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Spatial Disparity of Skill Premium in China: The Role of Financial Intermediation Development*

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Abstract

In China, the relative wages of high-skilled and low-skilled workers display huge variation across different regions. We examine whether financial intermediation development can explain such variation. Conceptually, better-developed financial intermediation helps financially-constrained firms raise new capital, which is usually skilled-biased, resulting in an increased demand for skilled labor and skill premium. Using a cross-section of workers from the 1% Population Survey of 2005, we find consistent evidence; besides, the relationship is stronger among workers in industries with higher capital-skill complementarity and in non-state-owned enterprises. Overall, our results suggest that the financial market plays a role in explaining skill premium in China.

JEL Classification: J24, J31, O11.
Keywords: Financial intermediation, Misallocation, Skill premium, China.

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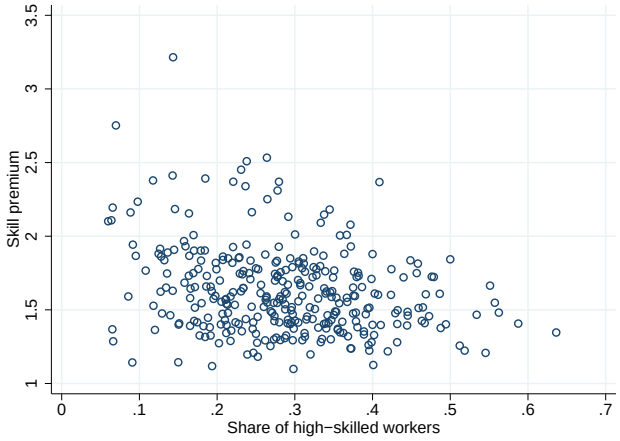
1. Introduction

After decades of economic reform, not only that China's economy has become the world's second largest, the wages of Chinese workers have also increased enormously. According to the figures from the World Bank, China's real GDP increased from $294 billion (about 4.6% of the U.S. real GDP) in 1978 to $6,101 billion (about 40.8% of the U.S. real GDP) by 2010; besides, according to Ge and Yang (2014) the average real wage in urban China increased by 202% between 1992 and 2007.

While there is an overall increase in wage, a probably less well-known trend is the widening wage gap between high-skilled and low-skilled workers. For instance, Ge and Yang (2014) estimate that, between 1992 and 2007, the wages for low-skilled workers (those with a middle school education) increased by 135% while the wages for high-skilled workers (those with college education) increased by more than 240%.[1] Besides, there are also substantial regional differences in the skill composition of labor force and the relative wages of high-skilled and low-skilled workers (see Figure 1).

Figure 1: Skill premia and shares of high-skilled workers across cities



Note: Each observation is a 4-digit city. High-skilled workers are defined as those with college or above education. The skilled premium of a city is defined as the average wage of high-skilled workers divided by the average wage of the low-skilled workers. Data come from the 1% Population Survey of 2005.

Previous studies on the determinants of skill premium have identified different factors that can explain the wage differentials, such as skilled-biased technology change (e.g., Katz and Murphy 1992, Acemoglu and Autor 2011), trade liberalization (e.g., Goldberg and Pavcnik 2007), labor market institutions (e.g., DiNardo, Fortin, and Lemieux 1996), and financial development (e.g., Beck, Levin, and Levkov 2010, Jerzmanowski and Nabar 2013, and Larrain 2015). In the case of China, several recent studies have identified important factors such as capital accumulation and skill-biased technology change (Ge and Yang, 2014), offshoring (Sheng and Yang, 2017), and trade liberalization (Han, Liu, and Zhang 2012, Fan 2019).

The main purpose of this paper is to examine whether financial intermediation

[1]More recently, using the most recent data of Urban Household Survey data up to 2012, the last year available, Bai, Liu, and Yao (2020) documented a drop in skill premium following China's post Financial Crisis stimulus plan.

development (FID) can explain the *regional* differences in skill premia in China. Why may skill premium be related to the financial market? Conceptually, in a financial market with more developed financial intermediation, firms can raise capital at a lower cost to finance their projects.[2] If the new capital is skill-biased in the sense that the new capital comes with technology that is more complementary with skilled labor than with unskilled labor (or "capital-skill complementarity," Griliches 1969), then the relative demand for skilled labor and thus the skill premium is expected to increase. Given that capital mobility across different regions in China tends to be low (see Boyreau-Debray 2003 and Boyreau-Debray and Wei 2005), which gives rise to differences in the development of financial intermediation in different provinces, we should expect that in provinces with better-developed financial intermediation, the skill premia are also higher. This relationship should be stronger when firms are in industries with stronger capital-skill complementarity. Besides, due to the special institutional feature of China, workers in state-owned enterprises (SOEs) are usually paid according to a nation-wide scale and it may be easier and cheaper for SOEs to get credits from the state-controlled financial system. Therefore, we should also expect that the relationship between financial intermediation development and skill premium be stronger among non-SOE workers than among SOE workers.

In our main empirical analysis, we estimate a Mincerian-type wage regression by interacting the "High-skilled dummy" (a dummy indicating whether the workers have college or above education) with city-level FID measures. Our data for worker wages, education, and other worker-level variables come from the 1% Population Survey of 2005 conducted by the National Bureau of Statistics of China. Using data from China City Statistics Yearbook, we construct three FID measures similar to those used in previous studies about China (such as Park and Sehrt 2001, Guariglia and Poncet 2008, and Zhang, Wang, and Wang 2012) and cross-country studies (such as Beck, Demirgüç-Kunt, and Levine 2000); these measures include the total loans to GDP ratio, the total deposits to GDP ratio, and the household deposits to GDP ratio.

Our baseline OLS regressions include various worker characteristics and fixed-effects (such as occupation fixed-effects, city fixed-effects, and province by industry fixed-effects) to control for different confounding factors. We find that in cities with more developed financial intermediation, the high-skilled workers also earn higher wages (i.e., the skill premium is higher). These results are unlikely driven by other demand side determinants of skill premium such as FDI (e.g., Feenstra and Hanson 1996, Chen, Ge, and Lai 2011, Han, Liu, and Zhang 2012) or the number of students enrolled in local higher education institutions on the supply side.

A major econometric challenge is the potential endogeneity problem in the FID measures. Due to the lack of a direct measure of financial intermediation development, we use such variables as total loans, total deposits and household deposits, to construct

[2]Using data from the 2004 version of the Annual Survey of Industrial Firms and China Data Online, we find that, unconditionally, in provinces with better financial intermediation development (as defined by total loans, total deposits, or household deposits, all scaled by GDP of the province), firms tend to have lower ratios of interest expenditure/total assets and interest expenditure/total liabilities.

proxy measures. Since values of these variables are determined in an economic system simultaneously with skill premium in the labor market, any omitted common factor can cause endogeneity bias.

