Power, Money, and Capital Misallocation in China

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Abstract

There exists a large literature studying how China's government official promotion tournament contributes to China's high growth rate. However, few literature investigates how such promotion mechanism creates distortions. This paper finds that more powerful subnational leader contributes to more capital misallocation in his governed region through firm credit intervention, using Annual Census of Enterprises data from 1999 to 2007. We also show capital misallocation is the only channel through which political power leads to lower aggregate productivity. Large unproductive firms obtain more bank loans from such misallocation, and invest more in return to boost aggregate growth. A possible mechanism might be that due to limited attention, subnational leaders help limited number of large firms obtain more loans and push these firms instead to invest more to have a short term growth impact in order for these subnational leaders to be promoted.

1 Introduction

China is one of few countries with highly economically decentralized economy. According to Landry (2012), around 80% of government revenue and expenditure were executed at the subnational level.[1] However, on the politics side, the country is very centralized, i.e., central government leaders where politico committee function as the highest decision making body have the absolute power in promoting subnational government leaders. Blanchard and Shleifer (2001) attribute China's success to political centralization with economic decentralization by comparing with Russia's experience and argue that the political centralization in China can push local government to promote growth by designing the implicit rule where competitive subnational leaders in terms of generating higher GDP growth rates are promoted. However, since politics is centralized in this authoritarian, consolidating leader's position is first order importance and there indeed exist various factions in Chinese.[2] From the latter perspective, political connection should be the key for promotion.

Considering the two most important factors for government official promotion, there are two strands of literature, respectively. Maskin, Qian, and Xu (2000), Li and Zhou (2005), Chen, Li, and Zhou (2005) show that provincial government leader's high GDP growth rate increased its probability of promotion. However, Shih, Adolph, and Liu (2012) find that connection to top leaders is the key for official promotion. In particular, once connection is controlled, the GDP growth rate is not significant any more in determining promotion. If the political connection is the sole reason for government official promotion, how can we observe China's very fast growth rate?

In this paper, we take a novel approach by studying how political connection or political power can be used to achieve high GDP growth. In the motivation section,

[1] In this paper, we use the words subnational, city, and province level interchangably.

[2] The details on China politics including factions will be introduced in the Background section.

we find that political connection as defined by Shih, Adolph, and Liu (2012) is associated with higher GDP growth rate but negatively associated with TFP. We also find that investment is higher with stronger political connection. One of the key features of Chinese economy is its strong reliance on investment, where China has one of the world's highest investment rate, around 40% (Bai, Hsieh, and Qian (2006)). Therefore, whether government official can be promoted depends strongly on its governed region's investment including government investment and firm investment, the latter in particular. We therefore conjecture powerful government officials to push firms to invest for higher aggregate growth.

Although according to the new regulation, the state owned banks are the main authority in appointing their branches' managers and loan officers, considering investment's key role, of which majority is from bank loans, local government still has very strong intention to intervene bank branch's business using subnational leader's political power (Ba, Liu, and Niu (2005)). An example is evasion of bank loan repayment. Because local government controls the court, if there is any loan evasion or refusal to repay loan, local bank branch needs local government's help in collecting repayment. Local bank also needs local government's help in obtaining deposits, as large portion of deposits are from local government controlled SOEs' enterprise deposits. Moreover, "guanxi" or personal connection is quite important in China. Big four banks which are state owned often exchange bank manager's position with government officials. For example, Jianqing Jiang which is currently the Governor of Shandong province, served the CEO of one of the "big four". According to Ba, Liu, and Niu (2005) , local government was severely constrained by fiscal revenue after the 1994 Chinese taxation reform which only left a much smaller share of taxation to the local government compared to before while central government enjoys a larger share, and the key for local politician success is to have more influence on banks.

Local government cannot control bank branches in their region directly. However, local government can still have a large influence over local bank branch and local government switches from direct control to indirect influence. From Economist 2005,[3] "Branch managers [of banks] are kings in China". What's more, According to Howson (2009) IMF report, "Even after restructuring in 1998 [banking management centralization], and formal imposition of mandated monitoring and enforcement procedures, it is very difficult for the senior level of any PRC bank, spread across a huge physical and political geography, to govern technically subordinate systems". For example, China Construction Bank had 14,250 branches and 304,000 employees in 2005, a random year during our data sample period..

This paper finds that more politically powerful subnational leader in China has more capital misallocation in its governed region (city and province), using the 1998-2007 Annual Enterprise Census data for calculation of misallocation and manually collected data for measurement of leader power, which will be in the measurement section. China provides a good setting in studying capital misallocation across regions as its banking sector is quite fragmented across region (Boyreau-Debray and Wei (2004)). According to The misallocation measure is derived from Hsieh and Klenow (2009), which is variance of $(\log(MRPK))$, marginal revenue product of capital. The intuition is that in a frictionless environment, one dollar's return should be equalized across different firms. However, they might be different in reality due to frictions such as government owned banks loaning to some firms even though they have lower returns, as in our setting. Therefore, higher misallocation leads to more TFP losses. We use the same method to decompose TFP loss into the increase of either $var(\log(MRPK))$,or $var(\log(MRPL))$,or $cov(\log(MRPK), \log(MRPL))$. We find that leader's political power only leads to the increase of capital misallocation, not the other two. The reason is intuitive as China has the largest migrant workers and labor mobility is high benefiting from the country's

[3]Please see Economist 2005 at http://www.economist.com/node/5081090

good infrastructure.

