at the prefecture level.

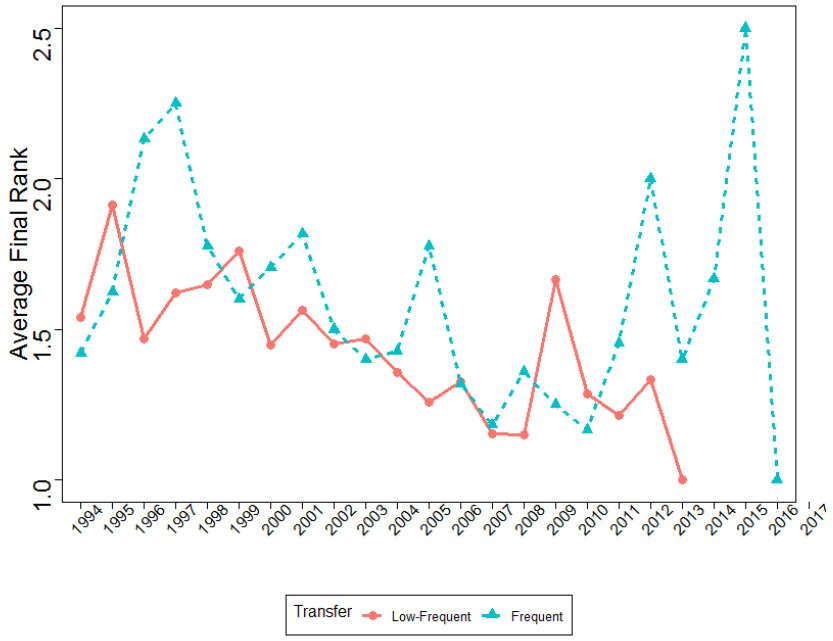


Figure 2: Final Rank: High- versus Low-Frequency Prefectural Transfers

Note: The figure shows the trend of average final rank of city leaders who were born before 1959. We divide city leaders into two groups according to their transfer frequency in city leadership positions (*Transfer_Prefecture*): low-frequency group (below median level, represented by the solid line) and high-frequency group (above median level, represented by the dashed line). Each point represents the average final rank of all city leaders who took city leadership for the first time in the year indicated by the horizontal axis.

4. Estimation strategy

4.1 Testing Hypotheses 1 and 2

Hypothesis 1 maintains that transfer experience enhances prefectural leaders' abilities. We use the point estimates of personal effects obtained by equation (1) as a proxy for ability. A bureaucrat's likelihood of transfer may be influenced by the CPC Organization Department's belief about his or her ability. To deal with this problem, we concentrate on exploiting the variation in earlier transfer experiences, as discussed in section 2.2. This approach renders a credible identification strategy for the relationship between transfer and ability, provided that the heterogeneity in initial ability among bureaucrats is not too large. Specifically, we estimate the following ordinary least squares (OLS) model:

$$\mathbf{Ability_{i(p)} = \alpha + \beta\, Experience_i + H\, Z_i + \varepsilon_i} \quad (2)$$

In equation (2), the dependent variable measures the ability of leader i initially serving in province p. On the right-hand side of the equation, α is the constant term. The main variable of interest is $Experience_i$, as discussed in section 3.1. Z_i is a set of variables of individual characteristics, including *female*, *education level*, and *rural experience*.

The second hypothesis predicts that transfer experience enhances the likelihood of promotion. Using the highest ranks of bureaucrats throughout their careers as a proxy for promotion potential, we can use the following linear probability model to test Hypothesis 2:

$$\boldsymbol{Final\_Rank_{i(p)} = a + \theta\, Experience_i + \zeta\, Ability_i + \Gamma Z_i + T_i + P_i + \sigma_i} \quad (3)$$

In equation (3), the dependent variable is the categorical variable *Final_Rank*, which takes value r = {1, 2, 3, 4, 5}. On the right-hand side, **a** is the constant term. The main variables of interest are $Experience_i$ and $Ability_i$, which follow the same definitions as before. Z_i includes individual characteristics, including gender, education level, and political connections. T_i corresponds to a set of cohort dummies according to leaders' year of first promotion. P_i represents a set of province dummies indicating the province where the officials were first promoted to the city leadership position. σ_i is the term of random disturbance. We also estimate ordered logit models as a robustness check.

4.2 Instrumental variable estimation

The OLS estimations may be biased due to unobserved factors that are simultaneously correlated with transfer experience and economic performance, which is a base for evaluating leader effects. Importantly, initial ability at the entry level may lead to an upward or downward bias, depending on the transfer mechanism set by the principal. We adopt two instrumental variables for pre-mayor transfer experience to address the endogeneity concern. The first instrument is the average number of transfers of all the

other prefectural leaders serving in the same province in the same year. The identification assumption is that the superior party organization departments decide the frequency and pattern of transfers for subordinate bureaucrats and, thus, a higher frequency of transfers in an official's peer group tends to create more vacancies and increases the probability that the official is transferred. Meanwhile, the transfer of peers is uncorrelated with an official's ability and the likelihood of promotion, which hinges primarily on the relative performance evaluation and competition among cadres in the same cohort.

The second instrument is the number of years officials have served in county-level (or equivalent) cadre positions. Intuitively, the longer an official stays at the county level, the greater is the number of positions to which he or she may be transferred. The exclusion restriction is satisfied under the condition that the total length of serving at the county level is uncorrelated with the official's ability. This assumption is violated when superiors identify bureaucrats with higher initial ability and promote them earlier. However, the mechanism implies a potentially negative relationship between ability and years spent at the county level; thus, it may lead to underestimation of the effect of pre-mayor transfers as stated by Hypothesis 1. With this caveat in mind, we adopt the following specification for the first-stage estimation of equation (2):

$$\widehat{Experience}_i = c + \eta\, Avg.Experience_{\{p-i\}} + \delta County\_year_i + e_i \quad (4)$$

Applying the results of equation (4) to equations (2) and (3), we can recursively estimate the determinants of officials' final rank through two-stage least squares estimation as specified by the following equations:

$$\begin{cases} Final\_Rank_{i(p)} = \mathbf{a}' + \boldsymbol{\theta}'\ Experience_i + \boldsymbol{\zeta}'\ Ability_i + \boldsymbol{\Gamma}'\mathbf{Z_i} + \mathbf{T}'_{\mathbf{i}} + \boldsymbol{\sigma}'_{\mathbf{i}} \\ Ability\_\mathbf{i} = \boldsymbol{\alpha}' + \boldsymbol{\beta}'\ Experience_i + \mathbf{H}'\mathbf{Z_i} + \boldsymbol{\varepsilon}'\mathbf{i} \\ \widehat{Experience}_i = c + \eta\ \mathbf{Avg}.Experience_{\{p-i\}} + \delta\ County\_year_i + e_i \end{cases}$$

5. Results

5.1 OLS results

Table 2 reports the OLS estimates for equation (2). The dependent variable is ability for each individual leader, obtained from panel regression of equation (1). We do not control year or region dummies, as they are already smoothed in estimating relative ability. In columns (1) to (4), we adopt four alternative measures of transfer experience. As is evident from Table 2, each measure of the transfer index is significantly positively associated with ability. For example, an increase of one standard deviation in *Exp_Pos* is associated with a 5 percent standard deviation increase in the relative ability of bureaucrats.[5] In addition, high educational attainment seems to be positively associated with economic performance. Gender and rural migration experience do not make a precise difference for the ability of prefectural leaders.

