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**The Contingent Nature  
of Public Policy and  
Growth Strategies in the  
Early Twentieth-Century  
U.S. Banking Industry**

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THE EARLY TWENTIETH-CENTURY U.S. BANKING INDUSTRY\***

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# **THE CONTINGENT NATURE OF PUBLIC POLICY AND GROWTH STRATEGIES IN THE EARLY TWENTIETH-CENTURY U.S. BANKING INDUSTRY**

## **ABSTRACT**

While effects of public policy are one of the foundations of organizational theory, less explored is how these effects may depend on other external environmental factors. We focus on how policy is a necessary, but not sufficient, condition to understand the growth of banking in the U.S. states, 1896-1978. Three characteristics of banks—simultaneous production and distribution, pooled intra-organizational coordination, and agency relationships—result in a trade-off between centralized and dispersed growth strategies. Which strategy prevails depends on how policy enabling branching interacts with technological, economic, and cultural environments. Our findings contribute to understanding the contingent effects of policy on organizations and the rise of large corporations in the twentieth century.

## **THE CONTINGENT NATURE OF PUBLIC POLICY AND GROWTH STRATEGIES IN THE EARLY TWENTIETH-CENTURY U.S. BANKING INDUSTRY**

The effects of public policy on organizations and economic activities have been widely observed. It is now well accepted that policy changes fundamentally alter firms' external environments and mark transitions to new eras (e.g., North, 1981; Fligstein, 1990; Dobbin & Dowd, 1997, 2000; Wade, Swaminathan, & Saxon, 1998; Haveman, Russo, & Meyer, 2001; Russo, 2001). Tests of this view typically center on how changes in policy result in shifts in the types of economic activities that organizations pursue. For instance, Fligstein (1990) showed that laws prohibiting vertical mergers altered firm acquisition activities, resulting in changes in corporate structure and control. Roy (1997) observed that changes in property laws enabled dispersed ownership and that this spurred the corporate revolution by allowing firms to finance large-scale manufacturing enterprises. And Dobbin and Dowd (1997: 501; 2000), in their series of studies of the early railroad industry in Massachusetts, showed that changes in state and federal policies altered market logics; as they put it, "public policy establishes the ground rules of competition and thus creates varieties of market behavior." This line of research has contributed to organizational theory by showing the importance of state action for constructing economic systems, as well as firm structures and strategies.

But there are a number of reasons why we think this perspective may, in fact, overemphasize the importance of public policy and that a contingent perspective on the effects of policy may lead to more refined organizational theory. It has long been established that organizations are simultaneously embedded in and affected by multiple environmental conditions (Scott & Davis, 2007). Consistent with this view of a multi-faceted organizational environment, several studies have shown that the effect of one environmental condition on organizations is often contingent on other environmental conditions. Bartley and Schneiberg (2002) observed that the effect of interest groups on the passage of fire insurance rate regulations varied depending on the extent to which the fire

insurance field had become standardized. Similarly, Mizruchi, Stearns, and Marquis (2006) documented that the effects of interfirm networks on firms' use of debt varied over time depending on the degree to which finance was legitimized as an occupation. More relevant to our concern with the effects of policy, Haveman, Rao, and Paruchuri (2007) showed that laws authorizing bureaucracy in thrifts did not stimulate the rise of such organizations until two additional environmental factors emerged—theorists in the new media and role-model organizations. While their theoretical focus was not on policy contingencies per se, they concluded that "... authorization is not sufficient to explain how the social code governing thrifts was revalorized to embrace bureaucracy" (Haveman et al., 2007: 119). In this study, we build on this observation to more fully investigate the contingent nature of the effects of policy on organizations, with the orienting premise that policy is just one of the external conditions that organizations face and policy effects are more or less powerful to the extent that they are interactive with other elements of the environment.