Why do government officals have incentive to misallocate capital? China's financial market is bank dominated. The banking sector is very large thanks to China's very high saving rate. The "big four" are among the world's largest banks. Local bank branch's size is much larger compared to local government budget, capital misallocation can be almost equivalent to credit misallocation. We find in our firm level data that in more capital misallocated region and year, more loans were granted to large firms, and these firms invested more. A possible mechanism might be as follows. Subnational leaders might use their power to influence bank branches' decision to lean towards large firms, and these firms invest more as return. Why does subnational leader give more beneficial credit policy to large firms? There are several reasons. Government officials have limited attention and build close relationship with regional large firms can benefit their own political goal, such as pushing these firms to invest more and consequently to generate high growth rate for government officials to have growth credits to get promoted. Large firms also play the role of amplification, i..e, more investment by large firms will bring their upstream and downstream firms to invest more as well. The limited attention element can often be seen from the newspaper or TV news that the local large firms are often being called to the government for conference (or *Zuo Tan Hui*).

There is a few emerging papers studying the determinants of misallocation. This paper is closest in methodology to the work by Larrain and Stumpner (2015), which studies how capital account liberalization leads to lower capital misallocation. However, their paper does not mention the channel through which policy changes misallocation, while we have detailed firm level analysis on the channel which causes misallocation.

The rest of the paper will proceed as follows. Section 2 will introduce China's banking sector and government, also detailing on how to construct our leader power index. Section 3 will provide some motivation evidence using aggregate data. Section 4 will

brief on Hsieh and Klenow accounting based on Hsieh and Klenow (2009). Section 5 will describe our data and provide summary statistics. Section 6 shows the main results. Section 7 proves a possible mechanism for our main finding. Section 8 provides further results such as misallocation's relation with financial dependence index. Section 9 concludes.

2 Government and Banking Sector in China

2.1 Banking and Regulation History

After the People's Republic of China was established in 1949, there was only one bank, People's Bank of China, which functioned both as central bank and commercial bank, showing very traditional socialist feature. After opening and reform initiated by Xiaoping Deng in 1979, there was a quick trend of separating commercial banks and central bank, and all these newly created banks are state owned. For example, Agriculture Bank of China and China Construction Bank which are always in the "big four" category were established in 1979. Other banks were created consequently later as well. In the end of 1980s and beginning of 1990s, share-holding commercial banks such as Shenzhen Development Bank and China Merchants Bank wholly owned by corporate legal entities were also established which were either created by local governments or large state owned companies. China also allowed foreign bank presence especially after joining WTO in 2001. However, their total size is still quite trivial compared to domestic banks and therefore their entry decision with limited city branches won't bother our research even though they are definitely much more market based.

The big four took a majority share of banking sector and still played a dominant role in China's banking sector. Big four are not only traditional commercial banks but

also playing the role of government entities. Therefore, they have branches throughout the nation at the beginning with almost every city presence. China is economically very decentralized with local government playing a major role in the economy. These bank branches because of the state owned feature became local government's ATM or local government's budget from the beginning of their establishment. One of the key reasons is that local government official has the power to appoint bank branches' managers. The capital market in China was consequently quite fragmented as local official did not want their region's deposit to flow to other areas to contribute to their potential political competitors' regional growth.

Since local government had the power to appoint bank branches' officers but did not bear much responsibilities as non-performing loans were expected to be erased by their Beijing headquarters or their ultimate owner central government, it's not surprising to see banks were very inefficient and non-performing loans were gigantic. Based on the close relation between bank branches and their located region's local government, the then Vice Premier Rongji Zhu reformed this bank-local government relation by centralizing bank branch officer's decision to their own bank system. After reform, for example, in China Construction Bank, their CEO of Henan province branch, is appointed by China Construction Bank Beijing headquarter, and in Xuchang, a city in Henan, the CEO of China Construction Bank branch is appointed by the Henan province regional headquarter. Accompanying with this reform, a series of internal bank risk control was adopted. One of the key ones is 2002 and 2003 loan responsibility reforms sequentially taken by "big four" where loan decision was made by a loan committee previously but reformed to the new rule that loan officer take full responsibility in giving out loans even though their loan decision was reviewed by regional headquarter to assess the potential risk.

2.2 A Glimpse of Chinese Politics

The highest decision making body in China is Politburo Standing Committee, which is composed of seven to nine members including the President and the Prime Minister. This is the core decision making body and each member's power may fluctuate depending on factions. For example, it's possible that the President may not have the strongest power if other three members collude. They have meetings exclusive other members in the communist party. The second powerful committee right below the Politburo Standing Committee is Politburo Committee, which is composed of forty members including the members form Politburo Standing Committee, which holds regular meetings just distributing the Politburo Standing Committee's decision and policy or discussions on execution of the Politburo Standing Committee's decision.

The Chinese political system is quite closed in the sense that it's rare to see revolving doors like in other democracies. The Politburo Standing Committee as the highest decision making body has the power to promote or demote any government officials. But in reality, they mostly concentrate their decisions on ministry level officials including the provincial party secretary. Lower level officials like city party secretary are rarely having overlapping experience or important enough to draw the highest decision making members' attention. Therefore, provincial party secretary mainly responsible for appointing city party secretary.

2.3 Leader Power Index

Party secretary in each region is the highest decision maker. Like other papers, the leader in a region is party secretary (Kung and Chen (2013)). For provincial party secretary, we use ties to the Politburo Standing Committee, denoted as, $PPS\_connection$, short for provincial power index, to measure leader power, quite standard in in the political science

literature (Shih (2004)). Our provincial index is exactly the same as those constructed by Shih (2004), and we extend their index to our firm data period, to 2007. This index is also used in other recent articles such as Jia, Kudamatsu, and Seim (2015). This measure sums the dummies on whether a provincial party secretary shares with any Politburo Standing Committee member the same birthplace, same Xi Tong, which is for example, Tuan Pai, a powerful organization existing in various layers of communist party, same workplace, i.e., whether having worked in a same place or not, same faction. The faction is like little parties in the communist party itself. Even though some top politicians have already retired, they can still exert their influence through their delegates. It's part of the communist culture that current leaders have to consult senior retired party leaders on important matters (Vogel (2013)). Each dummy takes a value of 1 if yes. Their added value is between 0 and 4, maximum. The variance is large as can be seen from the summary statistics table. This measure is less of endogeneity concern as these values are determined in their youth.