Table 2: OLS Estimates for Ability

	(1)	(2)	(3)	(4)
	Dependent variable: Ability			
Exp_Type	0.189*			
	(0.102)			
Exp_Pos		0.184**		
		(0.072)		
Exp_Cty			0.194**	
			(0.095)	
Exp_All				0.177**
				(0.068)
Female	-0.543	-0.551	-0.522	-0.520
	(0.502)	(0.504)	(0.501)	(0.501)
Education	0.307*	0.306*	0.353**	0.356**
	(0.177)	(0.177)	(0.177)	(0.177)
Rural Experience	-0.034	-0.030	-0.025	-0.009
	(0.233)	(0.233)	(0.233)	(0.233)
Obs	2,047	2,047	2,047	2,047

[5] (1.18*0.184)/4=0.05425.

Adjusted R-squared	0.002	0.003	0.002	0.003

Note: This table presents the OLS results for ability. The unit of observation is at the individual level. The sample includes officials who served as city leaders during 1994–2017. Ability represents the individual's contribution to economic growth. Exp_Type = whether the leader served as vice mayor or vice party secretary in a prefecture + whether the leader worked in a functional department in a prefectural government + whether the leader worked in a functional department in a provincial government + whether the leader worked in a functional department in the central government + whether the leader worked in the Communist Youth League at the prefecture, province, or central level. Exp_Pos = number of cities in which the leader worked in vice mayor or vice party secretary positions + number of functional department positions in a prefectural government + number of functional department positions in a provincial government + number of functional department positions in the central government + number of Communist Youth League positions at the prefecture, province, or central level. Exp_Cty = Exp_Type + whether the leader served as county mayor or county party secretary. Exp_All = Exp_Pos + number of counties in which the leader worked as county mayor or party secretary. Education = 1 if the leader has a college degree or above, otherwise 0. Female = 1 if the official is female, otherwise 0. Rural Experience = 1 if the official worked in the countryside or mountain areas as an educated youth in the 1960s or 1970s, otherwise 0. Robust standard errors are reported in parentheses. *p < 0.1; **p < 0.05; ***p < 0.01.

Table 3 reports the effects of transfer experience and ability on final rank, as obtained from OLS estimations. To alleviate the truncation problem, we only include officials who were over age 57 in 2017.[6] Columns (1) to (4) report linear estimates for all four alternative measures.[7] Although the coefficients are positive for several specifications, showing that bureaucrats with more transfer experience prior to the prefectural leader positions on average reached higher-level positions compared with those with less experience, such effects are imprecisely estimated in the OLS specification. In columns (5) to (8), we additionally control for ability as a robustness check and find similar results for transfer experience. Interestingly, the coefficient of ability is small and insignificant. This result suggests that the effect of strong economic performance on promotion may be nested by transfers, which are likely a mechanism employed by superiors to sponsor the promotion of bureaucrats.

The estimates suggest some notable patterns. First, female leaders are on average more

[6] We estimate the determinants of final rank using the full sample as a robustness check and obtain similar results. The results are reported in Table A4 in the appendix.

[7] The estimates using ordered logit models are reported in Table A1 in the appendix.

capable of moving to high-level positions compared with males. This is not a surprising result in light of the underrepresentation of females in the cadres and the resulting "Jackie Robinson" effect common in political competition (Anzia and Berry, 2011). Second, age at first appointment as a prefectural leader is negatively associated with final rank. This again is an unsurprising result, considering that all bureaucrats face a binding retirement age limit. Controlling *City_Age* helps alleviate the estimation bias due to the influence of political favoritism that simultaneously gives rise to limited transfer experience and a higher final rank. Third, we find that officials' personal connections are positively associated with final rank; however, the effect is not precisely estimated. The noisy estimate for personal connections may be due to frequent turnover of provincial leaders, which neutralizes political patronage. Nevertheless, controlling personal connections alleviates the concern that some bureaucrats are more frequently transferred only because they are connected to provincial leaders.

Table 3: Transfer, Ability, and Final Rank: OLS Results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent Variable: Final Rank							
Exp_Type	0.038				0.038			
	(0.023)				(0.023)			
Exp_Pos		0.037**				0.037**		
		(0.017)				(0.017)		
Exp_Cty			-0.006				-0.006	
			(0.021)				(0.021)	
Exp_All				0.003				0.003
				(0.016)				(0.016)
Ability					0.009	0.009	0.009	0.009
					(0.006)	(0.006)	(0.006)	(0.006)
Connection	0.071	0.059	0.091	0.086	0.081	0.068	0.101	0.096
	(0.122)	(0.124)	(0.123)	(0.123)	(0.121)	(0.123)	(0.122)	(0.122)
City Age	-0.062***	-0.062***	-0.062***	-0.062***	-0.062***	-0.062***	-0.062***	-0.062***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Female	0.257**	0.261**	0.270**	0.269**	0.265**	0.269**	0.278**	0.277**

	(0.101)	(0.101)	(0.100)	(0.100)	(0.101)	(0.101)	(0.100)	(0.100)
Education	0.078**	0.078**	0.077**	0.079**	0.079**	0.078**	0.078**	0.080**
	(0.037)	(0.037)	(0.037)	(0.037)	(0.037)	(0.037)	(0.037)	(0.037)
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214
Adjusted R^2	0.231	0.232	0.229	0.229	0.232	0.233	0.230	0.230