Our empirical test of this proposition focuses on how policy that regulated bank branching and other environmental factors affected—independently as well as interactively—the emergence and growth of large-scale firms in U.S. commercial banking during the period from 1896-1978. This setting is ideal for our study because, until 1978, a bank's retail branch locations were limited to the state in which it had its headquarters and, as a result, there were, in effect, 48 different banking systems within the contiguous states. Banking policies and other environmental conditions (i.e. technical, economic, and cultural) varied considerably not only over the course of the twentieth century but also across states, thus constituting a natural laboratory to study the contingent effects of policy on organizations. Having both cross-sectional and longitudinal variance in environmental conditions allows us to overcome empirical limitations of prior studies that usually observe only longitudinal variation in environmental conditions by focusing on one state or considering the U.S. as a whole (e.g., Fligstein, 1990; Roy, 1997; Dobbin & Dowd, 1997, 2000). Such benefits have been

demonstrated in recent studies that capitalize on the considerable variation in environmental conditions across the U.S. states (e.g., Wade et al., 1998; Schneiberg & Bartley, 2001).

Through our investigation of bank growth in the twentieth century, we also aim to contribute to a central and longstanding debate in understanding the rise of large corporations in U.S. history. Scholars have debated the extent to which emergence and growth of large corporations was directly a result of technical advances (Chandler, 1977) or shifts in public policy (Fligstein, 1990; Roe, 1994; Roy, 1997). And more recently, research has focused on how there is resistance to organizational growth processes (Schneiberg, 2002; Ingram and Rao, 2004; Schneiberg, King, & Smith, 2008), particularly in commercial banking (Abrams & Settle, 1993; Roe, 1994; Marquis & Lounsbury, 2007). However, since each of these explanations gives prominence to only one type of environmental condition, they likely only partially account for the emergence of large organizations in U.S. history. Thus, by considering policy, technical, economic, and cultural factors simultaneously and showing that not only are they all important but also that there are important interactions among them, we provide a more nuanced and comprehensive account of the emergence and development of large organizations in U.S. history.

Further, most of these studies of the rise of large organizations have focused on manufacturing firms. These firms, however, are a small part of the contemporary economy with their output presently accounting for less than 25 percent of U.S. GDP, while service-oriented firms have been on the ascendance, accounting today for approximately two-thirds of U.S. GDP (Nohria, Dyer, & Dalzell, 2002). While more recent organizational studies have examined such service industries as hospitality (Baum, 1995; Ingram, 1996), law and accounting (Galanter & Palay, 1991; Uzzi & Lancaster, 2004; Greenwood & Suddaby, 2006), and financial services (Haveman, 1993; Haveman & Rao, 1997; Lounsbury, 2007), none of these prior studies have focused specifically on delineating the underlying mechanisms and processes that made the growth of large service firms possible in the twentieth century.

We specifically examine how branching policy that stipulates whether banks in a state can establish branch offices outside of their headquarters location affected bank growth strategies and how this policy interacted with other environmental conditions. We argue that during our study period, banks, as well as some other service industries, were faced with the strategic tradeoff between two growth strategies, a centralized growth strategy and a dispersed growth strategy. This tradeoff is due to a number of important characteristics that distinguish service products like banking from the more commonly studied manufactured products. Foremost among these is intangibility; the product is not a “hard good” that can be physically manufactured, transported, and stored. As a result, for service products there is “simultaneity of production and consumption” (Carman & Langeard, 1980; Parasuraman, Zeithaml, & Berry, 1985; Zeithaml, Parasuraman, & Berry, 1985). That is, products actually come into existence as a result of the interaction with individual customers.

Correspondingly, commercial banks exhibit some fundamental organizational features—including the link between production and distribution, intra-organizational coordination, and agency relationships—that influence how they manage an essential strategic trade-off between a centralized growth strategy and a dispersed growth strategy. Banks pursuing a centralized strategy established fewer but larger branches with narrow geographic coverage, while those pursuing a dispersed strategy established a greater number of smaller branches with wider geographic coverage. The relaxation of branching policy encouraged banks to pursue the dispersed strategy and discouraged the centralized strategy. But, the extent to which relaxing branching policy affected banks’ growth strategies likely depended on: technological conditions that enabled banks to solve production-distribution, coordination and agency issues; economic conditions that created opportunities for branching; and cultural conditions that resisted branching.