We use $CPS\_connection$ to denote city provincial secretary connection, and measure it using whether city party secretary had worked in the provincial government. This measure has also been adopted by Kung and Chen (2013). But it's more meaningful here as local officer's appointment is controlled by the provincial while working previously in the provincial government increases the probability for city leaders to know provincial bank managers. $CPS\_connection$ is a dummy, taking values of 1 or 0, where 1 indicates having worked in the provincial government. The reasons we do not use the connection measure as provincial government are as follows. For city party secretary, however, their faction information, one of our key measures, is hard to capture. Their workplace information with provincial party secretary is also hard to measure as most of the provincial party secretary came from other regions and turnover is frequent to avoid them to grow their own local power to threaten the central government's power.

The other benefit being connected to the upper level government is supposed to fiscal transfer. However, fiscal transfer is insignificantly related to these power index as fiscal transfer from the central government is usually designated for special purpose use or is increased if there is any regional negative shock such as earthquake. Fiscal transfer is more of public project or society welfare, which has little relation with firm capital misallocation.

3 Motivation from Aggregate Evidence

In this section, we want to know how political connection influences aggregate outcomes. The data is obtained directly from Chinese National Bureau of Statistics. We are estimating the following equation

$$Y_{pt} = \alpha + \beta * PPS\_connection_t + \gamma X_{pt} + \delta_p + \delta_t + \varepsilon_{pt}$$

where p denotes province, t denotes year. Y_{pt} denotes aggregate variables such as GDP, Investment, or TFP. $PPS\_connection_t$ indicates our measurement of leader's political power. For the provincial level, we use provincial party secretary's connection to the Politburo Standing Committee. We use whether the t period city party secretary has worked in the upper level government, mostly provincial government to proxy for his power in influencing the credit allocation. X_{pt} include usual controls such as GDP per capita using log form ($\log gdppc$), loan/GDP, FDI/GDP, population. δ_p, δ_t are province and year fixed effects.

Table 1 provides suggestive evidence that at the province level,[4] powerful politicians

[4]The city level result is consistent with this provincial level one, available upon request.

lead to higher GDP growth but mainly through increasing investment level, and aggregate TFP is lower in the powerful politician governed region. We want to emphasize that this is suggestive evidence as endogeneity issue is not carefully addressed and the firm level analysis in the main section is less of this concern.

4 Hsieh-Klenow Accounting

In this section, we closely follow Hsieh and Klenow (2009) and assume the following aggregate output,

$$Y = \prod_s Y_s^{\theta_s},$$

where Y denotes aggregate output and Y_s denotes the output of sector s. $\theta_s \in (0,1)$ denotes sector's share, and $\sum_s \theta_s = 1$. The demand for each sector is given by

$$P_s Y_s = \theta_s P Y$$

where P is the aggregate price index and P_s is the price of sector output s. Sectoral output is CES aggregate of the output of M_s differentiated goods producers.

$$Y_s = \left(\sum_{i=1}^{M_s} Y_{si}^{\frac{\sigma-1}{\sigma}} \right)^{\frac{\sigma}{\sigma-1}},$$

where Y_{si} denotes output of firm i in sector s and $\sigma > 1$ is the elasticity of substitution within sectors.

Within a sector, firms are monopolistic competitors, which leads to their demand

function as follows.

$$P_{si} = \left(\frac{Y_s}{Y_{si}}\right)^{\frac{1}{\sigma}} P_s.$$

Firm's production function is

$$Y_{si} = A_{si} K_{si}^{\alpha_s} L_{si}^{1-\alpha_s},$$

Firm's problem is to maximize

$$\pi_{si} = (1-\tau_{si}^y) P_{si} Y_{si} - w L_{si} - (1+\tau_{si}^k) R K_{si}$$

Then we have marginal revenue product of capital ($MRPK$) and marginal revenue product of labor ($MRPL$) as

$$\begin{aligned} MRPK_{si} &= \frac{(1+\tau_{si}^k) R}{(1-\tau_{si}^y)} \\ MRPL_{si} &= \frac{w}{(1-\tau_{si}^y)} \end{aligned}$$

Under frictionless condition, these two measures should be equal across firms and be equal to interest rate and wage respectively. Aggregate TFP can be derived consequently.

$$TFP_s = \frac{\left[\sum_{i=1}^{M_s} \left(A_{si} \left(\frac{1-\tau_{si}^y}{1+\tau_{si}^k} \frac{P_{si} Y_{si}}{P_s Y_s} \right)^{\alpha_s} \left((1-\tau_{si}^y) \frac{P_{si} Y_{si}}{P_s Y_s} \right)^{1-\alpha_s} \right)^{\frac{\sigma-1}{\sigma}} \right]^{\frac{\sigma}{\sigma-1}}}{\left(\sum_{i=1}^{M_s} \frac{1-\tau_{si}^y}{1+\tau_{si}^k} \frac{P_{si} Y_{si}}{P_s Y_s} \right)^{\alpha_s} \left(\sum_{i=1}^{M_s} (1-\tau_{si}^y) \frac{P_{si} Y_{si}}{P_s Y_s} \right)^{1-\alpha_s}}$$

In the frictionless economy, TFP would be

$$TFP^* = \left(\sum_{i=1}^{M_s} A_{si}^{\sigma-1} \right)^{\frac{1}{\sigma-1}}$$

and

$$\log(TFP_s) = \log(TFP_s^*) - \frac{\sigma}{2}\sigma_y^2 + \sigma\alpha_s\sigma_{ky} - \frac{\alpha_s(1-\alpha_s)}{2}\sigma_k^2$$

where σs are the corresponding variances.