To address the potential endogeneity problem, we propose to use the historical loan-to-deposit ratio of state banks in the late 1980's and early 1990's (Lardy, 1998) as an instrument for contemporary financial intermediation development. The justifications are as follows. Back then (before the banking reform), state banks' lending activities were largely determined by policy objectives through the unified state credit plan. The system leaves limited discretion to banks' local branches over credit allocation despite their superior information (Lardy 1998, Boyreau-Debray 2003). Banks in regions with small lending quota but high deposits keep excess reserves with the Central Bank which then relends the funds to regions where local deposits are insufficient to meet lending targets. Therefore, the loan-to-deposit ratio of state banks is reflective of this mismatch between the supply and demand of funding that arises from the credit plan system. As argued by Guariglia and Poncet (2008), the ratio captures the distortion of the Chinese banking sector in the form of central bank and thus government intervention; other things being equal, a higher loan-to-deposit ratio of state banks in the past tends to indicate more intervention by the government. With path dependence, the ratio should be negatively related to current financial intermediation development. We find supportive evidence for this in the regional pattern of the increase in non-performing loans after the Great Financial Crisis. We take advantage of the fact that historical financial distortions only affect current financial system via institutional legacy and use the ratio as an instrument for financial intermediation development. The 2SLS regressions give similar results.

In terms of economic significance, based on the worker-level 2SLS results, we find that a one standard deviation increase in the FID measures is associated with a 7.2% to 8.7% increase in the skill premium. As mentioned earlier, we expect that the baseline relationship should be stronger among workers in industries with stronger capital-skill complementarity or among workers in non-SOEs. Empirically, we also find consistent evidence.

We contribute to the literature in several ways. First, our paper is related to recent studies that attempt to explain the wage inequality between high-skilled and low-skilled workers in China such as Chen, Ge, and Lai (2011), Han, Liu, and Zhang (2012), Ge and Yang (2014), Sheng and Yang (2017), and Fan (2019). The key difference between our paper and these papers is that we focus on the role of the financial market in explaining the *regional* variation in skill premium, based on the micro-level data from the 1% Population Survey of 2005. Second, our paper adds to the large literature which examines the relationship between skill premium and financial development in the U.S. and other countries. We contribute to this literature by providing evidence on China, a fast growing developing country. Third, our paper adds to the literature on the role of financial system in the development of the Chinese economy. Prior studies have examined its relationship with economic growth (e.g., Allen, Qian, and Qian 2005, Guariglia, Liu, and Song 2011, Zhang, Wang, and Wang 2012, Zhu 2021) , firm productivity (e.g., Chen and

Guariglia 2013, Lai, Qian, and Wang 2016), and firm ownership transition (e.g., Brandt, Li, and Roberts 2005). Our results suggest that the development of financial intermediation also has implication for the wage differentials between skilled and unskilled workers in China. In a broader context, our paper is also related to the literature on financial market frictions, resource misallocation and productivity (such as Hsieh and Klenow 2009, Buera, Kaboski, and Shin 2011 and Midrigan and Xu 2014).

This paper is organized as follows. Section 2 describes a simple partial equilibrium framework relating FID and skill premium and derive three empirically testable hypotheses. Section 3 describes the main FID measures and our instrumental variable strategy. Section 4 presents our empirical results. Finally, Section 5 concludes the paper.

2. A simple partial equilibrium framework

To examine the relationship between financial intermediation development and skill premium, we start with the following three-factor production function of a particular region (a city in our context):[3]

$$y = f(k,s,u) = \left\{ \mu u^{\sigma} + (1-\mu)\left[\lambda k^{\rho} + (1-\lambda)s^{\rho}\right]^{\frac{\sigma}{\rho}} \right\}^{\frac{1}{\sigma}}, \tag{1}$$

where y is the output, k is the capital input, s and u are the amounts of skilled and unskilled labor, $\mu \in (0,1)$ relates to the income share of unskilled labor, while $\lambda \in (0,1)$ captures the relative income shares between capital and skilled labor; $\sigma < 1$ and $\rho < 1$ are parameters that govern the elasticities of substitution. In this production function, if capital is more complementary to skilled labor than to unskilled labor (i.e., capital and skilled labor are relative complements but capital and unskilled labor are relative substitutes, as in Griliches 1969), then we have $\sigma > \rho$.[4]

Let w_s and w_u be the wages of skilled and unskilled labor. If the labor market is competitive, then workers are paid their marginal products, so that:

$$w_s = \left\{ \mu u^{\sigma} + (1-\mu)\left[\lambda k^{\rho} + (1-\lambda)s^{\rho}\right]^{\frac{\sigma}{\rho}} \right\}^{\frac{1}{\sigma}-1} (1-\mu)\left[\lambda k^{\rho} + (1-\lambda)s^{\rho}\right]^{\frac{\sigma}{\rho}-1}(1-\lambda)s^{\rho-1}, \tag{2}$$

$$w_u = \left\{ \mu u^{\sigma} + (1-\mu)\left[\lambda k^{\rho} + (1-\lambda)s^{\rho}\right]^{\frac{\sigma}{\rho}} \right\}^{\frac{1}{\sigma}-1} \mu u^{\sigma-1}. \tag{3}$$

We can define skill premium of the region, denoted as ω, as the relative wage w_s/w_u:

$$\omega = \frac{w_s}{w_u} = \frac{(1-\mu)(1-\lambda)}{\mu}\left[\lambda\left(\frac{k}{s}\right)^{\rho} + (1-\lambda)\right]^{\frac{\sigma}{\rho}-1}\left(\frac{u}{s}\right)^{1-\sigma}. \tag{4}$$

Log-linearizing and differencing result in the following relationship between the deviations

[3] The framework presented in this Section is based on the discussion in Larrain (2015).

[4] To see this, we observe that the elasticity of substitution between k and u is $1/(1-\sigma)$ and that between k and s is $1/(1-\rho)$. Thus, if k is more complementary to s than to u, we have $1/(1-\sigma) > 1/(1-\rho)$, implying that $\sigma > \rho$.

of the variables from the reference group $(\bar{k}, \bar{s})$:

$$\Delta \ln \omega \approx (\sigma - \rho) \frac{\lambda \bar{k}^{\rho}}{\lambda \bar{k}^{\rho} + (1-\lambda)\bar{s}^{\rho}} (\Delta \ln k - \Delta \ln s) + (1-\sigma)(\Delta \ln u - \Delta \ln s). \tag{5}$$

How is skill premium associated with financial intermediation development? All else the same, more developed financial intermediation increases capital supply, thus larger $\Delta \ln k$. Under capital-skill complementarity, $\sigma > \rho$, $\Delta \ln \omega$ rises with $\Delta \ln k$. Moreover, the higher the degree of complementarity, $\sigma - \rho$, the stronger the positive association. Therefore, we have the following two testable hypotheses.