By explaining bank growth strategies and patterns across the U.S. states, we also tap broader theoretical issues regarding the locus of power in U.S. society and how the modernization of organizational populations has proceeded. Because banking is fundamental to the flow of capital in

modern economies, the size and scope of organizations in this industry, and thus their influence on society more generally, has been the focus of considerable research and public policy (Brandies, 1914; Mizruchi, 1982; 1992; Mintz & Schwartz, 1985; Berger, Kashyap, & Scalise, 1995; Lounsbury, Hirsch, & Klinkerman, 1998; Davis & Mizruchi, 1999; Marquis & Lounsbury, 2007). Our investigation of the mechanisms and processes underlying banking growth provides important insights into where and how economic power has consolidated in the U.S. Further, understanding the degree to which economic activity is centralized versus dispersed is one of the key organizing dynamics in U.S. history, dating back to the debates between Jefferson and Hamilton (Hammond, 1957; Calomiris, 1993, Marquis & Lounsbury, 2007). While today we observe thousands of dispersed retail outlets across a variety of industries, such organizations are only a recent phenomenon (Ingram & Rao, 2004) and represent the ascendance of modernization in the organizational realm (Haveman & Rao, 1997). Our study of the transformation of the U.S. commercial banking industry from numerous, relatively small banks, with virtually no branch locations in the late nineteenth century, to a much smaller number of relatively large banks, many of which operate scores of branches a century later, thus contributes to understanding how modernization processes unfolded within U.S. society.

### **ORGANIZATIONAL GROWTH IN TWENTIETH-CENTURY U.S. BANKING**

As noted, during the twentieth century, the commercial banking industry underwent a dramatic transformation from single-unit, community-focused firms to large, multi-branch systems typically headquartered in urban areas. At the turn of the twentieth century, for example, there were just over 13,000 commercial banks in the United States, only 87 of which had any branches (and those 87 operated a mere 112 branch locations in total). But a century later, approximately 6,500 commercial banks operate more than 80,000 branch locations. This presents both an important



theoretical and empirical puzzle which we address in this paper: What were the underlying mechanisms and processes that led to this transition?

### **Bank Characteristics and Growth Strategies in the Early Twentieth Century**

As a first step to understanding how policy and other environmental conditions might influence bank growth, we highlight three characteristics of banking that are central to organizational growth: the production-distribution link, intra-organizational coordination, and agency relationships. We argue that (a) as a result of these characteristics, banks during our study period faced an important trade-off between centralized and the dispersed growth strategies, and (b) their external environments influenced which growth strategy they pursued. For the purpose of illustration, we also contrast these characteristics with those of the more commonly studied industrial firms. In our discussion, we highlight some of the boundaries of our theorizing and further speculate on how our arguments may or may not be generalizable to certain other types of service firms.

**Link between production and distribution.** Creating a product and then delivering it into the hands of consumers is perhaps the most fundamental act of a business organization. For industrial firms of the type described by Chandler (1977), production and distribution of outputs were two fundamentally different activities. Production typically occurred at a central venue, frequently a large factory, in order to maximize economies of scale. But for service firms involved in selling intangible products, such as bank accounts, accounting services, hotel stays, hospital procedures, and even air trips, there is no central production site and production and distribution are not two separable processes (Upah, 1980; Zeithaml et al., 1985). For these firms, Carman and Langeard (1980: 1) noted a “simultaneity of production and consumption,” whereby the product does not exist until it is delivered into the hands of a customer. This property “forces the buyer into intimate contact with the production process” (Carman & Langeard, 1980: 8). To the extent that customers are often distributed across different geographic locations, this results in a close connection between geography and the rise of large service firms like banks. Thus, in contrast to the rise of large

industrial firms, the key to the growth and expansion of large banks is leveraging a central office that can manage a large number of dispersed locations. Chandler (1977: 472) observed as well that banks, “like the marketing firms...found that they could make more intensive use of their central office facilities and reach more customers by setting up geographically-dispersed outlets.”

