



Bank concentration and sectoral growth: Evidence from Chinese provinces



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HIGHLIGHTS

- The relationship between sectoral growth and bank concentration is analyzed in China.
- The sample consists of 31 provinces and 8 sectors over the period 2001–2013.
- Two-stage least squares regressions show that bank concentration is harmful to growth for Chinese provinces.
- These findings have important policy implications for policymakers in this period of low growth.

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ABSTRACT

This paper studies the relationship between bank concentration and economic growth in China. It uses panel data for 31 provinces and 8 different sectors over the period 2001–2013. Using two-stage least squares regressions, we find that bank concentration negatively and significantly impacts sectoral growth for Chinese provinces. This finding has relevant policy implication for policy-makers and academics since it suggests that the low level of bank concentration in the Chinese financial sector promotes economic growth, a finding that this is highly relevant in this period of economic slowdown.

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1. Introduction

China has been the fastest growing global economy over the past twenty years, and the country has experienced high growth rates since it engaged in economic reforms in 1978. China experienced an average annual growth rate of 9.78% over the period 2001–2013. While the country has achieved remarkable economic performance and attracted much attention around the world, various regional growth rates have been neglected by economists and politicians. In fact, the high overall growth rate at the national level has not been studied at the provincial level, especially the underdeveloped western regions. Specifically, the actual economic growth rate varies significantly among different provinces, depending on each province's own unique economic conditions.

At the same time, the banking sector remains undeveloped. There is a large body of literature, which shows the importance of the banking sector and financial systems for economic development. In order to take this into account, the Chinese authorities have implemented several reforms of the banking sector, which have aimed to create a more competitive environment by increasing the number of banks and reducing the level of bank concentration. Despite these efforts, the Chinese banking sector remains highly dominated by the five largest commercial banks, which have a very high market power. Compared to other developed countries, the Chinese banking sector is still highly concentrated. For example, at the end of 2013, the share of assets of the five largest commercial banks accounted for 43.34% (China Banking Regulatory Commission (CBRC) annual report, 2013), whereas in Germany and Luxembourg the asset share among the five largest banks is 33.5% and 31.5%, respectively (European Central Bank ECB).

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The objective of this paper is to investigate the link between bank concentration and growth in China. Because China is such a large contributor to world economic growth it is crucial to investigate this relation. More specifically, we empirically analyze this link across sectors and provinces over the period 2001–2013 using an instrumental variable approach. There have been many studies that have investigated the effect of bank concentration on economic growth. However, they found contradictory results and also often used cross-country and industry estimations. Following standard economic theory, bank concentration is detrimental to economic growth since imperfect competition is linked to inefficiencies and can hinder firms' access to credit. For example, [Diallo and Koch \(2013\)](#) investigate the link between bank concentration, financial development and growth using a Schumpeterian growth model and imperfect Cournot competition in the banking sector, finding in particular that bank concentration is harmful to economic growth for countries close to the world technology frontier. Therefore, for countries that are far from this technology frontier, bank concentration does not play a role, though financial development remains an engine of growth.

On the other side, some recent papers have pointed out that banks with higher monopoly power have a greater incentive to establish lending relationships with their clients' firms, and thus facilitate their access to credit lines. Hence, bank concentration will promote the growth of those industries that are highly dependent on external finance, especially newer ones [Mayer \(1988, 1990\)](#) and [Petersen and Rajan \(1995\)](#). They highlight the potential incompatibility between bank concentration and the establishment of a close lending relationship. Empirically, [Cetorelli and Gambera \(2001\)](#) found that an increase in bank concentration depressed industrial growth, but increased the growth of industries that are highly dependent on external financing, based on a sample of 41 countries over the period 1980–1990. Using the same methodology, but for regions in Italy, [Bonaccorsi di Patti and Giovanni \(2004\)](#) also demonstrated a positive relationship between bank concentration and the output of industries that have a bad credit rating.