Since

$$\begin{aligned} Var(\log(MRPK_{si})) &= \sigma_k^2 + \sigma_y^2 - 2\sigma_{ky} \\ Var(\log(MRPL_{si})) &= \sigma_y^2 \\ Cov(\log(MRPK_{si}), \log(MRPL_{si})) &= -\sigma_{ky} + \sigma_y^2 \end{aligned}$$

then,

$$\begin{aligned} \log(TFP_s) &= \log(TFP_s^*) - \Delta_{1s}Var(\log(MRPK_{si})) \\ &\quad -\Delta_{2s}Var(\log(MRPL_{si}) \\ &\quad -\Delta_{3s}Cov(\log(MRPK_{si}), \log(MRPL_{si})) \end{aligned}$$

where $\Delta_{1s}, \Delta_{2s}, \Delta_{3s} > 0$. We expect political power leads to lower TFP, by having higher $Var(\log(MRPK_{si}))$, but irrelevant with both $Var(\log(MRPL_{si})$ and $Cov(\log(MRPK_{si}), \log(MRPL_{si}))$.

5 Data and Measurement

5.1 Data

We use firm level 1998-2007 Annual Census of Enterprises in China collected by Chinese National Bureau of Statistics to calculate capital misallocation. The dataset include all the industrial firms with 5 million revenue above and all the SOEs. The five million

revenue threshold is not large and since banks almost do not give out loans below that threshold so our dataset is sufficiently complete for our analysis.

The regional level data is from various regional level statistical year books. The key variable in our study is misallocation, which we use a separate subsection to describe.

5.2 Measurement of Capital Misallocation

For calculation of capital misallocation, first, we obtain average revenue product of capital (ARPK) following from Dollar and Wei (2007), for firm j in city i

$$ARPK_{ij} = \frac{\text{value added}_{ij}}{K_{ij}}$$

where K_{ij} is constructed using the perpetual inventory method, and

value added = output - intermediate input - value added - taxpayable

The details on how to estimate capital and value added and on how to clean this large firm level dataset can be found from Brandt, Van Biesebroeck, and Zhang (2012) and Brandt, Van Biesebroeck, and Zhang (2014).

$$Misallocation_s = Var(\log(MRPK_{si}))$$

5.3 Summary Statistics

Table 2 presents the summary statistics. Panel A includes all city-level indices, such as misallocation indices, city and provincial leader characteristics, and city economic development and resource allocation. In terms of misallocation, we see a wide spread of all three indices, $Var(log(MRPK))$, $Var(log(MRPL))$, and $Cov(log(MRPK), log(MRPL))$,

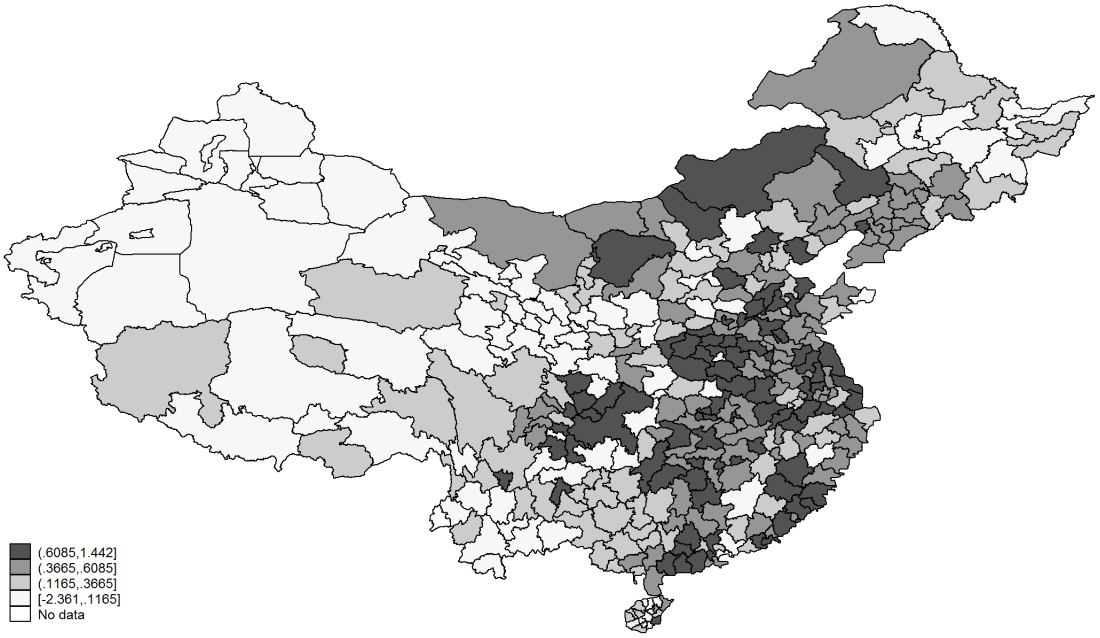
which implies that cities vary greatly in the resource allocation. In the subsequent sections, we find that such variation can be explained by the political power of the city and the provincial leaders.