**Intra-organizational coordination.** Given the fundamentally different link between production and distribution for industrial and banking firms, it is likely that intra-organizational activities in these two types of firm would be coordinated differently as well. Thompson (1967: 54) described three fundamental types of interdependence among intra-organizational activities: pooled interdependence, whereby “each part renders a discrete contribution to the whole and each is supported by the whole” (e.g., branches of an organization that do not have any direct connection); sequential interdependence, whereby X must act before Y can act (e.g., a sub-unit that produces parts for an assembly line); and reciprocal interdependence, whereby each unit’s outputs become inputs to, and thus pose contingencies for, the other units (e.g., an organization with both operations and maintenance functions). For the commonly-studied industrial firms, core activities are fabricating and distributing finished products assembled from myriad inputs; a key element in creating large organizations was sequential coordination among production units. Automobile manufacturing, for example, involves gathering the requisite materials, sequentially assembling them, and then distributing finished vehicles to retail outlets. In contrast, Nadler and Tushman (1997) suggested that pooled interdependence is most fundamental to understanding the growth of service organizations like banks that extend access to consumers through geographically-dispersed retail outlets. While production for manufacturing firms occurs at a central site (i.e., a factory), production of goods for service firms is distributed among many outlying locations. Intra-organizational interdependence therefore takes the form of a hub-and-spoke network. While there is continual back-and-forth between the hub and each spoke, both for agency reasons and to ensure standardization of production (Langeard et al., 1981), there is little contact between the spokes. In their survey of research on

multiunit firms, Greve and Baum (2001) also highlighted how coordination is perhaps the most essential challenge of managing firms with more than a single location.

**Agency relationships.** Related to the above two characteristics are the agency relationships between management and employees, particularly the ways that employees are monitored and controlled. Industrial firms and commercial banks face different constraints in managing agency relationships. Eisenhardt's (1989) review of agency theory proposed the importance of information asymmetry and information systems for managing principal-agent relations. If the principal has the information to verify the agent, the agent is more likely to behave in the interest of the principal; thus, the information systems that are created to monitor and inspect the agent's work are essential. Perrow (2002) argued that one of the keys to understanding how manufacturing developed was the way in which large integrated factories addressed the problem of monitoring and controlling employees. In the days before computer technology, visual inspection was the chief means of monitoring and control. Thus, as Perrow (2002) described, large-scale factories, in which employees were often within the line of sight of their supervisors or at most within a limited area, were essential to the rise of industrial firms.

For banks, as well as for other service firms whose production occurs in a distributed fashion, monitoring and controlling employees takes on different dimensions. Since service products are not tangible, "face-to-face visibility in the delivery system, the personnel, the site, and the equipment that create" the product are essential components of that product (Carman & Langeard, 1980: 8). There are a number of possible agency issues that require monitoring by the central office. For example, there is significant risk of heterogeneously-delivered services (Zeithaml et al., 1985); that is, "many different employees may be in contact with an individual consumer, raising a problem of consistency of behavior" (Langeard et al., 1981: 16). Thus, making sure that outlying offices and personnel reflect the wishes of the central office is of paramount importance. This could be accomplished in two ways, as documented in early treatises on bank branching (Chapman &

Westerfield, 1942). First, employees could send reports, daily or otherwise, to keep headquarters abreast of outlying functions. Second, traveling agents of the headquarters could visit and inspect the outlying locations. Both types of monitoring resulted in a transportation-intensive information system for managing the agency relationship. For firms trying to expand, this imposed the trade-off discussed below.