> ***Hypothesis 1:*** *If capital is more complementary to skilled labor than to unskilled labor, then skill premium is positively related to the extent of financial intermediation development.*
>
> ***Hypothesis 2:*** *The positive relationship between skill premium and the extent of financial intermediation development is stronger when capital-skill complementarity is stronger.*

As we mentioned in the Introduction, the interaction between the capital market and labor market could be different between the state sector and the private sector. In particular, workers in state-owned enterprises (SOEs) are usually paid according to a nation-wide scale. As a result, equations (2) and (3) may not hold well among SOE workers. On the other hand, SOEs may get access to finance easily irrespective of the constraint on local financial market. Overall, we should expect that the above results are stronger among non-SOE workers than among SOE workers (if the positive relationship exists at all). This is summarized by the following testable hypothesis.

> ***Hypothesis 3:*** *The positive relationship between skill premium and the extent of financial intermediation development is stronger among workers in non-state-owned enterprises than among workers in state-owned enterprises.*

Note that the previous discussion assumes an inelastic supply of skilled and unskilled labor. This assumption is natural in a cross-country analysis (e.g., Larrain 2015). However, in the case of China, workers may move (although not freely) across different regions to exploit the potential differences in wages. Nevertheless, the equalizing effect of labor mobility will make it more difficult for us to detect regional differences in skill premia. We focus on establishing the existence of the impact in this project and leave the general equilibrium analysis for future research.

3. Financial intermediation development (FID) measures and instrumental variable strategy

3.1 FID measures

We use data from the 2004 China Statistics Yearbook to construct the following measures of financial intermediation development at the city-level: (1) Total loans in financial

institutions/GDP, (2) Total deposits in financial institutions/GDP, and (3) Household deposits/GDP. Presumably, when these ratios take higher values, the financial intermediation of the provinces also tend to be better developed. Similar measures have been used by Chinese studies such as Park and Sehrt (2001), Guariglia and Poncet (2008), and Zhang, Wang, and Wang (2012) and by other cross-country studies such as Beck, Demirgüç-Kunt, and Levine (2000).[5]

One may argue that it is possible for firms to borrow across cities so that the above measures may not capture accurately the extent of the financial intermediation development of a city. Nevertheless, there is documented evidence suggesting that capital mobility across different regions in China is relatively low (see, e.g., Boyreau-Debray 2003 and Boyreau-Debray and Wei 2005) so that the above ratios should be reliable proxies of local financial intermediation development.[6]

3.2 Instrumental variable strategy

To evaluate the impact of financial intermediation development on labor market, ideally one wants to use measures that directly reflect the institutional arrangements of the financial system that constrain the behavior of loan issuing banks. Due to lack of such direct measures, we rely on proxies constructed above. As a result, a major econometric challenge is the potential endogeneity of these FID measures since unobservable factors may affect the financial market outcomes of a city and the labor market skill premium simultaneously. Besides, reverse causality may exist because, for example, policies facilitating financial intermediation development may be targeted to regions with higher demands for skilled workers (and thus a higher skill premium).

3.2.1 Using the historical policy lending of state banks as an instrument

To address these issues, we propose to use the historical policy lending of state banks as an instrument of current financial intermediation development of a city.[7] Specifically, our proposed instrument (denoted as IV_p) is the loan-to-deposit ratio of state banks, averaged over 1988-1993, taken from Lardy (1998). This is the period when policy lending

[5] In an unreported analysis, we also use the average capital price of firms in a particular city as an alternative FID measure. It is constructed using firm-level value-added and real capital information from the 1998-2004 Annual Survey of Industrial Firms. Essentially we estimate the firm-level capital price on year and city fixed-effects and compute the average capital price of as the predicted city fixed-effects. Based on the results from the recent misallocation literature (e.g. Chen, Henderson, and Cai 2017), cities with better FID are supposed to be associated with lower average capital prices. Using this alternative FID measure, we obtain qualitatively similar empirical results.

[6] More specifically, to access the extent of capital mobility within China, Boyreau-Debray (2003) and Boyreau-Debray and Wei (2005) apply the test proposed by Feldstein and Horioka (1980), which essentially examines the correlation between savings and investments in the local financial market. The idea is that, at the subnational level, if capital is not mobile across regions, then local savings can only be invested locally; on the other hand, if capital can move freely across regions, the correlation between local savings and local investments should be low. Empirically, Boyreau-Debray (2003) and Boyreau-Debray and Wei (2005) find that there is a positive and significant association between bank deposits and bank loans at the province level, suggesting that capital mobility is low.

[7] As will be explained later, since IV_p only has variation at the province level, the city-level variation is generated by interacting it with city population (in 1992).

was substantial and carried out by the big four State Owned Banks.[8] Meanwhile these years also witnessed the emergence of non-state owned banks and other non-banking lending institutions (such as rural credit cooperatives, urban credit cooperatives and trust investment companies) that have served as financial service providers to the non-state owned sector of the economy.[9]

Our justification of this instrument is as follows. We note that state banks' lending activities during this period of time have been largely determined by policy objectives through credit plans independent of the branch banks' ability to mobilize local deposits to meet lending targets (Lardy 1998, Boyreau-Debray 2003). The Central Bank played an active role in redistributing available funds across provinces.[10] Therefore, this loan-to-deposit ratio of state banks can be viewed as a proxy to measure the Central Bank's credit to the branch banks to meet the lending quotas. As argued by Guariglia and Poncet (2008), this ratio captures the distortion of the Chinese banking sector in the form of Central Bank's intervention; other things being equal, a higher Loan-to-deposit ratio of state banks in the past tends to indicate more intervention by the government, which may in turn hinder the development of a market system for fund allocation. In other words, this ratio should be negatively related to current financial intermediation development.

As shown in Table 3 below, IV_p's standard deviation is around one-fifth of the value of the mean, indicative of 20% more loan issuance for the same amount of deposits absorbed in the state banking system. The substantial variation in the ratio across provinces reflects to a large extent the redistribution of available funds by the government according to a centralized credit plan. Therefore, we argue that the ratio can serve as a proxy for historical government intervention in the banking system and in turn an instrument for the contemporary financial intermediation development due to institutional legacy.