Note: This table presents the OLS results for Final_Rank. The unit of observation is at the individual level. The sample includes city leaders who were over age 57 in 2017. Exp_Type = whether the leader served as vice mayor or vice party secretary in a prefecture + whether the leader worked in a functional department in a prefectural government + whether the leader worked in a functional department in a provincial government + whether the leader worked in a functional department in the central government + whether the leader worked in the Communist Youth League at the prefecture, province, or central level. Exp_Pos = number of cities in which the leader worked in vice mayor or vice party secretary positions + number of functional department positions in a prefectural government + number of functional department positions in a provincial government + number of functional department positions in the central government + number of Communist Youth League positions at the prefecture, province, or central level. Exp_Cty= Exp_Type + whether the leader served as county mayor or county party secretary. Exp_All = Exp_Pos + number of counties in which the leader worked as county mayor or party secretary. Final_Rank = highest political rank the leader achieved during his or her whole career. Ability = leader's contribution to economic growth. Education = 1 if the leader has a college degree or above, otherwise 0. Female = 1 if the official is female, otherwise 0. City Age = age when the leader first had a city-level position. Connection = dummy to show whether the leader has a colleague relationship with the provincial party secretary. Columns (1) to (4) show the results of OLS estimation without controlling for ability, and columns (5) to (8) show OLS results after controlling for ability. Year dummies = year when the official first took the city leader position. Province dummies = province where the official was promoted to city leadership for the first time. Robust standard errors are reported in parentheses. * p < 0.1; **p < 0.05; ***p < 0.01.

Table 4 reports the results of the ordered logit model. They are broadly similar to the results of the OLS model. The most significant different result is that now Exp_Type is also significant. Table A1 presents the marginal effects for the estimates of columns (5) – (8). As shown by the results for Exp_Type, all other things being equal, an official with four transfers is 9.5 percentage points more likely than an official with only one transfer to reach vice provincial or higher positions. This accounts for almost one third of the total probability of a city official to get promoted to the vice provincial level.

Table 4: Ordered Logit Results for Final Rank

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Dependent Variable: Final Rank							
Exp_Type	0.166**				0.166**			
	(0.082)				(0.082)			
Exp_Position		0.150**				0.150**		
		(0.062)				(0.062)		
Exp_County			-0.016				-0.017	
			(0.073)				(0.074)	
Exp_All				0.011				0.011
				(0.058)				(0.058)
Ability					0.013	0.013	0.013	0.013
					(0.018)	(0.018)	(0.018)	(0.018)
Connection	0.256	0.202	0.338	0.324	0.269	0.216	0.352	0.338
	(0.414)	(0.423)	(0.414)	(0.417)	(0.413)	(0.422)	(0.412)	(0.416)
City Age	-0.221***	-0.222***	-0.220***	-0.221***	-0.220***	-0.221***	-0.220***	-0.220***
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
Female	0.805**	0.826**	0.854**	0.851**	0.820**	0.841**	0.870**	0.866**
	(0.281)	(0.281)	(0.275)	(0.275)	(0.283)	(0.284)	(0.277)	(0.277)
Education	0.195	0.195	0.196	0.202	0.198	0.198	0.198	0.205
	(0.129)	(0.129)	(0.129)	(0.129)	(0.129)	(0.129)	(0.129)	(0.129)
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214

Note: This table presents the ordered logit results for Final_Rank. The unit of observation is at the individual level. The sample includes officials who were over age 57 in 2017. Exp_Type = whether the leader served as vice mayor or vice party secretary in a prefecture + whether the leader worked in a functional department in a prefectural government + whether the leader worked in a functional department in a provincial government + whether the leader worked in a functional department in the central government + whether the leader worked in the Communist Youth League at the prefecture, province, or central level. Exp_Pos = number of cities in which the official worked in vice mayor or vice party secretary positions + number of functional department positions in a prefectural government + number of functional department positions in a provincial government + number of functional department positions in the central government + number of Communist Youth League positions at the prefecture, province, or central level. Exp_Cty = Exp_Type + whether the official served as county mayor or county party secretary. Exp_All = Exp_Pos + number of counties in which the official worked as county mayor or party secretary. Final_Rank = highest political rank the official achieved during his or her whole career. Ability = official's contribution to economic growth. Education = 1 if the official has a college degree or above, otherwise 0. Female = 1 if the official is female, otherwise 0. City Age = official's age when

he or she first held the city-level position. Connection = dummy that shows whether the official has a colleague relationship with the provincial party secretary Year dummies = year when the official first took the city leader position. Province dummies = province where the official was promoted to city leadership for the first time.. Columns (1) to (4) show the results of ordered logit estimation without controlling for ability, and columns (5) to (8) show the results of ordered logit estimation after controlling for ability. The results shows that on all other things being equal, officials with higher transfer experience tend to have higher level of final rank. Robust standard errors are reported in parentheses. *p < 0.1; **p < 0.05; ***p < 0.01.

5.2 Instrumental variable estimations

The results presented in Table 2-4 warrant further investigation. Specifically, the OLS and ordered-logit estimates may be biased due to unobservable factors correlated with the information-eliciting role of the transfer mechanism. Bureaucrats differ in their prevalence in the promotion competition. The CPC's central leadership may already know some officials well and shortlist them for future promotion. For those stars, the central or provincial leadership does not need to rely on economic performance to make a strong case for promotion. It is possible that the stars deviate from the majority of the bureaucrats in their career paths, having relatively fewer local transfer experiences and a higher probability of promotion. Pooling stars with ordinary officials, who rely on transfers as a sponsoring mechanism, may dilute the main effect of transfers for the promotion of officials.

Following the discussion in section 4.2, we adopt average transfer experience indexes of the incumbent leaders' peer group and the official's total years spent in pre-mayor positions as instrumental variables. Table 5 uses the instrumental variable (IV) approach to obtain estimates for ability. The coefficients are significantly positive and have a larger size. An increase of one standard deviation in *Exp_Pos* is associated with a 0.14 standard deviation increase in the relative ability index. The IV estimations report larger effects of transfers on ability. The instrumental variables are jointly significant determinants for the experience indexes.