**Tension between Centralized and Dispersed Growth Strategies.** The production–distribution link, intra-organizational coordination, and agency relationships discussed above created a set of growth challenges for banks, which resulted in a trade-off between centralized and dispersed strategies, especially during the historical period we examine. The simultaneity of production and distribution determined that banks’ growth was conditioned on their ability to directly reach more customers, who were often concentrated in certain geographic locations. Before the advent of modern information technology, such as ATMs and online banking, it was essential to establish bank offices geographically close to customers. Banks could pursue the centralized strategy of establishing a limited number of large-scale operations to deliver services in areas (e.g., urban centers) with higher concentrations of customers. But when such large offices reached a saturation point, banks sought to establish branches outside of centralized areas in order to reach more customers residing in dispersed locations (Thompson, 1967). Such outlying branches were typically smaller because dispersed customers did not support large bank operations. Thus, banks that expand geographically may be larger organizations in terms of aggregate financial measures, but they may also be “spread more thinly” as they focus on a greater number of geographically-dispersed areas.

The extent and size of a bank’s outlying branches are also likely to be limited by its internal resource constraints related to coordination and agency. During the time of the study, centralized management at the headquarters was considered a best practice in branch administration.

“Experience has proved,” it was observed at a session of the American Institute of Banking<sup>1</sup> conference in 1924, “that the best way to proceed in selling the service of branch banks is to center everything in connection with it at the main office.” In addition, a paper trail was legally required for all transactions (Chapman & Westerfield, 1942), so coordinating and monitoring branches was costly in that it relied on extensive physical transportation of documents and of the monitoring personnel. Because of the difficulty of monitoring, banks typically limited the size of outlying locations for risk-management purposes (Chapman & Westerfield, 1942). As branches grew in size, banks’ assets and reputation increasingly were controlled by the dispersed local managers. To reduce this risk, banks preferred to establish a number of smaller branches as opposed to a few larger ones.

Finally, the centralized/dispersed trade-off was reinforced by the change in the role of a bank’s headquarters location that took place when the bank pursued a dispersed strategy. Geographic expansion beyond the headquarters locale is a profound strategic change for a firm (Ingram & Baum, 1997). When a bank was pursuing a centralized strategy, all attention was focused on how to grow in one central area. But under the dispersed strategy, the attention of the headquarters shifted to centralized management of branches, which reduced the focus on growing in that central area. Below, we develop hypotheses to detail how this trade-off between the centralized and dispersed growth strategies is salient to understanding how different features of external environments led to different growth and expansion patterns of U.S. banks during the early twentieth century.

### **CONTINGENT NATURE OF POLICY AND U.S. BANKING GROWTH**

We develop a series of hypotheses addressing how public policy, technological, economic and cultural features of banks’ environments and the interactions between policy and the other features influenced how, when, and where banks grew. The logic behind our hypotheses is as follows: Bank growth during the historical period we examined was characterized by a trade-off

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<sup>1</sup> The educational arm of the American Bankers Association.

between centralized and dispersed strategies, as noted above. The baseline condition for the existence of such a trade-off was whether or not banks were legally allowed to grow by establishing branches in dispersed areas. Thus, we first hypothesize how the public policy that allowed branching affected the geographic dispersion and location size of banks. Building on these hypotheses, we go on to consider how other external environmental conditions (i.e., technological, economic and cultural) moderated the effects of branching policy on bank dispersion and location size. Other environmental conditions could only affect geographic dispersion if branching was legally allowed, but banks could grow their local operation size regardless of the policy governing branching. Thus, we also consider the main effects of technology, economic conditions, and cultural environments on bank location size.

### **Public Policy and Organizational Growth**

For much of U.S. history and well into the twentieth century, the U.S. government heavily regulated major industries, including banking, transportation, communication, utilities, health care, and agriculture (Wholey & Sanchez 1991). The most obvious effects of policy are when it clearly delineates certain behaviors. For example, the Celler-Kefauver Act of 1950 directly prohibited mergers among firms in the same industry, eliminating that practice (Fligstein 1990). But perhaps more importantly, public policy also has indirect effects as organizations respond to constraints of legal environments, resulting in unexpected externalities or unintended consequences. Fligstein (1990) found that firms, being prohibited from vertical mergers, engaged more intensely in cross-industry acquisitions. Similarly, Wade, Swaminathan and Saxon (1998) observed that resources tended to flow from states that prohibited the manufacturing and sale of alcoholic beverages so that the founding rate of breweries increased in adjacent prohibition-free states.