In terms of studies based on Chinese data, [Wang \(2005\)](#) used regional data and found a negative but insignificant relationship between bank concentration and GDP growth, a finding in contradiction with [Lin and Jiang \(2006\)](#). [Tan et al. \(2006\)](#) investigated the effects of bank concentration on different regions, and found that bank concentration is more harmful to growth in less developed regions. All these papers used GDP growth to investigate this link. Our paper instead uses sectoral growth in 31 provinces in order to take into account omitted variables in this relation. More precisely, we focus on analyzing the link between bank concentration and growth in eight sectors using a large panel in 31 provinces in China over the period 2001–2013. Our dependent variable is the per-capita growth rate of the output in each sector over that period. Bank concentration is measured by the share of assets of the five largest commercial banks in terms of total assets of the banking sector. Based on provincial and sectoral data, this study tests whether the high concentration found in the Chinese banking sector is harmful to sectoral growth. The main contribution of this paper is to focus on China as a main engine of world economic growth using sectoral growth and provinces. Using two-stage least squares regressions to treat endogeneity problems between growth and bank concentration, our main result shows that bank concentration has a negative and significant effect on growth, in line with [Wang \(2005\)](#) and [Lin and Jiang \(2006\)](#). This result remains robust using macroeconomic variables (education, trade, inflation and real per-capita income). The paper is organized as follows: Section 2 reviews the development of the Chinese banking sector; Section 3 outlines the basic methodology, data, and empirical results; and Section 4 provides policy implications and a conclusion.

2. Development of the Chinese banking sector

Since policy reform and the opening up of the markets, the bank industry in China has experienced great change. Before economic reform, China implemented an entirely planned economy, and the government controlled the entire banking industry. Until 1978, there was one single bank, the People's Bank of China. Because of Chinese economic reforms, and thanks to deregulation, four state-owned commercial banks were gradually established between 1979 and 1984, which was a great change. After that, in order to facilitate the financial resources required for rapid economic development, the Chinese government introduced more reforms that allowed joint equity and private banks. Furthermore, after the later authorizing of several policy banks and city banks, in 2002, there were three policy banks, 10 equity commercial banks, 111 city banks and 158 foreign banks in China. In recent years, Chinese regulators have approved the establishment of private banks, which has led to an even further decline in bank concentration. In 2012, the total number of banks in China was 3747, including two policy banks, five big commercial banks, 12 equity commercial banks and 144 city banks (Almanac of China's Finance in 2013). With such a shift, the Chinese banking industry has become much less concentrated, a combined result of financial deregulation, the encouragement of joint equity commercial banks, and the establishment of local banks by governments. However, the market structure of China is still far from competitive, as evidenced by the high total market share of the largest five banks. Compared to the banking industry of the U.S. and other developed countries, the Chinese banking industry is still highly concentrated, and while there is no doubt that the Chinese banking industry has experienced a great change at the national level, the banking situation of each province is significantly different.

3. Empirical methodology and data

3.1. Econometric specification

To estimate the impact of bank concentration on economic growth across provinces and sectors, we estimate the two-stage specification, presented below. This allows us to address the problem of endogeneity between bank concentration and sectoral growth during the period under consideration. Specifically, we follow [Heldmann \(2015\)](#), [Tabak et al. \(2011\)](#) and [van Leuvensteijn et al. \(2011\)](#); and we instrumented bank concentration to extract its exogenous component using its lagged differences covering the previous three years. This method is somehow similar to the GMM approach proposed by [Arellano and Bover \(1995\)](#) and [Blundell and Bond \(1998\)](#). However, we cannot apply this method here, since we have low values of N (i.e. 31 provinces) and T (i.e. 2001–2013). To test the exogeneity and overidentifying restrictions, we use [Wooldridge's \(1995\)](#) score tests. Specifically, the null hypothesis of these tests is that our variable of interest, namely bank concentration can be treated as exogenous and our instruments are valid. If bank concentration is harmful to growth for sectors in the provinces, then β should be negative (i.e., $\beta_1 < 0$).

First stage:

$$\text{Concentration}_{i,t} = \sum_{s=1}^2 \alpha * (\text{Concentration}_{i,t-s} - \text{Concentration}_{i,t-s-1}) + \text{Controls}_{i,t} + \kappa_{i,t} + \epsilon_{i,t}. \quad (1)$$

Second stage:

$$y_{i,k,t} - y_{i,k,t-1} = \text{Constant} + \theta_k + \eta_{i,t} + \beta * \text{Concentration}_{i,t} + \text{Controls} + \varepsilon_{i,k,t} \quad (2)$$

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