



Does the structure of banking markets affect economic growth? Evidence from U.S. state banking markets[☆]

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ABSTRACT

This paper examines the impacts of banking market structure and regulation on economic growth using new data on banking market concentration and manufacturing industry-level growth rates for U.S. states during 1899–1929—a period when the manufacturing sector was expanding rapidly and restrictive branching laws segmented the U.S. banking system geographically. Unlike studies of developing and developed countries today, we find that banking market concentration generally had a *positive* impact on manufacturing sector growth in the early twentieth century United States, with a somewhat stronger impact on industries with smaller establishments, lower rates of incorporation, and less reliance on bond markets (and, hence, relatively more reliance on banks). Because regulations affecting bank entry varied considerably across states and the industrial organization of the U.S. banking system differs markedly from those of other countries, we consider the impact of other aspects of banking market structure and policy on growth. Even after controlling for differences in the prevalence of branch banking, deposit insurance, and other aspects of policy and market structure, we find that market concentration boosted industrial growth.

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1. Introduction

A long line of scholarship posits a causal relationship between finance and economic growth. According to this view, well-developed capital markets – especially those imbued with rights that protect investors – promote the efficient allocation of funds to projects with high rates of return, in turn stimulating savings, investment, and economic growth.¹ Evidence from both single-country and cross-country studies suggests that economies with more developed financial markets begin to grow earlier, attain higher growth rates, and achieve higher levels of per capita income than economies with less developed financial markets.² These findings have prompted researchers to consider more carefully how financial markets affect economic activity in the long run. In

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¹ Recent examples of this literature include Beck et al. (2000), Bekaert et al. (2005), King and Levine (1993a,b), Levine and Zervos (1998), and Rajan and Zingales (1998). La Porta et al. (1998, 2000) discuss the importance of legal traditions influencing financial development.

² For surveys of this literature, see Levine (1997, 2006) and Demirgüç-Kunt and Levine (2001). For a within-country example, see Guiso et al. (2004).

an important paper that exploits cross-country and cross-industry differences, [Rajan and Zingales \(1998\)](#) conclude that financial development helps firms surmount moral hazard and adverse selection problems and thereby reduces the costs of external finance. Many empirical studies have followed their approach in exploiting differences across space and time to identify a causal link between finance and development, and recent research has focused on the mechanisms underlying that relationship.

The present paper contributes to a growing body of literature that examines how banking institutions affect economic activity. Researchers have found considerable evidence that banking system structure and competition affect economic growth.³ For example, based on a cross-section sample of 41 countries for 1980–1990, [Cetorelli and Gambera \(2001\)](#) find that increased concentration in banking markets depresses industrial growth in general, but boosts the growth of industries that depend relatively heavily on external sources of finance. Similarly, based on data for regional banking markets in Italy, [Bonaccorsi di Patti and Dell'Ariccia \(2004\)](#) find that higher concentration promotes firm creation in industries where the creditworthiness of entrepreneurs is difficult to assess.⁴ By contrast, [Claessens and Laeven \(2005\)](#) find that more competition in banking markets raises the growth of industries that depend relatively heavily on external financing, though [Hoxha \(2009\)](#) reaches the opposite conclusion using a somewhat different model and dataset.⁵

With a few exceptions, most empirical studies of the impact of banking market structure or competition on economic activity assume that each country consists of a single national banking market. That assumption might be tenable for banking systems that are dominated by a few large banks with nationwide branch networks. However, the banking systems of countries with a tradition of unit banking, such as the United States, consist of more geographically segmented banking markets. Long-standing legal restrictions on both interstate branching and branching within the borders of most states left the United States with highly fragmented local banking markets that only recently have become well integrated.⁶ Because of the unusual structure of the U.S. banking system, the findings of studies that examine the impact of banking market structure on economic development using countries as the unit of observation might not reflect the U.S. experience.⁷