Public policy influences the types of economic activities undertaken by directly shaping the opportunity structure in markets. Dobbin and Dowd's (1997) analysis indicated that three public policies, public capitalization, pro-cartel, and antitrust, differentially affected the founding of

railroads by influencing capital availability and competitive intensity in Massachusetts from 1825 to 1922. Roy (1997) suggested that property laws opened up the possibility for large manufacturing corporations by making dispersed ownership possible. Barnett and Carroll (1993) observed that the fragmentation of state authority influenced the number of telephone companies operating in United States during the early twentieth century, with a greater number of political units leading to a greater number of telephone companies. They argued that more regulation begat more constraints, which, in turn, begat more and smaller companies. And Campbell and Lindberg (1990) showed that when states changed or threatened to change property laws, organizations were stimulated to search for new forms of organization, thereby leading to organizational transformation.

In many service industries like banking, growth that leads to the large-scale organizations we observe today is frequently achieved by establishing geographically-dispersed branches. However, the practice of establishing multiple business locations was legally constrained by public policy for many service industries throughout much of the twentieth century. During the 1920s and 1930s, more than half of the states enacted anti-chain-store policies; such laws remained on the books in 13 states as late as 1970 (Ingram & Rao, 2004). More recently, anti-chain-store policies were enacted by communities and municipalities, most notably in California, to protect local businesses (Hampton, 2004). As a result, anti-chain-store policies greatly constrained service firms from growing by establishing new branches. Likewise, the banking industry was heavily regulated at both the federal and state levels for much of its history (Roe, 1994). Policies that restricted the establishment of multiple branches varied significantly from state to state. Some state-level policies permitted unit banking, whereby banks are permitted to operate in only a single location (thus precluding branches); some permitted statewide banking, whereby banks are permitted to operate branches throughout the state; and some permitted limited statewide banking, which permits only limited operation of

branches.<sup>2</sup> Moreover, state policy regulating bank branching underwent a transformation during the twentieth century, with the number of unit-banking states declining and the number of branch-banking states increasing dramatically (Calomiris, 1993). Bank growth predicated on establishing new branches is contingent on the restrictiveness of state policy regulating branching.

***Hypothesis 1a (H1a):** In states with less restrictive branching policy, bank locations are likely to be, on average, more geographically dispersed.*

However, as discussed above, banks' growth decisions entail a fundamental trade-off. Banks that are encouraged by more liberal branching policy to adopt a dispersed strategy are likely to have smaller individual locations. To restate briefly, this trade-off was due to both external and internal constraints on geographic growth. Before branching was legally allowed in a particular state, banks could grow only in that state by focusing on large operations in the areas around their headquarters. When branching was not legally restricted, banks were stimulated to establish branches in dispersed areas. For a number of reasons, these branches were likely to be smaller. Dispersed population centers were typically too small to support large bank operations. There were also internal resource constraints due to the paper-based coordination and monitoring systems. Because of the difficulty in monitoring, the headquarters typically limited the size of outlying branches for risk-management reasons. Finally, because the option of pursuing a dispersed strategy made banks less dependent on the centralized strategy to achieve growth, the role of a bank's headquarters changed from serving customers to coordinating and monitoring the outlying branches, lessening the focus on growing in the headquarters area.