3.2.2 Identifying assumption and supportive evidence

Our identifying assumption is based on an "institutional legacy" story that, conditional on different control variables and fixed-effects, the historical loan-to-deposit ratio of state banks only affects current skill premium through its correlation with current financial intermediation development.[11]

In this Section, we document further supportive evidence for such "institutional legacy" as follows. In response to the global financial crisis in 2008, the Chinese government implemented a large scale fiscal stimulus of about 4 trillion RMB in 2009 and 2010. After the stimulus plan, China's overall ratio of non-performing loans to gross loans

[8] It was during the 1994 banking reform that policy lending was taken over by specialised policy banks, and the big four started to operate as commercial banks. According to Brandt and Zhu (2000), "...between 1979 and 1993, on average, 84 percent of all new credits from the state banking system were allocated to the state sector. In addition, more than one-third of these loans were financed by policy loans from the People's Bank of China."

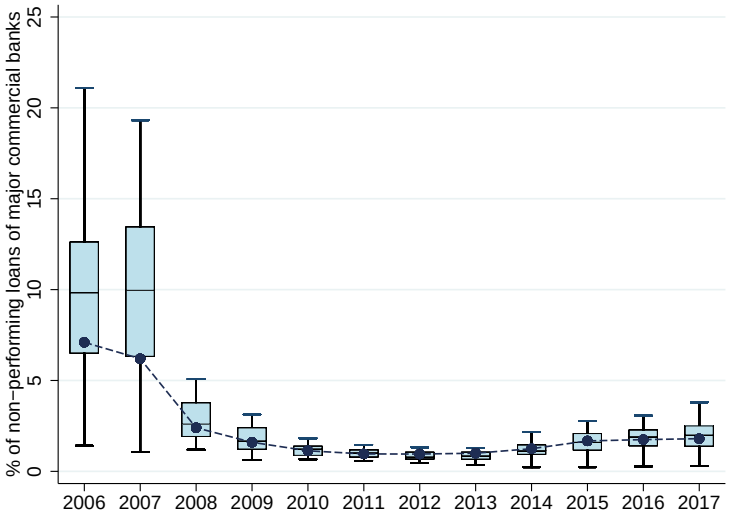
[9] See Zhu (2021) for more details on the evolving role of shadow banking in China.

[10] Interbank market did not come into existence until the mid-1990s.

[11] Certainly, this assumption may fail when the historical policy lending of one region is also correlated with other government policies that affect current skill premium. To address this concern, we include a battery of control variables and fixed-effects in our main regression model.

seems to increase (see Figure 2 and Table 1).[12] One possible explanation of such a trend is the worsening of the overall efficiency of the allocation of capitals because the new financial resources go to the local governments' favored firms or firms with lower marginal product of capital (see, for example, Bai, Hsieh, and Song 2016 and Cong et al. 2019). Comparing different provinces, the "institutional legacy" story would suggest that the local governments of provinces that were subject to more intervention by the Central Bank in the past likely also distort capital allocation efficiency more so that these provinces should have larger increases in the shares of non-performing loans.

Figure 2: Share of non-performing loans of major commercial banks across provinces



Note: This figure shows the boxplot of the shares of non-performing loans of major commercial banks across provinces in different years (excluding the outliers). The dashed line indicates the national averages in different years. Data come from various issues of Almanac of China's Finance and Banking.

Table 1: Non-performing loans to gross loans in China

Year	Non-performing loans/ Gross loans (%)
2006	7.10
2007	6.20
2008	2.40
2009	1.60
2010	1.13
2011	0.96
2012	0.95
2013	1.00
2014	1.25
2015	1.67
2016	1.74
2017	1.74

Note: Data come from the Federal Reserve Bank of St. Louis (https://fred.stlouisfed.org/series/DDSI02CNA156NWDB) and the World Bank (https://data.worldbank.org/indicator/FB.AST.NPER.ZS?locations=CN).

In Table 2, we investigate the province-level relationship between the correlations

[12] To create Figure 2, we use data from various issues of Almanac of China's Finance and Banking. In Table 1, we use data from the Federal Reserve Bank of St. Louis and the World Bank.

between the instrument (Loan-to-deposit ratio by state banks, averaged over 1988-1993) and the changes in the ratios of non-performing loans of commercial banks in the 2010s (using data from various issues of *Almanac of China's Finance and Banking*).[13] Among different specifications, we can see that there is a positive correlation.[14] These results suggest that provinces with higher Loan-to-deposit ratios by the state banks in the 1990s also tend to have higher shares of non-performing loans in the 2010s.

Table 2: Loan-to-deposit ratio of state banks in the 1990s versus changes in Ratio of non-performing loans in the 2010s

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable:	$\Delta\%NPL_{2011-2014}$		$\Delta\%NPL_{2011-2015}$		$\Delta\%NPL_{2011-2016}$		$\Delta\%NPL_{2011-2017}$	
IV_p	0.681	0.679**	0.873	0.872	1.244**	1.244**	1.710***	1.710***
	(0.421)	(0.323)	(0.569)	(0.539)	(0.531)	(0.537)	(0.559)	(0.579)
log GDP per capita		0.440*		0.266		−0.015		−0.116
		(0.218)		(0.364)		(0.363)		(0.391)
SOE revenue share		−2.298***		−2.167		−1.433		−0.101
		(0.809)		(1.349)		(1.346)		(1.450)
Observations	30	30	30	30	30	30	30	30
R^2	0.085	0.501	0.078	0.232	0.164	0.206	0.250	0.253

Note: The dependent variable is the change in Non-performing loans/Total loans. IV_p is the Loan-to-deposit ratio by state banks (averaged over 1988-1993). log GDP per capita is measured in 2011 (taken from China Data Online); SOE revenue share is measured in 2011 (taken from the Annual Survey of Industrial Firms). Robust standard errors are reported in parentheses. *: significance at 10% level; **: significance at 5% level; ***: significance at 1% level.

4. Empirical analysis

4.1 Sample construction and descriptive statistics

In our main empirical analysis, we estimate a number of standard Mincerian wage regressions.

The worker-level variables come from the 1% Population Survey of 2005 conducted by the National Bureau of Statistics (NBS). This is a nationally-representative survey and contains useful wage and other demographic information of the workers across the country.[15] To construct the regression sample, we include workers living in cities who are aged between 16 and 60 with reported labor income, but exclude business employers, self-employed individuals, and students. Our sample for the worker-level regressions contains 255,522 observations in 246 4-digit cities and 30 provinces.

Panel A of Table 3 reports the summary statistics of the worker-level variables. The workers in the sample on average earn about 1,058 RMB per month and about 26% of them are high-skilled workers. The average age of the workers is about 35. About 44%

[13] We use 2011 as the base year to measure the changes in the ratios of non-performing loans; results are similar when we use 2012 as the base year.

[14] In even columns, we use log GDP per capita to control for the size of the income of the province) and SOE revenue share to control for the importance of SOEs.