For city leaders, we use a dummy $CPS\_connection$ indicating whether the city leader has once worked at the provincial party or government. As is showed in the table, 46% of them have such experience. This is a unique feature in China's bureaucracy that most of the cadres are frequently reshuffled across regions and between different posts. The city leaders are mostly in their 40s or 50s, with the average age of 51 years old. About 6% of them are over 57, which, according to Kou and Tsai (2014), implies that they have almost lost the chance of promotion. As for the power of the provincial secretary, we use the total political ties with the Politburo members, as defined in Shih et al (2008). The total number of political ties ranges between 0 and 4, with average 1.67 ties. Provincial leaders are much older compared to city leaders, as it takes more time to climb up the ladder to these posts.

Panel B lists the summary statistics of the firm data. There is a large variance in the level of $MRPK$ and the level of capital stock. Firms also differ in term of share-holding structure, and age. In the following sections, we utilize city-level data in the baseline regression, and the firm-level data to explore the mechanism that leads to this effect.

Figure 1 shows the distribution of cities in terms of average misallocation. You can see that the distribution spreads quite evenly across China. There seems no clear pattern regarding cities' misallocation distribution. Some regions are missing misallocation information as we dropped regions with firm number below 10 because number below 10 makes misallocation measure bear severe measurement error problem.

Figure 1: Geographic distribution of misallocation



6 Results

We estimate the following equation to see which channel(s) leader power contributes to more TFP losses.

$$\begin{aligned} & Var(\log(MRPK)) \ / \ Var(\log(MRPL)) \ / \ Cov(\log(MRPK), \log(MRPL)) \\ = \ & \alpha + \beta * LeaderPower_{pt} + \gamma X_{pt} + \delta_p + \delta_t + \varepsilon_{pt} \end{aligned}$$

Table 3 shows that leaders who have more political power contribute to higher capital misallocation. Standard errors in all our tables are clustered. All our results are robust to both provincial and city level. Sometimes only city level results are reported for saving space but provincial results are available upon results.

The Table 3 results are quite robust to two measures of political connection $PPS\_connection$ and $CPS\_connection$, which are obtained from city and year fixed effect, and provincial

year fixed effect. Moving from $PPS\_connection$ from 0 to 4 will increase misallocation about size of 0.9, which is one half of the $var(\log(MRPK))$ standard deviation. Since Chinese government has the policy of compulsory retirement policy, according to the political science literature, age 57 is a significant threshold where the politicians after this threshold have less incentive to influence the economy as their retirement age closes. So we see the connection effect only works when it interacts with the 57 year threshold dummy period. We see that other control variables are rarely significant as misallocation is more determined by politics and firm's micro level characteristics.

GDP growth rate is positively associated with more misallocation, though it's insignificant statistically, which provides suggestive evidence for our mechanism that leaders push large firms in return to boost growth. The positive relation is interesting as in the misallocation literature, more misallocation is associated with slower growth. But in our mechanism, it can lead to more regional growth as growth can be promoted by the leader in an inefficient way by accumulating large amount of capital. This mechanism also sheds lights on the inefficient east asian growth model with large capital accumulation (Krugman (1994)).

However, we did not find such political power leads to either higher labor misallocation or higher covariance of $\log(MRPK)$ and $\log(MRPL)$, the other two elements which contribute to TFP losses. The latter two insignificant results make sense considering labor can move to anywhere it wants even though these migrant workers do not obtain their working city's *Hukou* registration. The yearly Chinese new year migration to their hometown created lots of headache to the traffic, repeatedly on the news is a reflection the very large labor mobility.

7 Mechanism

In this section, we try to provide a mechanism why more political power leads to more capital misallocation and why subnational leaders want to misallocate capital in their governed region. As described in the introduction section, we postulate that due to limited financial resources local party secretary can use to boost growth. It's natural for the leader who has promotion incentive to manipulate firms to get investment boosted, and the main tool for manipulation is bank credit.

Table 6 shows that larger firms obtain more benefits in terms of more loans when that regional leader has more political power. We use interest payment, short-term debt, total debt to proxy for bank borrowing and they are all robust. The first row shows that in the city year when there is higher political connection, firms' borrowing not necessarily increases, even though large firms always can borrow more from banks. The interaction term of asset and $CPS\_connection$ indicates that in the city year when there is more political connection, a similar larger firms will obtain more bank loans.

Table 7 demonstrates firm's investment behavior. We see larger firms invest more with higher political connection. In appendix, we show large firms are inefficient in terms of lower $\log(MRPK)$, even after controlling their SOE status. We view their behavior puzzling as they have already had very low returns. We conjecture they are pushed by the local government official to invest more in order to generate aggregate investment, consequently, more growth.

8 Misallocation and Financial Development

In this section, we want to investigate whether better financial development leads to less misallocation and whether the leader power effect on misallocation will be mitigated by

financial development. We therefore estimate the following equation.

$$\begin{aligned} Var(\log(MRPK_{ct})) &= \alpha + \beta_1 * CPS\_connection_{ct} + \beta_2 * (Loan/GDP)_{ct} \\ &\quad + \beta_3 * CPS\_connection_{ct} * (Loan/GDP)_{ct} + \gamma X_{ct} + \delta_c + \delta_t + \varepsilon_{ct} \end{aligned}$$

where c, t denote city and year; Loan/GDP in city c and year t is our indicator for financial development. Our main interest is the interaction term.

We can see from Table 8 that the coefficient of $CPS\_connection_{ct} * (Loan/GDP)_{ct}$ is negative, which indicates that financial development in terms of higher $(Loan/GDP)_{ct}$ decreases the positive effect from political power on capital misallocation.