Table 5: IV Results for Ability (2SLS)

	(1)	(2)	(3)	(4)
	Panel A: Second Stage of Ability			
Exp_Type	0.653*			
	(0.356)			
Exp_Pos		0.471**		
		(0.210)		
Exp_Cty			0.645*	
			(0.366)	
Exp_All				0.381**
				(0.193)
	Panel B: First Stage of Ability			
	Exp_Type	Exp_Pos	Exp_Cty	Exp_All
Type_Avg	0.0590			
	(0.040)			
Pos_Avg		0.135***		
		(0.039)		
Cty_Avg			0.0189	
			(0.040)	
All_Avg				0.120**
				(0.039)
County Year	0.0603***	0.0977***	0.0593***	0.106***
	(0.005)	(0.006)	(0.005)	(0.007)
Klei-Paap F stat	99.87	155.1	70.87	139.9
Anderson LM stat	152.8	214.9	116.4	199.3
Hansen J stat	0.465	5.403	0.142	0.909
Obs	2,047	2,047	2,047	2,047

Note: This table presents the two-stage least squares results for ability. The unit of observation is at the individual level. The sample includes officials who served as city leaders during 1994–2017. Panel A shows the results of the second stage. Panel B shows the results of the first stage. Exp_Type = whether the leader served as vice mayor or vice party secretary in a prefecture + whether the leader worked in a functional department in a prefectural government + whether the leader worked in a functional department in a provincial government + whether the leader worked in a functional department in the central government + whether the leader worked in the Communist Youth League at the prefecture, province, or central level. Exp_Pos = number of cities in which the official worked in vice mayor or vice party secretary positions + number of functional department positions in a prefectural government + number of functional department positions in a provincial government + number of functional department positions in the central government + number of Communist Youth League positions at the prefecture, province, or central level. Exp_Cty = Exp_Type + whether the official served as county mayor or county party secretary. Exp_All = Exp_Pos +

number of counties in which the official worked as county mayor or party secretary. Type_Avg, Pos_Avg, Cty_Avg, and All_Avg represent the provincial average transfer experience of Exp_Type, Exp_Pos, Exp_Cty, and Exp_All respectively. County_Year is the number of years the official spent in his or her county or vice prefecture–level position. Female, Education, and Rural Experience are controlled in all regressions. Klei-Paap F statistics show that the null hypothesis of underidentification is rejected in all regressions, that is, the instruments satisfy the relevance assumption. Anderson LM statistics show that the instruments are not weak. Hansen J statistics indicate that the instruments are uncorrelated with the error term, except in column (2). Robust standard errors are shown in parentheses. *p < 0.1; **p < 0.05; ***p < 0.01.

We employ a similar IV approach to estimate the effects of transfer experience on promotion. Table 6 presents the results for the 2SLS estimation.[8] The IV estimations obtain more statistically significant results. In fact, all measures of transfer experience are significantly positively associated with the final rank of prefectural leaders, and the measures explain about 25 percent of the variation in *Final_Rank*. Ability has a positive, nevertheless small and sometimes insigificant, effect on final rank. The essential message delivered by the results in Tables 4 and 5 is that transfer experience is instrumental for enhancing ability and promotion. For promotion, however, premayor transfer experience seems to contribute more than ability does. A plausible interpretation of this result is that increasing ability is a byproduct of the transfer scheme, but not vice vesa. *City_Age* remains negatively correlated with final rank, suggesting that an early mover advantage does exist for bureaucrats competing for promotions, once we account for the correlation between transfer experience and officials' age.

[8] Tables A2 in the appendix reports the IV estimates for the ordered logit model using the control function approach proposed by Wooldridge (2007), table A3 presents the predicted probability distribution of each rank in different transfer levels according to the results of table A2.

Table 6: IV Results for Final Rank (2SLS)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Panel A: Second Stage of Final Rank							
Exp_Type	0.225**				0.221**			
	(0.101)				(0.100)			
Exp_Pos		0.148**				0.147**		
		(0.065)				(0.064)		
Exp_Cty			0.238**				0.234**	
			(0.116)				(0.115)	
Exp_All				0.159**				0.158**
				(0.071)				(0.070)
Ability					0.009	0.010*	0.008	0.009
					(0.006)	(0.006)	(0.006)	(0.006)
Connection	-0.013	-0.032	0.002	-0.031	-0.001	-0.020	0.012	-0.020
	(0.126)	(0.131)	(0.129)	(0.135)	(0.125)	(0.130)	(0.128)	(0.134)
City Age	-0.062***	-0.063***	-0.064***	-0.065***	-0.061***	-0.062***	-0.064***	-0.065***
	(0.006)	(0.005)	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)
	Panel B: First Stage of Final Rank							
	Exp_Type	Exp_Pos	Exp_Cty	Exp_All	Exp_Type	Exp_Pos	Exp_Cty	Exp_All
Type_Avg	-0.105*				-0.106*			
	(0.054)				(0.054)			
Pos_ Avg		-0.078				-0.078		
		(0.055)				(0.055)		
Cty_ Avg			-0.143**				-0.143**	
			(0.056)				(0.056)	
All_ Avg				-0.094*				-0.094*
				(0.056)				(0.056)
County Year	0.055***	0.089***	0.045***	0.082***	0.055***	0.089***	0.045***	0.082***
	(0.007)	(0.010)	(0.008)	(0.010)	(0.007)	(0.010)	(0.008)	(0.010)
Klei-Paap F stat	30.806	41.895	20.283	33.590	30.916	42.037	20.205	33.536
Anderson LM stat	56.625	73.323	37.407	59.993	56.814	73.649	37.288	59.952
Hansen J stat	0.410	0.002	1.132	0.010	0.500	0.001	1.184	0.006
Year F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	1,214	1,214	1,214	1,214	1,214	1,214	1,214	1,214

Note: This table presents the two-stage least squares results for Final_Rank. The unit of observation is at the individual level. The sample includes officials who served as city leaders during 1994–2017 and were over age 57 in 2017. Panel A shows the results of the second stage. Panel B shows the results of the first stage. Exp_Type = whether the leader served as vice mayor or vice party secretary in a prefecture + whether the leader worked in a functional department in a prefectural government + whether the leader worked in a functional department in a provincial government + whether the leader worked in a functional department in the central government + whether the leader worked in the Communist Youth League at the prefecture, province, or central level. Exp_Pos = number of cities in which the official worked in vice mayor or vice party secretary positions + number of functional department positions in a prefectural government + number of functional department positions in a provincial government + number of functional department positions in the central government + number of Communist Youth League positions at the prefecture, province, or central level. Exp_Cty = Exp_Type + whether the official served as county mayor or county party secretary. Exp_All = Exp_Pos + number of counties in which the official worked as county mayor or party secretary. Type_Avg, Pos_Avg, Cty_Avg, and All_Avg represent the provincial average transfer experience of Exp_Type, Exp_Pos, Exp_Cty, and Exp_All respectively. Ability = official's contribution to economic growth. Final_Rank = highest political rank the official achieved during his or her whole career. City Age = official's age when he or she first took the city leadership position. Connection = dummy that shows whether the official has a colleague relationship with the provincial party secretary. Year and province dummies are controlled in all the regressions. Columns (1) to (4) show the results of OLS estimation without controlling for ability, and columns (5) to (8) show OLS results after controlling for ability. Klei-Paap F statistics show that the null hypothesis of underidentification is rejected in all the regressions, which means the instruments satisfy the relevance assumption. Anderson LM statistics show that the instruments are not weak. Hansen J statistics indicate that the instruments are uncorrelated with the error term. Robust standard errors are shown in parentheses. *p < 0.1; **p < 0.05; ***p < 0.01.