[15] Note that NBS provides sampling weights to correct for the representativeness of the sample. These sampling weights are used throughout the empirical analysis.

of them are female, 66% of them hold a non-agricultural *hukou* status, 33% of them are migrants, and 73% of them are married. Panel B of Table 3 shows the summary statistics of the city-level variables. On average, total loans, total deposits and household deposits constitute about 91%, 119% and 94% of the total GDP of the city.[16] Panel C of Table 3 shows the summary statistics for instrument of the FID measures, i.e., the provincial level loan-to-deposit ratio of state banks averaged over years 1988 to 1993.

Table 3: Variables: Summary statistics and data sources

Variable	Observations	Mean	S.D.	Data source
Worker-level				
Monthly wage (RMB)	255522	1234.84	1058.37	2005 1% Population survey
High-skilled dummy	255522	0.26	0.44	2005 1% Population survey
Age	255522	34.73	10.17	2005 1% Population survey
Female dummy	255522	0.44	0.50	2005 1% Population survey
Non-agricultural *hukou* dummy	255522	0.66	0.47	2005 1% Population survey
Migrant dummy	255522	0.33	0.47	2005 1% Population survey
Married dummy	255522	0.73	0.44	2005 1% Population survey
City-level				
Total loans/GDP	246	0.91	0.46	2004 China City Statistics Yearbook
Total deposits/GDP	246	1.19	0.55	2004 China City Statistics Yearbook
Household deposits/GDP	246	0.74	0.24	2004 China City Statistics Yearbook
Share of migrants (%)	246	7.74	10.61	2005 1% Population survey
Share of secondary sector emp. (%)	246	42.72	12.87	2004 China City Statistics Yearbook
log City population	246	5.83	0.71	2004 China City Statistics Yearbook
log No. of theatres	246	2.40	1.07	2004 China City Statistics Yearbook
log No. of library books	246	6.66	0.97	2004 China City Statistics Yearbook
log No. of hospitals	246	5.17	0.74	2004 China City Statistics Yearbook
log No. of doctors	246	8.47	0.66	2004 China City Statistics Yearbook
log Volume of passenger traffic	246	8.30	0.87	2004 China City Statistics Yearbook
log Volume of goods traffic	246	8.28	0.80	2004 China City Statistics Yearbook
Share of SOE output	246	0.22	0.16	2004 China City Statistics Yearbook
Share of SOE capital	246	0.28	0.22	2004 China City Statistics Yearbook
log 1992 city population	246	5.12	1.06	1992 China City Statistics Yearbook
Province-level				
IV_p	30	1.31	0.25	Lardy (1998)

Note: Monthly wage is the reported monthly labor market income of the workers. High-skilled workers are defined as those with college or above education. IV_p is the instrument for the financial intermediation development measures, defined as the Loan-to-deposit ratio by state banks (averaged over 1988-1993).

4.2 Baseline results

4.2.1 OLS regression results

For expositional purpose, we start with the following wage regression:

$$\log w_i = \beta_0 + \beta_1 H_i + \varepsilon_i, \tag{6}$$

where i indexes a worker, w_i is the wage income of the worker, H_i is the "High-skilled dummy" indicating that the worker is a high-skilled worker (with college or above education), and ε_i is the error term. In the above regression, the coefficient β_1 can be

[16] The other city-level variables measured in 2004 are used as the control variables in the alternative two-step approach in Section 4.3. And finally, the 1992 city population is interacted with the province-level instrument in the 2SLS regressions.

interpreted as the skill premium. Column (1) of Table 4 shows that, unconditionally, the wage premium is about 58.1% and is statistically significant.[17]

Table 4: Worker-level OLS regression results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
H_i	0.581***	0.381***	0.381***	0.378***	0.626**	0.863***	0.952***
	(0.034)	(0.012)	(0.015)	(0.014)	(0.249)	(0.253)	(0.306)
$H_i \times$ (Total loans/GDP)		0.088***			0.092***		
		(0.012)			(0.009)		
$H_i \times$ (Total deposits/GDP)			0.086***			0.091***	
			(0.020)			(0.015)	
$H_i \times$ (Household deposits/GDP)				0.053***			0.065***
				(0.012)			(0.010)
Age		0.020***	0.020***	0.020***	0.020***	0.020***	0.020***
		(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Age-squared		−0.024***	−0.024***	−0.025***	−0.024***	−0.024***	−0.024***
		(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Female dummy		−0.186***	−0.186***	−0.186***	−0.185***	−0.185***	−0.185***
		(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
Non-agricultural *hukou* dummy		0.119***	0.119***	0.121***	0.114***	0.113***	0.116***
		(0.013)	(0.013)	(0.013)	(0.012)	(0.012)	(0.012)
Migrant dummy		0.073***	0.073***	0.072***	0.074***	0.074***	0.073***
		(0.011)	(0.011)	(0.011)	(0.010)	(0.010)	(0.010)
Married dummy		0.051***	0.051***	0.049***	0.053***	0.053***	0.051***
		(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Occupation fixed-effects	No	Yes	Yes	Yes	Yes	Yes	Yes
City fixed-effects	No	Yes	Yes	Yes	Yes	Yes	Yes
Province-by-industry fixed-effects	No	Yes	Yes	Yes	Yes	Yes	Yes
H_i interacted with Z_p	No	No	No	No	Yes	Yes	Yes
Observations	255522	255522	255522	255522	255522	255522	255522
R^2	0.184	0.147	0.147	0.143	0.150	0.149	0.147

Note: The dependent variable is log Monthly wage of the worker. H_i is the high-skill dummy. The FID measures are standardized to have 0 means and unit s.d. Z_p is a vector of province-level characteristics (including log Number of higher education students, log FDI, and log Share of SOE employment); their coefficients are not reported for brevity. Standard errors are clustered at the city level and are reported in parentheses. *: significance at 10% level; **: significance at 5% level; ***: significance at 1% level.

To explain whether the wage premium is related to the extent of financial intermediation development (FID) in a city conditional on other factors, we add the interaction between H_i and FID_c in the regression, i.e.:

$$\log w_i = \gamma_0 + (\gamma_1 + \gamma_2 FID_c) \times H_i + \gamma_3 X_i + \theta_o + \theta_c + \theta_{pj} + \varepsilon_i, \tag{7}$$

where FID_c is a city-level FID measure, X_i is a vector of worker characteristics (including age, age-squared, female dummy, non-agricultural *hukou* dummy, migrant dummy, and married dummy), θ_o, θ_c, and θ_{pj} are respectively occupation fixed-effects, city fixed-effects, and province by industry fixed-effects,[18]

In equation (7), the skill premium is given by $(\gamma_1 + \gamma_2 FID_c)$. When estimated correctly, the coefficient γ_2 should indicate whether, conditional on other worker-level characteristics

[17] In all specifications of this table, the standard errors are clustered at the city level.
[18] We use the 2-digit GB2002 industry classifications, which includes 20 major sectors.

and higher level fixed effects, the wage premium is higher in cities with higher FID_c (indicated by a higher total loans to GDP ratio, a higher total deposits to GDP ratio, or a higher household deposits to GDP ratio). Columns (2) to (4) of Table 4 show the corresponding regression results. In these specifications, the FID measures are standardized to have 0 means and unit standard deviations. These results indicate that when the FID measures are higher, the skill premium also tends to be higher.