9 Conclusion

This paper takes a novel approach to study how politics affects economy in China. While previous literature arguing political structure determines China's economic success by picking the capable subnational leaders in terms of generating higher regional GDP growth rate, this paper provides evidence that there might not be secret ingredients for leaders to boost growth. Politics is still the rule under China's authoritarian political structure. Considering China's key investment growth feature, political power determines financial resources leaders can have or can manipulate. Subnational leaders have strong incentive to exert their power influence on financial resources because of bank's large leverage effect on the economy, to boost their regions' GDP growth rates. Politically powerful or connected leaders use their political power to boost GDP to get promoted under the implicit government official tournament. This corresponds well to one of the Chinese politics saying, "when is a new rule, there is a new treatment." or in Chinese "*shang you zheng ce, xia you dui ce.*" This paper also sheds light on why in similar culture east asian countries capital and investment have such big role in the

economy. Crony capitalism is a feature of east asian and southeast asian economies where government during their regime pushes big firms, which are often crony related firms, to invest while pushing their country's inefficient banks to lend to these firms.

Table 1: Aggregate Evidence

VARIABLES	lnGDP		lnINVESTMENT		TFP	
	(1)	(2)	(3)	(4)	(5)	(6)
PPS_connection	0.015*	0.015**	0.054**	0.050**	-0.045*	-0.045**
	(0.008)	(0.007)	(0.025)	(0.020)	(0.024)	(0.021)
age		0.001		-0.004		-0.000
		(0.001)		(0.004)		(0.003)
loan_gdp		-0.036		0.012		-0.237
		(0.066)		(0.152)		(0.141)
fdi_gdp		0.000		0.002**		0.001*
		(0.000)		(0.001)		(0.001)
pop		-0.000		-0.000*		-0.000
		(0.000)		(0.000)		(0.000)
gdppc		0.000**		-0.000		-0.000
		(0.000)		(0.000)		(0.000)
ttrsfgdp		-0.000		-0.000*		-0.000
		(0.000)		(0.000)		(0.000)
Constant	7.554***	7.567***	6.421***	7.364***	2.446***	3.174***
	(0.018)	(0.176)	(0.051)	(0.503)	(0.048)	(0.306)
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Province fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Observations	279	270	279	270	261	261
R-squared	0.983	0.986	0.940	0.949	0.055	0.138
Number of province	31	30	31	30	29	29

Table 2: Summary Statistics

Panel A: City and Leader data					
	N	Mean	sd	Min	Max
Var(log(MRPK))	2652	3.776	1.816	0.173	23.214
Var(log(MRPL))	2652	1.392	1.089	0.025	16.487
Cov(log(MRPK),log(MRPL))	2652	0.557	0.900	-8.193	14.145
PPS_connection	2988	1.674	0.979	0.000	4.000
CPS_connection	2393	0.459	0.498	0.000	1.000
Age of city secretary	2432	51.302	4.203	33.000	62.000
Age of city secretary$\geq$ 57	3896	0.062	0.243	0.000	1.000
Transfer/GDP	2546	520.090	779.104	-0.283	7331.604
Loan/GDP	3037	2.118	1.345	0.000	10.356
FDI/GDP	2406	0.001	0.004	0.000	0.171
log GDP	2406	0.001	0.004	0.000	0.171
log gov't spending	3574	12.828	1.180	8.371	17.466
Total city asset	2372	0.012	0.065	0.000	1.000
Age of PPS	279	58.824	3.882	47.000	68.000
Age of PPS$\geq$ 57	280	0.654	0.477	0.000	1.000
Panel B: Firm data					
	N	Mean	sd	Min	Max
logarpk	1180873	2.296	1.682	-0.930	5.416
capital	1180873	84.123	1379.071	0.000	493077.600
interest payment	1180873	1073.911	13701.110	-688139.000	5363291.000
short-term debt	1180873	39042.700	326053.800	-1278338.000	50500000.000
total debt	1180873	51737.320	497135.400	-12700000.000	79300000.000
foreign share	1173388	0.072	0.240	0.000	1.000
state share	1173388	0.080	0.260	0.000	1.000
firm age	1180123	9.694	40.871	0.000	49.000

Table 3: Capital Misallocation

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Var(log(MRPK))							
PPS_connection	0.208**	0.234**						
	0.088	0.103						
CPS_connection			0.198**	0.212**	0.193**	0.206**	0.164	0.157
			0.097	0.103	0.098)	0.104	0.104	0.104
CPS_connection*age_sec_57							0.979**	0.994**
							0.451	0.450
PPS_connection*age_sec_57		-0.069						
		0.082						
fiscal transfer/revenue			-1.106	-1.358			-1.59	
			0.839	1.302			1.277	
fiscal transfer/GDP		-0.000			-5.634*	-8.413**		-9.106**
		0.000			3.090	3.849		3.846
loan/gdp		0.164***	0.009	0.018	0.001	-0.003	0.020	-0.000
		0.055	0.077	0.093	0.076	0.088	0.092	0.088
fdi/gdp		43.439*	54.704***	-94.915***	53.377***	-101.031***	-94.420***	-101.363***
		22.894	5.462	29.434	5.572	30.925	29.431	31.154
log gdp			-0.071	-0.212	-0.211	-0.422	-0.201	-0.419
			0.319	0.334	0.331	0.341	0.334	0.342
log gov spending			-0.041	-0.705	0.229	-0.319	-0.705	-0.279
			0.422	0.608	0.441	0.578	0.599	0.572
weight_asset		0.235	1.807	2.176	1.688	1.986	2.151	1.946
		1.477	1.461	1.393	1.468	1.383	1.391	1.381
Constant			3.791	12.374	0.933	8.499	13.073*	8.652
			5.550	7.809	5.336	6.975	7.589	6.824
City FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	No	Yes	No	Yes	No
Prov*year FE	No	No	No	Yes	No	Yes	No	Yes
Observations	2,645	2,080	1,644	1,644	1,644	1,644	1,644	1,644
R-squared	0.016	0.025	0.021	0.148	0.022	0.150	0.154	0.157
Number of cities	309	276	272	272	272	272	272	272