To determine whether the findings of cross-country studies generalize to a geographically segmented banking environment, the present paper investigates the impact of banking concentration on the growth of manufacturing industries across U.S. states during the first three decades of the twentieth century—a period when firms relied heavily on bank financing and U.S. banking markets were geographically segmented by restrictive branching laws. Because the structure of the U.S. banking system today is evolving rapidly in response to the removal of most branching restrictions, as well as because of the recent financial crisis and recession, we focus on a period when interstate branching was prohibited and many states restricted branching within their borders. Further, in our investigation of the effects of banking concentration on growth, we control explicitly for differences in state banking policies and other aspects of market structure that may have affected the growth of manufacturing industries.⁸

Even if one gathered historical information on bank regulation across developing countries, unobserved heterogeneity is more likely to be a concern in a cross-country study of developed and developing countries than in a study of U.S. states. Because banking institutions and regulations differ considerably across countries, there is considerable scope for omitted variables to be problematic in cross-country empirical studies. By contrast, U.S. states, particularly in the era before the removal of federal restrictions on interstate branching, represent a fertile environment for studying the relationship among bank regulations, market structure, and economic growth. For example, many studies have found that branching and interstate banking deregulation affected rates of economic growth and entrepreneurship, as well as aspects of industrial structure across U.S. states in the 1980s and 1990s.⁹ We investigate whether differences in the prevalence of branching and in other aspects of bank regulation and market structure affected the growth of manufacturing industries during the first three decades of the twentieth century.

Our study exploits variation in growth rates of individual manufacturing industries across U.S. states, as well as differences in the structure and regulation of state banking systems, to provide new evidence on the effects of banking market structure and regulation on U.S. manufacturing growth in the early twentieth century. Following the methodology of [Rajan and Zingales](#)

³ Financial intermediaries are thought to improve resource allocation and fund projects with higher rates of return by matching borrowers and lenders efficiently and by monitoring firm behavior ([Allen, 1990](#); [Boyd and Prescott, 1986](#); [Greenwood and Jovanovic, 1990](#); [Kashyap et al., 2002](#); [King and Levine, 1993b](#)).

⁴ [Bonaccorsi di Patti and Dell'Ariccia \(2004\)](#) also find that higher concentration raises the rate of entrepreneurship across all industries when banking markets are relatively unconcentrated ex ante, but reduces the overall rate of firm creation when banking markets are already highly concentrated. [Cetorelli and Strahan \(2006\)](#), however, find that the number of firms is larger and average firm size is smaller in less concentrated local U.S. banking markets.

⁵ [Claessens and Laeven \(2005\)](#) focus on the effects of banking market competition, which they estimate using data for individual banks, whereas [Hoxha \(2009\)](#) includes measures of both competition and concentration. Following [Cetorelli and Gambera \(2001\)](#), we focus here on the effects of concentration, in part because the bank-level data required to calculate alternative measures of competition are not available for U.S. banks in the early twentieth century.

⁶ Although most legal barriers to branching within and across state lines were eliminated in the 1990s, the concentration of deposits among banks in the United States remains low compared with most other countries. The average three- and five-bank concentration ratios for the United States during 1989–1996 were 0.15 and 0.20, respectively. Three-bank ratios for other countries ranged between 0.21 (Japan) and 0.87 (Jordan), and five-bank ratios ranged between 0.32 (Japan) and 0.99 (New Zealand) ([Cetorelli and Gambera, 2001, Table 1](#)).

⁷ In addition to [Cetorelli and Gambera \(2001\)](#), other studies that use countries as the unit of observation to examine the effects of banking market competition and structure include [Barth et al. \(2004\)](#), [Claessens and Laeven \(2004, 2005\)](#), and [Demirgüç-Kunt et al. \(2004\)](#).

⁸ It might be possible to carry out a similar exercise by examining bank regulations in developing countries today; however, the best available database on bank regulation is not retrospective in nature ([Barth et al., 2001](#)).

⁹ See, for example, [Jayaratne and Strahan \(1996\)](#), [Black and Strahan \(2002\)](#), [Cetorelli and Strahan \(2006\)](#), [Freeman \(2002\)](#) and [Garrett et al. \(2007\)](#). The Interstate Banking and Branching Efficiency Act of 1994 permitted interstate branching beginning in 1997. Before then, state laws determined the extent to which banks could branch within states. Several states eased restrictions on branching between 1900 and 1929 (see [White, 1983](#)). A second deregulation wave occurred in the 1970s and 1980s.

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