Even though the model in (7) includes occupation, city, and province by industry fixed-effects to control for unobserved heterogeneity for different occupations, city, provinces and industries, one may still argue that there are other confounding factors correlated with both the skill premium and the measures of financial intermediation development. Some are supply-side factors. For instance, provinces with more higher education institutions may "produce" more high-skilled workers, increasing the supply of skilled workers. Without being controlled for, this supply shifter may confound the impact of financial intermediation on skill premium. Others affect the relative skill demand. For instance, the extant literature in international trade finds that foreign direct investment (FDI) demands relatively more skilled labor (e.g., Feenstra and Hanson 1996, Han, Liu, and Zhang 2012) and that exporters pay higher wages to the skilled workers (e.g., Verhoogen 2008). Besides, the state sector may have a different demand for skilled workers than the non-state sector. If cities with more developed financial intermediation also attract more FDI or firms in these cities have a larger state sector, then it is likely that the coefficient of the interaction between H_i and FID_c captures the skill premium of FDI or state sector instead of the contribution of financial intermediation development.[19] To ensure that our results are not driven by these factors, we include additional interaction terms between H_i and log number of higher education students (to control for the supply of high-skilled workers), log FDI and share of SOE firms (to control for the importance of the state sector) in each province; these variables are collectively denoted by Z_p.[20]

After taking into account the above issues, our full specification of the worker-level regression is:

$$\log w_i = \delta_0 + (\delta_1 + \delta_2 FID_c + \delta_3 Z_p) \times H_i + \delta_4 X_i + \theta_o + \theta_c + \theta_{pj} + \varepsilon_i. \tag{8}$$

In this regression, the skill premium is given by $(\delta_1 + \delta_2 FID_c + \delta_3 Z_p)$ and we are interested in the sign of δ_2. Columns (5) to (7) of Table 4 show the corresponding regression results. After controlling for these additional factors, we still find similar results as those in Columns (2) to (4).

4.2.2 2SLS regression results

We use our proposed instrument — the historical state banks' loan-to-deposit ratio (IV_p) — to estimate (8) by 2SLS. Since IV_p only has variation at the province level, we interact it

[19] Note that these factors cannot be captured by the province by industry fixed-effects (θ_{pj}) because these fixed-effects are assumed to affect wages of the skilled and unskilled workers equally.

[20] We create these variables at the province level because we do not have raw data to create these variables for all the cities in our sample.

with city-level population in 1992 to provide city-level variation.[21]

Table 5 reports the second-stage results; the corresponding first-stage results are shown in Appendix A. Again, the FID measures are all standardized to have 0 means and unit standard deviations. We find that the coefficient of the interaction between the high-skill dummy and the FID measures are positive and statistically significant. Besides, the *F*-statistics for weak identification are above 10, so that weak identification should not be an issue (Staiger and Stock, 1997) at least for these two specifications.

Table 5: Worker-level 2SLS regression results

	(1)	(2)	(3)
H_i	0.638**	0.851***	0.990***
	(0.248)	(0.252)	(0.306)
$H_i\times$ (Total loans/GDP)	0.087***		
	(0.020)		
$H_i\times$ (Total deposits/GDP)		0.072***	
		(0.015)	
$H_i\times$ (Household deposits/GDP)			0.081***
			(0.015)
Age	0.020***	0.020***	0.020***
	(0.001)	(0.001)	(0.001)
Age-squared	–0.024***	–0.024***	–0.024***
	(0.002)	(0.002)	(0.002)
Female dummy	–0.185***	–0.185***	–0.185***
	(0.007)	(0.007)	(0.007)
Non-agricultural *hukou* dummy	0.114***	0.114***	0.115***
	(0.012)	(0.012)	(0.012)
Migrant dummy	0.074***	0.073***	0.073***
	(0.010)	(0.010)	(0.010)
Married dummy	0.053***	0.052***	0.052***
	(0.005)	(0.005)	(0.005)
Occupation fixed-effects	Yes	Yes	Yes
City fixed-effects	Yes	Yes	Yes
Province-by-industry fixed-effects	Yes	Yes	Yes
H_i interacted with Z_p	Yes	Yes	Yes
Observations	255522	255522	255522
F-stat for weak id	27.785	30.922	46.600

Note: The dependent variable is log Monthly wage of the worker. H_i is the high-skill dummy. The FID measures are constructed are standardized to have 0 means and unit s.d. All specifications are 2SLS using IV_p (Loan-to-deposit ratio by state banks, averaged over 1988-1993), log 1992 city population and their interaction as the instruments. Z_p is a vector of province-level characteristics (including log Number of higher education students, log FDI, and log Share of SOE employment); their coefficients are not reported for brevity. Standard errors are clustered at the city level and are reported in parentheses. *: significance at 10% level; **: significance at 5% level; ***: significance at 1% level.

Overall, we find supportive evidence for **Hypothesis 1** discussed in Section 2. In terms of economic significance, a one standard deviation increase in the FID measures is associated with a 7.2% to 8.7% increase in the skill premium.

[21] To be precise, in each specification, the instruments are IV_p, log 1992 city population, and their interaction term.

4.3 Alternative two-step approach

The worker-level regressions we estimated earlier may suffer from other types of endogeneity. At the individual-level, workers' location choices may be endogenous, depending on the wage offers in different cities. Besides, at a more aggregate-level, workers' location choices also depend on observed and unobserved city-level characteristics. To address these concerns, scholars in the urban economics literature propose a two-step approach: in the first step, a worker-level regression is estimated to extract the local fixed-effects; in the second step, the city fixed-effects are regressed on other local variables so as to evaluate the impact of these local variables (see the recent survey by Combes and Gobillon 2015).

We implement the two-step approach as follows:

1. In the first step, we estimate a city-specific skill premium. Specifically, we first estimate a worker-level Mincerian wage regression by regressing log Wage income on the interactions between the High-skill dummy (H_i) and city dummies, and the interactions between H_i and other worker characteristics and fixed-effects.[22] We then extract the coefficients of the interactions between H_i and city dummies to compute the estimated city-level skill premium (as the coefficient of city dummy when $H_i = 1$ minus the coefficient of the city dummy when $H_i = 0$).