Table 4: Labor Misallocation

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Var(log(MRPL))							
PPS_connection	0.014	0.059						
	(0.029)	(0.045)						
CPS_connection			0.074	0.052	0.072	0.052	0.046	0.045
			(0.075)	(0.076)	(0.074)	(0.076)	(0.077)	(0.077)
age		0.025*	0.006	0.007	0.006	0.007	0.007	0.007
		(0.013)	(0.008)	(0.009)	(0.008)	(0.009)	(0.010)	(0.010)
age_57		-0.226*					-0.054	-0.055
		(0.118)					(0.121)	(0.121)
fiscal transfer/revenue			-0.572	-0.259			-0.274	
			(0.501)	(0.903)			(0.906)	
fiscal transfer/GDP		0.000			-4.604*	-3.431		-3.507
		(0.000)			(2.574)	(4.253)		(4.277)
loan/gdp		-0.023	-0.030	0.008	-0.045	-0.007	0.008	-0.007
		(0.038)	(0.041)	(0.052)	(0.048)	(0.055)	(0.052)	(0.055)
fdi/gdp		-19.652	-57.642***	-9.048	-58.902***	-10.306	-9.376	-10.704
		(12.298)	(4.452)	(10.097)	(4.758)	(9.425)	(10.343)	(9.671)
log gdp			0.161	0.189	0.011	0.077	0.191	0.078
			(0.225)	(0.253)	(0.229)	(0.267)	(0.255)	(0.268)
log gov spending			0.309	-0.109	0.526	0.032	-0.105	0.041
			(0.285)	(0.442)	(0.340)	(0.472)	(0.439)	(0.472)
weight_asset		-0.407	-0.708	-0.639	-0.786	-0.712	-0.645	-0.720
		(0.405)	(0.493)	(0.495)	(0.518)	(0.499)	(0.501)	(0.504)
Constant			-3.195	1.561	-5.140	0.457	1.492	0.345
			(3.609)	(5.466)	(3.848)	(5.395)	(5.368)	(5.323)
City FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	No	Yes	No	Yes	No
Prov*year FE	No	No	No	Yes	No	Yes	No	Yes
Observations	2,645	2,080	1,668	1,668	1,668	1,668	1,668	1,668
R-squared	0.010	0.020	0.020	0.181	0.023	0.182	0.182	0.183
Number of cities	309	276	274	274	274	274	274	274

Table 5: The Covariance of Capital and Labor Allocation

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Cov(log(MRPK), log(MRPL))							
PPS_connection	0.014	0.059						
	(0.029)	(0.045)						
CPS_connection			0.074	0.052	0.072	0.052	0.046	0.045
			(0.075)	(0.076)	(0.074)	(0.076)	(0.077)	(0.077)
age		0.025*	0.006	0.007	0.006	0.007	0.007	0.007
		(0.013)	(0.008)	(0.009)	(0.008)	(0.009)	(0.010)	(0.010)
age_57		-0.226*					-0.054	-0.055
		(0.118)					(0.121)	(0.121)
CPS_connection*age_sec_57							0.151	0.166
							(0.191)	(0.191)
transfer/revenue			-0.572	-0.259			-0.274	
			(0.501)	(0.903)			(0.906)	
transfer/GDP		0.000			-4.604*	-3.431		-3.507
		(0.000)			(2.574)	(4.253)		(4.277)
loan/gdp		-0.023	-0.030	0.008	-0.045	-0.007	0.008	-0.007
		(0.038)	(0.041)	(0.052)	(0.048)	(0.055)	(0.052)	(0.055)
fdi/gdp		-19.652	-57.642***	-9.048	-58.902***	-10.306	-9.376	-10.704
		(12.298)	(4.452)	(10.097)	(4.758)	(9.425)	(10.343)	(9.671)
log gdp			0.161	0.189	0.011	0.077	0.191	0.078
			(0.225)	(0.253)	(0.229)	(0.267)	(0.255)	(0.268)
log gov spending			0.309	-0.109	0.526	0.032	-0.105	0.041
			(0.285)	(0.442)	(0.340)	(0.472)	(0.439)	(0.472)
weight_asset		-0.407	-0.708	-0.639	-0.786	-0.712	-0.645	-0.720
		(0.405)	(0.493)	(0.495)	(0.518)	(0.499)	(0.501)	(0.504)
Constant			-3.195	1.561	-5.140	0.457	1.492	0.345
			(3.609)	(5.466)	(3.848)	(5.395)	(5.368)	(5.323)
City FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	No	Yes	No	Yes	No
Prov*year FE	No	No	No	Yes	No	Yes	No	Yes
Observations	2,645	2,080	1,668	1,668	1,668	1,668	1,668	1,668
R-squared	0.010	0.020	0.020	0.181	0.023	0.182	0.182	0.183
Number of cities	309	276	274	274	274	274	274	274