5.3 Persistence of transfers

We have focused on transfer experience prior to the position of prefectural leaders. Our results so far suggest that neither ability (economic performance) nor personal connections is adequate for explaining the career mobility of prefectural leaders who are frequently transferred. Transfer experience accumulated at an earlier stage renders a long-term advantage when it comes to evaluating political careers. Given an official's initial ability (as a first-time prefectural leader) and personal connections, pre-mayor transfer experience may reflect more tactic knowledge about the official's type that is unknown to researchers, such as political ideology, policy orientation, development vision, and so forth. At any rate, the prior for a "good type" may carry opportunities into the next

stage. We assess this point by studying the correlation between pre-mayor experience and transfers at the prefecture level. Consistent with this conjecture, Table 7 reports a strong, persistent impact of pre-mayor experience. Overall, experience prior to prefectural leader positions explains nearly 50 percent of the variation in transfers at the prefecture level. The advantage of more frequent transfers is reinforced over time.

Table 7: Persistence of Frequent Transfers

	(1)	(2)	(3)	(4)
	Transfers at the Prefecture Level			
Exp_Type	0.082***			
	(0.022)			
Exp_Pos		0.050***		
		(0.013)		
Exp_Cty			0.090***	
			(0.026)	
Exp_All				0.049***
				(0.013)
Female	-0.035	-0.020	-0.025	-0.010
	(0.024)	(0.021)	(0.024)	(0.020)
Education	0.005	0.006	0.029**	0.021*
	(0.010)	(0.010)	(0.013)	(0.011)
Obs	1,214	1,214	1,214	1,214

Note: This table shows the relationship between transfer experience before and after city leadership. The sample includes officials who served as city leaders during 1994–2017 and were over age 57 in 2017. The dependent variable, *Transfer_Prefecture*, is the average number of cities per year to which the official was transferred during his or her city leadership career. Exp_Type = whether the leader served as vice mayor or vice party secretary in a prefecture + whether the leader worked in a functional department in a prefectural government + whether the leader worked in a functional department in a provincial government + whether the leader worked in a functional department in the central government + whether the leader worked in the Communist Youth League at the prefecture, province, or central level. Exp_Pos = number of cities in which the official worked in vice mayor or vice party secretary positions + number of functional department positions in a prefectural government + number of functional department positions in a provincial government + number of functional department positions in the central government + number of Communist Youth League positions at the prefecture, province, or central level. Exp_Cty = Exp_Type + whether the official served as county mayor or county party secretary. Exp_All = Exp_Pos + number of counties in which the official worked as county mayor or party secretary. Education = 1 if the official has a college degree or above, otherwise 0. Female = 1 if the official is female, otherwise 0. All the results are obtained through instrumental variable estimations with the same

right-hand side specification as in Table 4. Robust standard errors are reported in parentheses. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

5.4 Cost of transfers

Finally, we observe the cost associated with the transfer system in a city panel of growth regressions. Table 8 shows that prefectural leaders who are newly appointed and (or) transferred from other prefectures are associated with slower growth. This pattern is neutralized by longer tenure as a leader in the same prefecture, as suggested in column (2). Theoretically, frequent transfers of regional leaders may lead to various incentive and structural problems for growth. An obvious downside of governing a new city is the leader's lack of local information. This creates a potential mismatch between the new leader's political human capital and the economic endowments of the region. Transferred leaders may be able to mitigate the mismatch problem through learning-by-doing, and this experience better prepares generalist-type leaders with higher promotion potential. However, this advantage of ability acquisition implies that more favorably sponsored bureaucrats face mismatch problems more frequently. Thus, transfers must have a limit.

Table 8: Cost of Transfers

	(1)	(2)	(3)
First Year	-0.246***		
	(0.081)		
Transferred		-0.298**	
		(0.149)	
(First Year)* Transferred			-0.279***
			(0.087)
Transferred *Term		0.125***	
		(0.048)	
Control Variables	Yes	Yes	Yes
Year dummy	Yes	Yes	Yes
City dummy	Yes	Yes	Yes
Adjusted R^2	0.370	0.370	0.370

Obs	12,355	12,355	12,355

Note: This table shows that officials who have been newly appointed and (or) transferred to a city leader position achieve a lower gross domestic product (GDP) growth rate. The dependent variable is the city-level GDP growth rate*100. First Year = 1 if the official has been promoted to city leadership for the first year. Transferred = 1 if the official did not work in the same city as the present one in his or her last position. Thus, (First Year)* Transferred = one if the official has been promoted to the city leadership for the first year in a new city. Term = number of years the city leader has worked in the current position. Control variables include age, gender (female = 1), education, and political connections. City and year fixed effects are controlled in all the regressions. Column (1) shows that city leaders perform worse on average when they are new to the office. Columns (2) and (3) show that city leaders achieve lower local GDP growth if they are serving in a city for the first time, but the negative effect of a new appointment to a new city is alleviated if the leader remains in the position for a longer time. Standard errors clustered at the province level are reported in parentheses. *p < 0.1; **p < 0.05; ***p < 0.01.

6. Conclusion

This paper proposes a new direction for theoretical models of how bureaucrats are promoted. The existing paradigms in the study of organizational economics spell out a juxaposition of two pillars: the "performance school," which primarily focuses on the correlation between job performance and political promotions, and the "connections school," which argues that career mobility is largely shaped by the shared social network of the principal and agents. The two mechanisms may interfere with each other when selection based on social networks compromises the performance-rewarding promotion scheme, or vice versa. With limited knowledge about the objective function of the organization, however, it is difficult to analyze these models.

By contrast, this paper suggests an alternative framework for evaluating the efficacy of some organizations without specifying a priori the objective the function of the principal. This framework hinges on three assumptions that are close to the realities of a large variety of political and business organizations. (1) The organization hosts a rich set of hierarchical pyramids with sufficiently many parellel units to allow for frequent transfers. (2) The executive positions are of generalist types of human capital, such that transfer experiences among different positions at lower levels contribute to officials' ability as

upper-level leaders. (3) The principal can identify important personal traits of agents at a relatievly early stage and favorably sponsor their career development through job transfers among different functional departments and jurisdictions. Under this mechanism, the promotion rule of the organization would be largely "meritocratic" or perfromance-based, although the rationale of personnel management as a whole primarily stems from some utterly different motives, such as political and ideological loyalty. The empirical analyses on prefectural leaders in China presented here seem to fit into this framework and hence shed light on a third road beyond the quarrels between the "performance school" and the "connections school."