2. In the second step, we use the predicted skill premium (denoted as $\hat{Skillpremium}_c$) as the outcome and estimate the following regression by limited information maximum likelihood (LIML):

$$\hat{Skillpremium}_c = \beta_0 + \beta_1 FID_c + \beta_2 X_c + \varepsilon_c,$$

   where X_c is a vector of city-level characteristics.[23] To address the potential endogeneity of FID_c, we use the same IV strategy discussed earlier.

Table 6 reports the 2SLS regression results of the second step. Similar to the worker-level analysis, we standardize the FID measures to have 0 means and unit standard deviations. Using the two-step approach, we still find qualitatively similar empirical results — the coefficient of the FID measures are positive and significant.

4.4 The role of capital-skill complementarity

In the Introduction, we argue that better developed financial intermediation facilitates firms' raise of capital which promotes the relative productivity of skilled workers under capital-skill complementarity; such a relationship should be stronger when firms are in industries in which the complementarity is stronger.

[22] The worker characteristics include age and its square, female dummy, *hukou* dummy, SOE dummy, migrant dummy, and married dummy); the fixed-effects include occupation fixed-effects and industry fixed-effects.

[23] The city-level characteristics include share of migrants, share of secondary sector employment, city population, city amenities and infrastructure (number of theatres, number of library books, number of hospitals, number of doctors), volumes of passenger and goods traffic, shares of SOE output and capital. The summary statistics of these variables are reported in Table 3.

Table 6: Alternative specification: City-level two-step regression results

	(1)	(2)	(3)
Total loans/GDP	0.058**		
	(0.025)		
Total deposits/GDP		0.024**	
		(0.010)	
Household deposits/GDP			0.048***
			(0.017)
Share of migrants	0.006***	0.006***	0.006***
	(0.001)	(0.001)	(0.001)
Share of secondary sector emp.	0.001	0.000	0.001
	(0.001)	(0.001)	(0.001)
log City population	0.071*	0.028	0.031
	(0.042)	(0.028)	(0.029)
log No. of theatres	–0.015**	–0.021***	–0.022***
	(0.008)	(0.007)	(0.008)
log No. of library books	–0.029	0.002	0.018
	(0.023)	(0.013)	(0.013)
log No. of hospitals	–0.020	–0.011	–0.006
	(0.016)	(0.015)	(0.016)
log No. of doctors	0.030	0.048	0.018
	(0.037)	(0.032)	(0.039)
log Volume of passenger traffic	–0.008	–0.006	–0.003
	(0.012)	(0.011)	(0.012)
log Volume of goods traffic	–0.017	–0.019	–0.014
	(0.017)	(0.016)	(0.018)
Share of SOE output	–0.099	–0.060	–0.081
	(0.096)	(0.089)	(0.099)
Share of SOE capital	0.041	0.031	0.022
	(0.058)	(0.055)	(0.061)
Observations	246	246	246
F-stat for weak id	17.189	67.641	24.668

Note: The dependent variable is City-level skill premium estimated in the first-step. Standard errors are reported in parentheses. The FID measures are standardized to have 0 means and unit s.d. All specifications are 2SLS and are estimated by LIML, using IV_p (Loan-to-deposit ratio by state banks, averaged over 1988-1993), log 1992 city population, and their interaction as the instruments. *: significance at 10% level; **: significance at 5% level; ***: significance at 1% level.

To examine whether capital-skill complementarity does play such a role, we borrow the capital-skill complementarity index estimates by Larrain (2015). Specifically, Larrain (2015) follows Berman, Bound, and Griliches (1994) and estimates the following country-level panel regression for each industry j:

$$\begin{aligned}&\%\text{ wages paid to high-skilled workers}_{ct}\\ &= \beta \log\left(\frac{\text{High-skilled wages}}{\text{Low-skilled wages}}\right)_{ct} + \gamma \log\left(\frac{\text{Capital}}{\text{Output}}\right)_{ct} + \alpha_c + \alpha_t + \varepsilon_{ct},\end{aligned} \tag{9}$$

where c is a country, t is a year. In this regression, data for 20 countries from EU-KLEMS between 1975 and 2005 are used. The capital-skill complementarity index is γ from the regression; industries with $\gamma > 0$ display capital-skill complementarity. His estimates are reproduced in Table 7.

We match the capital-skill complementarity index to our sample and divide the

Table 7: Capital-skill complementarity index

Industry	Industry code (ISIC)	CSC index	High/Low CSC
Retail trade, except of motor vehicles	52	−0.088	Low
Education	80	−0.070	Low
Real estate activities	70	−0.050	Low
Health and social work	85	−0.039	Low
Hotels and restaurants	55	0.037	Low
Manufacturing of machinery and equipment	29	0.044	Low
Manufacturing of coke, refined petroleum	23	0.049	Low
Manufacturing of wood	20	0.073	Low
Construction	45	0.134	High
Manufacturing of chemicals	24	0.214	High
Manufacturing of other non-metallic mineral products	26	0.302	High
Wholesale trade and commission trade	51	0.336	High
Manufacturing of rubber, plastics	25	0.365	High
Sale, maintenance, repair motor vehicles	50	0.378	High
Post and telecommunications	64	0.470	High

Note: The capital-skill complementarity (CSC) index comes from Table 4 of Larrain (2015). Industries with CSC index below or equal to the median (0.073) is grouped as "Low CSC" and those with CSC index above the median is grouped as "High CSC."

workers into two groups: those working in industries with above-median capital-skill complementarity index and those working in industries with below-median capital-skill complementarity index.[24] Then we estimate the baseline 2SLS regressions for these two groups of workers. Table 8 shows the results for workers in industries in the low and high capital-skill complementarity groups, respectively.[25] Since the FID measures are standardized, the results suggest that a one standard deviation increase in the FID measures is associated with a higher skill premium among workers in the high CSC industries relative to the workers in the low CSC industries. These results lend support to **Hypothesis 2** discussed in Section 2.

4.5 The role of ownership structure

The baseline analysis considers workers in both the private and the state sectors. Do we expect different results for workers in the private sector and for workers in the state sector?

We argue that, due to the special institutional feature of China, the effects among workers in the private sector should be stronger than those among workers in the state sector. It is because, for state-owned enterprises (SOEs), the capital and labor input choices and costs are less subject to market forces than for non-state-owned enterprises (non-SOEs), so that differences in regional financial intermediation development may not be reflected in wages for SOE workers. In particular, in the capital market, otherwise identical SOEs and non-SOEs can get access to finance through different means. For instance, Brandt and Zhu (2000) find that inefficient SOEs are supported by the government through cheap credits from the state-owned banks and money creation. Brandt and Li (2003) document

[24]Note that in this analysis, we only consider industries appearing in both our sample and Larrain (2015). Besides, from Table 7 we can see that the estimated capital-skill complementarity measures for some industries are negative; if we exclude these industries and re-estimate the baseline 2SLS model, we still obtain similar results.