Table 6: Leader Power and Firm Loans

VARIABLES	(1) Interest payment	(2) Interest payment	(3) short-term debt	(4) short-term debt	(5) total debt	(6) total debt
CPS_connection	25.719	30.802	3,136.229***	3,299.304***	1,701.089**	1,460.883*
	(29.151)	(30.018)	(601.804)	(620.062)	(748.827)	(754.472)
asset	1.691***	1.632***	35.540***	35.922***	73.293***	70.122***
	(0.013)	(0.014)	(0.276)	(0.297)	(0.344)	(0.361)
CPS_connection*asset	0.135***	0.131***	14.240***	15.866***	28.031***	34.971***
	(0.016)	(0.017)	(0.326)	(0.347)	(0.406)	(0.423)
foreign share		63.720		5,234.778***		4,532.479**
		(86.759)		(1,792.123)		(2,180.597)
state share		22.136		-14,000.423***		-14,412.584***
		(92.841)		(1,917.751)		(2,333.458)
log firm age		-156.652***		-6,450.266***		-8,113.142***
		(24.520)		(506.500)		(616.293)
Constant	1,775.063*	2,216.989**	13,593.009	27,002.987	33,475.935	55,109.658**
	(921.375)	(960.908)	(19,021.349)	(19,848.903)	(23,668.329)	(24,151.510)
Firm FE	Yes	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,138,476	1,078,502	1,138,476	1,078,502	1,138,476	1,078,502
R-squared	0.063	0.056	0.099	0.101	0.216	0.222
Number of firms	428,727	405,696	428,727	405,696	428,727	405,696

Table 7: Leader Power and Firm Investment

VARIABLES	investment		
	(1)	(2)	(3)
CPS_connection*asset			0.0148***
			(0.001)
CPS_connection		1,493***	-3,181***
		(227.1)	(621.3)
asset	0.112***	0.192***	0.0596***
	(0.0125)	(0.0195)	(0.0147)
state capital share	-14,492***	-15,842***	-10,088***
	(2,350)	(2,763)	(2,786)
foreign capital share	1,692	2,537	132.6
	(2,483)	(3,066)	(3,432)
ln(firm age)	-964.9	-1,342	1,416
	(790.0)	(963.5)	(931.5)
Constant	14,059***	11,421***	13,502***
	(2,508)	(2,639)	(2,229)
year fixed effect	Yes	Yes	Yes
industry fixed effect	Yes	Yes	Yes
Obs	505,646	305,192	387,966
R-squared	0.045	0.006	0.161
Number of firm	203,108	138,812	174,951

Table 8: Financial Development, Power and Misallocation

VARIABLES	(1)	(2)	(3)
	Capital Misallocation		
CPS_connection	0.306*	0.338*	0.373**
	(0.179)	(0.180)	(0.175)
loan/gdp	0.107*	0.107*	0.159**
	(0.0592)	(0.0595)	(0.0675)
CPS_connection*(loan/gdp)	-0.128**	-0.130**	-0.135**
	(0.0594)	(0.0583)	(0.0569)
age_secretary		0.00520	0.00503
		(0.0140)	(0.0139)
ttrsfgdp			-0.000367*
			(0.000192)
fdi_gdp			36.18*
			(21.29)
log gdp			0.218
			(0.256)
log government spending			-0.0243
			(0.133)
weight_asset			0.975
			(1.272)
Constant	3.589***	3.300***	2.419
	(0.168)	(0.745)	(1.946)
City FE	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Observations	1,960	1,905	1,857
R-squared	0.019	0.019	0.024
Number of cities	276	276	274

References

Ba, S., Liu, and Niu (2005): "Local Government and Banking Regulation during China's financial transition period," *Financial Research Journal*, 5.

Bai, C.-E., C.-T. Hsieh, and Y. Qian (2006): "The Return to Capital in China," *Brookings Papers on Economic Activity*, 37(2), 61–102.

Blanchard, O., and A. Shleifer (2001): "Federalism With and Without Political Centralization: China Versus Russia," *IMF Staff Papers*, 48(4), 8.

Boyreau-Debray, G., and S.-J. Wei (2004): "Pitfalls of a State-Dominated Financial System: The Case of China," (4471).

Brandt, L., J. Van Biesebroeck, and Y. Zhang (2012): "Creative accounting or creative destruction? Firm-level productivity growth in Chinese manufacturing," *Journal of Development Economics*, 97(2), 339–351.

——— (2014): "Challenges of working with the Chinese NBS firm-level data," *China Economic Review*, 30, 339–352.

Chen, Y., H. Li, and L.-A. Zhou (2005): "Relative performance evaluation and the turnover of provincial leaders in China," *Economics Letters*, 88(3), 421–425.

Dollar, D., and S.-J. Wei (2007): "Das (wasted) Kapital: firm ownership and investment efficiency in China," *National Bureau of Economic Research Cambridge, Mass., USA*.

Hsieh, C., and P. Klenow (2009): "Misallocation and Manufacturing TFP in China and India," *The Quarterly Journal of Economics*, 124(4), 1403–1448.

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

Kou, and W.-H. Tsai (2014): "Sprinting with Small Steps Towards Promotion: Solutions for the Age Dilemma in the CCP Cadre Appointment System," *The China Journal*, 71, 153–171.

Krugman, P. (1994): "The myth of Asia's miracle," *FOREIGN AFFAIRS-NEW YORK-*, 73, 62–62.

Kung, J. K.-s., and T. Chen (2013): "Do land revenue windfalls reduce the career incentives of county leaders? Evidence from China," *working paper*.

Landry, P. F. (2012): "Decentralized Authoritarianism in China," .

Larrain, M., and S. Stumpner (2015): "Capital account liberalization and aggregate productivity: The role of firm capital allocation," *Available at SSRN 2172349*.

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

Maskin, E., Y. Qian, and C. Xu (2000): "Incentives, Information, and Organizational Form," *The Review of Economic Studies*, 67(2), 359–378.

Shih, V. (2004): "Database on Provincial Factional Affiliation with Standing Committee Members of the Chinese Communist Party: 1978-2004," .

Shih, V., C. Adolph, and M. Liu (2012): "Getting ahead in the communist party: explaining the advancement of central committee members in China," *American Political Science Review*, 106(01), 166–187.

Vogel, E. F. (2013): "Deng Xiaoping and the Transformation of China," .