The logic is relevant to many other contexts. For example, corporate managers sponsor the careers of highly educated employees by assigning them as management trainees. Machiavelli (2008) suggested that a prince needs first to have diverse experiences as a captain, "*by which he accustoms his body to hardships, and learns something of the nature of localities, and gets to find out how the mountains rise, how the valleys open out, how the plains lie, and to understand the nature of rivers and marshes, and in all this to take the greatest care*." To conclude, human capital by nature develops through mobility in organizations.

References

Alt J, Bueno de Mesquita E, and S., Rose. Disentangling accountability and competence in elections: Evidence from US term limits. *Journal of Politics*, 2011, 73(1): 171-186.

Anzia S., and C., Berry. The Jackie (and Jill) Robinson effect: Why do congresswomen outperform congressmen? *American Journal of Political Science*, 2011, 55(3): 478-493.

Barro R J. The control of politicians: An economic model. *Public Choice*, 1973, 14(1): 19-42.

Baum-Snow N, Brandt L, and J., Henderson. Roads, railroads, and decentralization of Chinese cities. Review of Economics and Statistics, 2017, 99(3): 435-448.

Becker, G., *Human Capital Theory*. Columbia, NY, 1964.

Bertrand, M., Burgess, R., Chawla, A., and G., Xu. The Glittering Prizes: Career Incentives and Bureaucrat Performance. *The Review of Economic Studies*, 2019, Forthcoming.

Besley, T. Political selection. *Journal of Economic Perspectives*, 2005, 19(3): 43-60.

Besley, T. and A. Case. Does electoral accountability affect economic policy choices? Evidence from gubernatorial term limits. *Quarterly Journal of Economics*, 1995, 110(3): 769-798.

Bo, Z. *Chinese Provincial Leaders: Economic Performance and Political Mobility Since 1949*. East Gate Book, 2002.

Burns, J. China's Nomenklatura System. *Problems of Communism*, 1987, 36(5): 36-51.

Campion, M., Cheraskin, L., and M., Stevens. Career-related antecedents and outcomes of job transfer. *Academy of Management Journal*, 1994, 37(6): 1518-1542.

Chen, T, and J. Kung. Do land revenue windfalls create a political resource curse? Evidence from China. *Journal of Development Economics*, 2016, 123: 86-106.

Custódio, C, Ferreira, M., and P. Matos. Generalists versus specialists: Lifetime work experience and chief executive officer pay. *Journal of Financial Economics*, 2013, 108(2): 471-492.

Dal, Bó and M. Rossi. Term length and the effort of politicians. *Review of Economic Studies*, 2011, 78(4): 1237-1263.

Fearon, J. Electoral accountability and the control of politicians: Selecting good types versus sanctioning poor performance. *Democracy, Accountability, and Representation*, 1999, 55: 61.

Ferraz, C, and F. Finan. Motivating politicians: The impacts of monetary incentives on quality and performance. NBER working paper, National Bureau of Economic Research, Cambridge, MA, 2009.

Frederiksen, A, and T. Kato. Human capital and career success: Evidence from linked employer-employee data. *Economic Journal*, 2017, 128(613): 1952-1982.

Gordon, S., Huber., G and D. Landa. Challenger entry and voter learning. *American Political Science Review*, 2007, 101(2): 303-320.

Huang, Y. Managing Chinese bureaucrats: An institutional economics perspective. *Political Studies*, 2002, 50(1): 61-79.

Iyer, L, and A. Mani. Traveling agents: Political change and bureaucratic turnover in India. *Review of Economics and Statistics*, 2011, 94(3): 723-739.

Jia, R., Kudamatsu, M., and D. Seim. Political selection in China: The complementary roles of connections and performance. *Journal of the European Economic Association*, 2015, 13(4): 631-668.

Jia, R. and H. Nie. Decentralization, collusion, and coal mine deaths. *Review of Economics and Statistics*, 2017, 99(1): 105-118.

Jiang, J. Making bureaucracy work: Patronage networks, performance incentives, and economic development in china. *American Journal of Political Science*, 2018, 62(4): 982-999.

Kahn, M, Li, P, and D. Zhao. Water pollution progress at borders: The role of changes in China's political promotion incentives. *American Economic Journal: Economic Policy*. 2015. 7 (4): 223-242.

Khan, A., Khwaja A., and B. Olken. Making moves matter: Experimental evidence on incentivizing bureaucrats through performance-based postings. American Economic Review, 2019, 109(1): 237-70.

Landry, P., Lü, X., and H. Duan. Does performance matter? Evaluating political selection along the Chinese administrative ladder. *Comparative Political Studies*, 2018, 51(8).

Lazear, E. Entrepreneurship. *Journal of Labor Economics*, 2005, 23(4): 649–80.

Lazear, E. Firm-specific human capital: A skill-weights approach. *Journal of political economy*, 2009, 117(5): 914-940.

Li, H and L. Zhou. Political turnover and economic performance: The incentive role of personnel control in China. *Journal of Public Economics*, 2005, 89(9-10): 1743-1762.

Lockwood, B. and F. Porcelli. Incentive schemes for local government: Theory and evidence from comprehensive performance assessment in England. *American Economic Journal: Economic Policy*, 2013, 5(3): 254-286.

Machiavelli N. *The Prince*. Hackett Publishing, 2008.

Maskin, E. and J. Tirole. The politician and the judge: Accountability in government. *American Economic Review*, 2004, 94(4): 1034-1054.

Medoff, J. and K. Abraham. Experience, performance, and earnings. *Quarterly Journal of Economics*, 1980, 95(4): 703-736.

_____. Are those paid more really more productive? The case of experience. *Journal of Human Resources*, 1981, 16(2): 186-216.

Meyer, D., Shih, V., and J. Lee. Factions of different stripes: Gauging the recruitment logics of factions in the reform period. *Journal of East Asian Studies*, 2016, 16(1): 43-60.

Naughton, B. and D. Yang. eds. *Holding China together: Diversity and national integration in the post-Deng era*. Cambridge University Press, 2004.