[25]As mentioned, the capital-skill complementarity index of Larrain (2015) is available to a subset of industries in our sample. Therefore, the samples in these two regressions are smaller than that of the baseline regression.

Table 8: Worker-level 2SLS regression results: By capital-skill complementarity

	(1)	(2)	(3)	(4)	(5)	(6)
Sample:	Workers in low CSC industries			Workers in high CSC industries		
$H_i\times$ (Total loans/GDP)	0.066***			0.147***		
	(0.015)			(0.031)		
$H_i\times$ (Total deposits/GDP)		0.055***			0.076***	
		(0.011)			(0.015)	
$H_i\times$ (Household deposits/GDP)			0.061***			0.304***
			(0.011)			(0.050)
Observations	68644	68644	68644	70735	70735	70735
F-stat for weak id	26.897	29.076	51.067	30.913	34.954	55.880

Note: The dependent variable is log Monthly wage of the worker. H_i is the high-skill dummy. The FID measures are standardized to have 0 means and unit s.d. All specifications are 2SLS using IV_p (Loan-to-deposit ratio by state banks, averaged over 1988-1993), log 1992 city population, and their interaction as the instruments. Each specification includes the same control variables and fixed-effects as in the specifications in Table 5. Standard errors are clustered at the city level and are reported in parentheses. *: significance at 10% level; **: significance at 5% level; ***: significance at 1% level.

that private firms are discriminated against in the formal loan market, in that they are less likely to obtain loans, receive smaller loans, and are subject to higher loan standards. As a result, these firms have to resort to more expensive means such as trade credit. In the labor market, wages of SOE workers are usually set according to a nation-wide scale with slight adjustments for regional differences and skill premium for SOE workers is consistently lower (Zhang, Zhao, Park, and Song, 2005).

To examine whether the baseline relationships for SOE and non-SOE workers are indeed different, we estimate the baseline regression results separately for SOE workers and non-SOE workers. The regression results are reported in Table 9. Since the FID measures are standardized, the results suggest that a one standard deviation increase in the FID measures is associated with a higher skill premium among workers in non-SOEs relative to the workers in SOEs. These results are consistent with **Hypothesis 3** discussed in Section 2.

5. Conclusion

In this paper, we examine whether financial intermediation development (FID) can explain the regional variation in skill premium in China. Using a cross-section of workers from the 1% Population Survey of 2005, we find that the skill premia in cities with better FID are also higher and the relationship is stronger among workers in industries with higher capital-skill complementarity and in non-state-owned enterprises (non-SOEs). Overall, our results suggest that, in China, the financial market plays a role in determining the wages of high-skilled workers relative to the wages of low-skilled workers.

While the focus in this paper is on the financial market, it is also well known that in China labor is not perfectly mobile across different regions. Thus, labor mobility

Table 9: Worker-level 2SLS regression results: By ownership type

	(1)	(2)	(3)	(4)	(5)	(6)
Sample:	Workers in SOEs			Workers in non-SOEs		
$H_i\times$ (Total loans/GDP)	0.085***			0.173***		
	(0.014)			(0.037)		
$H_i\times$ (Total deposits/GDP)		0.070***			0.087***	
		(0.012)			(0.017)	
$H_i\times$ (Household deposits/GDP)			0.076***			0.347***
			(0.012)			(0.060)
Observations	110041	110041	110041	145465	145465	145465
F-stat for weak id	26.210	27.958	39.282	30.868	36.456	71.728

Note: The dependent variable is log Monthly wage of the worker. H_i is the high-skill dummy. The FID measures are standardized to have 0 means and unit s.d. All specifications are 2SLS using IV_p (Loan-to-deposit ratio by state banks, averaged over 1988-1993), log 1992 city population, and their interaction as the instruments. Each specification includes the same control variables and fixed-effects as in the specifications in Table 5. Standard errors are clustered at the city level and are reported in parentheses. *: significance at 10% level; **: significance at 5% level; ***: significance at 1% level.

cost could further amplify the misallocation of resources. Given the different capital-skill complementarity in different sectors, the mismatch between skill and capital should generate additional efficiency loss. One related research question, which is left for future research, is to quantify the interactive welfare impact of these two types of frictions.

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Appendix

A. First-stage regression results

Table A reports the first-stage regression results of the worker-level regressions (Panel A) and those of the city-level two-step regressions (Panel B).

Table A: First-stage regression results

	(1)	(2)	(3)
	Panel A: Worker-level regressions		
Dependent variable:	$H_i \times \left(\frac{\text{Total loans}}{\text{GDP}}\right)$	$H_i \times \left(\frac{\text{Total deposits}}{\text{GDP}}\right)$	$H_i \times \left(\frac{\text{HH deposits}}{\text{GDP}}\right)$
$H_i \times IV_p$	1.657	2.547	2.081*
	(1.916)	(1.775)	(1.120)
$H_i \times$ log 1992 city population	1.104**	1.392***	1.156***
	(0.472)	(0.457)	(0.247)
$H_i \times IV_p$	−0.567*	−0.821***	−0.725***
$\times$ log 1992 city population	(0.316)	(0.311)	(0.185)
Observations	255522	255522	255522
R^2	0.510	0.689	0.641
	Panel B: City-level two-step regressions		
Dependent variable:	$\frac{\text{Total loans}}{\text{GDP}}$	$\frac{\text{Total deposits}}{\text{GDP}}$	$\frac{\text{HH deposits}}{\text{GDP}}$
IV_p	4.230***	8.253***	4.300**
	(1.493)	(2.628)	(1.895)
log 1992 city population	1.372***	2.710***	1.659***
	(0.363)	(0.699)	(0.464)
$IV_p \times$ log city 1992 population	−0.919***	−1.865***	−1.052***
	(0.266)	(0.510)	(0.338)
Observations	246	246	246
R^2	0.781	0.826	0.530

Note: IV_p is the instrument for the financial intermediation development measures, defined as the Loan-to-deposit ratio by state banks (averaged over 1988-1993) In Panel A: All specifications include control variables and fixed-effects as in the specifications in Table 5. Standard errors are clustered at the city level and are reported in parentheses. In Panel B: All specifications include control variables as in the specifications in Table 6. Robust standard errors are reported in parentheses. *: significance at 10% level; **: significance at 5% level; ***: significance at 1% level.

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