Opper, S., Nee, V., and S. Brehm. Homophily in the career mobility of China's political elite. *Social Science Research*, 2015, 54: 332-352.

Ortega, J. Job transfer as a learning mechanism. *Management Science*, 2001, 47(10): 1361-1370.

Persson, P, and E. Zhuravskaya. The limits of career concerns in federalism: Evidence from China. *Journal of the European Economic Association*, 2016, 14(2): 338-374.

Rasul, I., Rogger, D., and M. Williams. Management and bureaucratic effectiveness: Evidence from the Ghanaian Civil Service. Working paper, University College London, 2019.

Shi, X., Xi, T., and Y. Yao. Better than on-the-job training: Leaders' work experience and economic performance. Working paper, China Center for Economic Research, Beijing, 2018.

Shih, V., Adolph, C., and M. Liu. Getting ahead in the communist party: Explaining the advancement of central committee members in China. *American Political Science Review*, 2012, 106(1): 166-187.

Smart, M., and D. Sturm. Term limits and electoral accountability. *Journal of Public Economics*, 2013, 107: 93-102.

Turner, R. Sponsored and contest mobility and the school system. *American Sociological Review*, 1960, 25(6): 855-867.

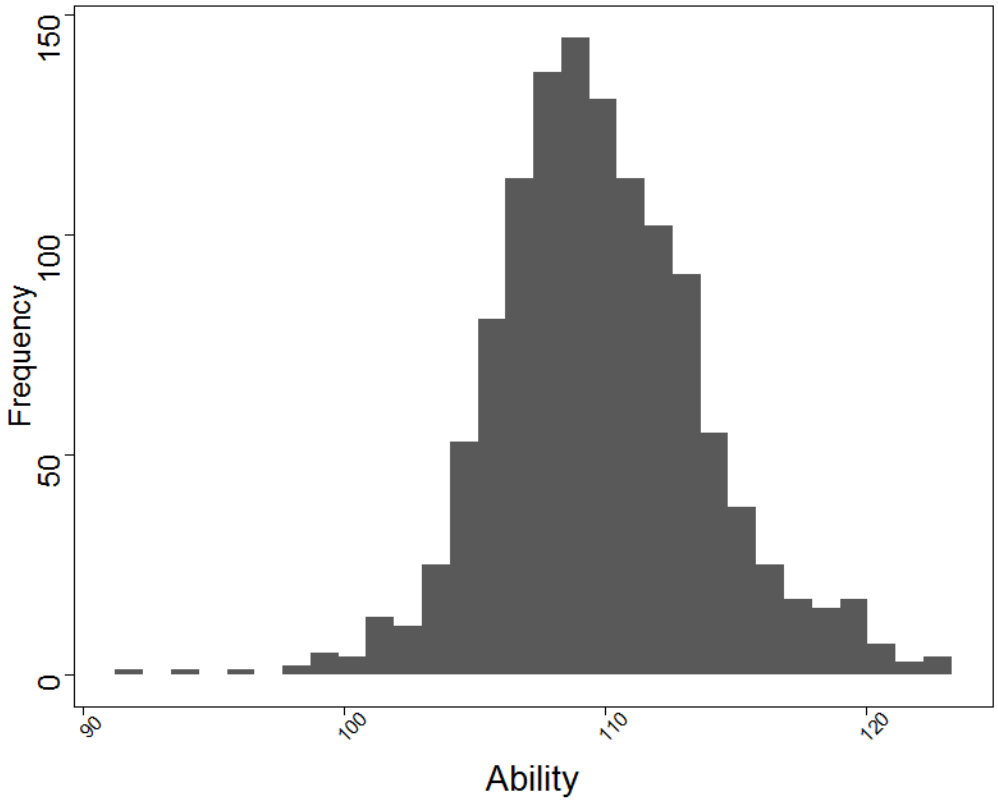
Wooldridge, J. What's new in econometrics? Lecture 6: Control functions and related methods. Summer Institute, National Bureau of Economic Research, Cambridge, MA, 2007.

Xu, C. The fundamental institutions of China's reforms and development. *Journal of Economic Literature*, 2011, 49(4): 1076-1151.

Yao, Y. and M. Zhang. Subnational leaders and economic growth: Evidence from Chinese cities. *Journal of Economic Growth*, 2015, 20(4): 405-436.

Appendix

Figure A1: Distribution of Ability



Note: This figure shows the distribution of ability of city leaders. The horizontal axis meausres the ability index, and the vertical axis measures the number of city leaders. Only relative ability is meaningful.

Table A1:Predicted Probability Distribution of Final Rank for ordered Logit Results

Experience	Value	Prefectural level	Vice provincial level	Provincial level	Sub-national level	National level
Exp_Type	1	0.554	0.366	0.067	0.011	0.002
Exp_Type	2	0.523	0.386	0.075	0.013	0.003
Exp_Type	3	0.491	0.406	0.084	0.015	0.003
Exp_Type	4	0.459	0.425	0.095	0.017	0.004
Exp_Pos	1	0.562	0.36	0.065	0.011	0.002
Exp_Pos	2	0.533	0.379	0.072	0.012	0.003
Exp_Pos	3	0.505	0.397	0.081	0.014	0.003
Exp_Pos	4	0.476	0.415	0.089	0.016	0.004
Exp_Cty	1	0.531	0.382	0.073	0.012	0.003
Exp_Cty	2	0.534	0.38	0.072	0.012	0.003
Exp_Cty	3	0.537	0.378	0.071	0.012	0.003
Exp_Cty	4	0.541	0.375	0.07	0.012	0.003
Exp_All	1	0.537	0.377	0.071	0.012	0.003
Exp_All	2	0.535	0.379	0.071	0.012	0.003
Exp_All	3	0.533	0.38	0.072	0.012	0.003
Exp_All	4	0.531	0.381	0.073	0.012	0.003

Note: this table shows the probability distribution prediction of columns (5)-(8) in table 4. According to the model, all other things being equal,55.4 % of officials with only one transfer experience(Exp_Type) stay in prefectural level, compared to 45.9% of officials with four transfer experiences(Exp_Type). Only 8%(=0.067 +0.011 + 0.002) of officials with only one transfer experience have reached provincial level or higher, compared to 11.6%(=0.095 +0.017 +0.004) of officials with four transfer experience(Exp_Type).

Table A2:IV Results for Final Rank(Control Function Method)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Final Rank							
Exp_Type	0.670**				0.665**			
	(0.337)				(0.337)			
Exp_Pos		0.452**				0.450**		
		(0.215)				(0.215)		
Exp_Cty			0.711*				0.707*	
			(0.382)				(0.383)	
Exp_All				0.483**				0.482**
				(0.229)				(0.229)
Ability					0.014	0.016	0.010	0.013
					(0.019)	(0.019)	(0.018)	(0.018)
Connection	0.036	-0.034	0.082	-0.019	0.053	-0.016	0.094	-0.005
	(0.445)	(0.458)	(0.446)	(0.458)	(0.443)	(0.456)	(0.445)	(0.456)
City Age	-0.22***	-0.22***	-0.23***	-0.23***	-0.22***	-0.22***	-0.23***	-0.23***
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
Year Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Province Dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Obs	1214	1214	1214	1214	1214	1214	1214	1214

Note: This table presents the control function results for Final_Rank. The unit of observation is at the individual level. The sample includes officials who served as city leaders during 1994–2017 and were over age 57 in 2017. Exp_Type = whether the leader served as vice mayor or vice party secretary in a prefecture + whether the leader worked in a functional department in a prefectural government + whether the leader worked in a functional department in a provincial government + whether the leader worked in a functional department in the central government + whether the leader worked in the Communist Youth League at the prefecture, province, or central level. Exp_Pos = number of cities in which the official worked in vice mayor or vice party secretary positions + number of functional department positions in a prefectural government + number of functional department positions in a provincial government + number of functional department positions in the central government + number of Communist Youth League positions at the prefecture, province, or central level. Exp_Cty = Exp_Type + whether the official served as county mayor or county party secretary. Exp_All = Exp_Pos + number of counties in which the official worked as county mayor or party secretary. Ability = official's contribution to economic growth. Final_Rank = highest political rank the official achieved during his or her whole career. City Age = official's age when he or she first took the city leadership position. Education = 1 if the official has a college degree or above, otherwise 0. Female = 1 if the official is female, otherwise 0. Connection = dummy that shows whether the official has a colleague relationship with the provincial party secretary. Year and province dummies are controlled in all the regressions. Robust standard errors are shown in parentheses. $^{*}p < 0.1$; $^{**}p < 0.05$; $^{***}p < 0.01$.

Table A3:Predicted Probability Distribution of Final Rank for Control Function Results

Experience	Value	Prefectural level	Vice provincial level	Provincial level	Sub-national level	National level
Exp_Type	1	0.608	0.323	0.057	0.01	0.002
Exp_Type	2	0.487	0.402	0.09	0.017	0.004
Exp_Type	3	0.365	0.461	0.136	0.03	0.008
Exp_Type	4	0.255	0.487	0.194	0.049	0.014
Exp_Pos	1	0.611	0.322	0.056	0.009	0.002
Exp_Pos	2	0.53	0.376	0.077	0.014	0.003
Exp_Pos	3	0.446	0.425	0.104	0.021	0.005
Exp_Pos	4	0.364	0.463	0.136	0.03	0.007
Exp_Cty	1	0.661	0.281	0.048	0.008	0.002
Exp_Cty	2	0.542	0.361	0.079	0.015	0.003
Exp_Cty	3	0.417	0.428	0.122	0.026	0.007
Exp_Cty	4	0.3	0.464	0.178	0.045	0.013
Exp_All	1	0.655	0.287	0.048	0.008	0.002
Exp_All	2	0.573	0.343	0.069	0.012	0.003
Exp_All	3	0.487	0.395	0.094	0.018	0.004
Exp_All	4	0.402	0.437	0.127	0.027	0.007

Note: this table shows the probability distribution prediction of columns (5)-(8) in table A2. According to the model, all other things being equal,60.8 % of officials with only one transfer experience(Exp_Type) stay in prefectural level, compared to 25.5% of officials with four transfer experiences(Exp_Type). Only 6.9%(=0.057 +0.01 + 0.002) of officials with only one transfer experience have reached provincial level or higher, compared to 25.7%(=0.194 +0.049+0.014) of officials with four transfer experience(Exp_Type).

Table A4: IV Results for Final Rank

	(1)	(2)	(3)	(4)
	Final_Rank			
Exp_Type	0.225**			
	(0.070)			
Exp_Pos		0.149***		
		(0.045)		
Exp_Cty			0.250**	
			(0.082)	
Exp_All				0.157**
				(0.049)
Ability	0.008*	0.008*	0.006	0.006
	(0.004)	(0.004)	(0.004)	(0.004)
Connection	-0.029	-0.036	-0.031	-0.037
	(0.088)	(0.089)	(0.092)	(0.093)
City Age	-0.039***	-0.041***	-0.042***	-0.044***
	(0.005)	(0.005)	(0.005)	(0.005)
Above57	0.090*	0.096*	0.092*	0.103*
	(0.052)	(0.051)	(0.055)	(0.053)
Klei-Paap F stat	58.628	78.123	36.727	60.095
Anderson LM stat	101.492	128.836	65.209	101.402
Hansen J stat	0.937	0.008	1.302	0.016
Year Dummies	Yes	Yes	Yes	Yes
Province Dummies	Yes	Yes	Yes	Yes
Obs	2,047	2,047	2,047	2,047

Note: This table presents the two-stage least squares results for Final_Rank. The unit of observation is at the individual level. The sample includes officials who served as city leaders during 1994–2017. Exp_Type = whether the leader served as vice mayor or vice party secretary in a prefecture + whether the leader worked in a functional department in a prefectural government + whether the leader worked in a functional department in a provincial government + whether the leader worked in a functional department in the central government + whether the leader worked in the Communist Youth League at the prefecture, province, or central level. Exp_Pos = number of cities in which the official worked in vice mayor or vice party secretary positions + number of functional department positions in a prefectural government + number of functional department positions in a provincial government + number of functional department positions in the central government + number of Communist Youth League positions at the prefecture, province, or central level. Exp_Cty = Exp_Type + whether the official served as county mayor or county party secretary. Exp_All = Exp_Pos + number of counties in which the official worked as county mayor or party secretary. Final_Rank = highest political rank the official achieved during his or her whole career. City Age = official's age when her or she first took city leadership. Connection = dummy that shows whether the official has a colleague relationship with the provincial party secretary. Above57 = 1 if an official was at least age 58 in 2017, otherwise 0. Year and province dummies are controlled in all the

regressions. Klei-Paap F statistics show that the null hypothesis of underidentification is rejected in all the regressions, which means the instruments satisfy the relevance assumption. Anderson LM statistics show that the instruments are not weak. Hansen J statistics indicate that the instruments are uncorrelated with the error term. Robust standard errors are shown in parentheses. *p < 0.1; **p < 0.05; ***p < 0.01.