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<sup>2</sup> These are ideal types, the definitions of which may vary slightly across states. Our categorizations are based on Federal Reserve (various years) descriptions and prior studies of branching policy (Welldon, 1910; Fischer, 1968). There are three main areas where there may be variation within these ideal types, and in all instances our treatment of these differences follows prior work by the Federal Reserve. First, in a few cases, particularly early in the twentieth century in unit-banking states, branching restrictions were a matter of practice, enforced by state banking commissions, rather than explicit laws. Second, there was variation in how limited the branching was in limited-statewide-banking states. It was typically very proscribed; e.g., limited to two offices or within a very restricted geographic area. Further, a state could be classified as having statewide branching when, in fact, banks could expand throughout the state only by acquisition (Kroszner & Strahan, 1999), not by establishing *de novo* branches.



*Hypothesis 1b (H1b): In states with less restrictive branching policy, banks are likely to have, on average, smaller individual locations.*

## **Technology Environments and Coordination and Monitoring Constraints on Organizational Growth**

Public policy that allows branching makes growth by geographic expansion a feasible strategy for banks. But geographic expansion creates coordination and monitoring issues; banks' headquarters need to coordinate and monitor outlying branches in dispersed locations (Nadler & Tushman, 1997; Thompson, 1967). These coordination and monitoring issues lend importance to technology that helps mitigate the difficulties created by geographic dispersion. During the early period of bank growth, the development of transportation technology helped stimulate banks to expand geographically provided the policy in a state allowed branching; expansion of the roadway infrastructure, in particular, helped bank headquarters coordinate and inspect local branches.<sup>3</sup> This is consistent with Greve's (2000; 2002) spatial-density dependence model, which emphasized the importance of transportation infrastructure to the dispersed spread of retail organizations like banks during this early time period.

Bank headquarters coordinated and monitored branches in two primary ways. First, large volumes of bank documents were frequently transferred from branches to headquarters. An early treatise on the operation of bank branches by Chapman and Westerfield (1942) described a range of paper systems that banks used to monitor branch activities, including duplicate records, daily reports, and the documentation of personnel, financial statements, and general business conditions. Early credit management systems and procedures for branch banks described extensive physical processes in place to manage geographically-dispersed credit (Whipple, 1935). Headquarters' reliance on

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<sup>3</sup> Other commonly studied technologies, such as the telephone and the railroad, were not as essential in this setting. Regarding the telephone, legal restrictions required a paper trail for bank transactions, so banks were required to physically transport extensive transaction records daily, even for transactions that technically could be done by telephone (Chapman & Westerfield, 1942). Further, while rail transportation could help address document transfer, the branches would need to be along rail lines that connected them with bank headquarters, which was a significant constraint on bank growth. Thus, roadways, which connected headquarters more directly with outlying locations, were seen by bank manuals at the time as the most essential technology for document and personnel transfer (Chapman & Westerfield, 1942).

paper systems was reinforced by legal regulations requiring a paper trail for transactions, which necessitated the daily physical transport of extensive amounts of records (Chapman & Westerfield, 1942). Second, auditors from headquarters traveled to inspect branches. A history of Comerica Bank (Comerica, 1999: 19-20) recorded that, “[a]uditors, known as the ‘eyes and ears of management,’ traveled to all locations to check accounts and records.” Otherwise, headquarters could not effectively coordinate and monitor branches, as illustrated by the early history of the First and Second Banks of the United States. While the First and Second Banks of the United States was organized as a multi-bank company, its units were operated more as independent subsidiaries than as branches of a central organization because “[i]n a time of slow communication and transportation, it was impossible for a head office to exercise day-to-day supervision over a network of branches” (Robertson, 1968: 28). For example, early historical descriptions of Bank of America’s branch system said that the distances between branches led the bank to operate more like a confederation than a “well-knit, smoothly running, uniform organization” (James & James 1954:96). These historical accounts suggest that outlying units posed significant challenges to coordination and monitoring that were met by advances in transportation technology. This, in turn, suggests that when branching is allowed, advanced transportation technology is likely to induce banks to expand geographically.

***Hypothesis 2a (H2a):** The positive effect of branching policy on the dispersion of banks’ locations is likely to be stronger in states with a more advanced transportation infrastructure.*

As discussed above, when branching policy is relaxed to allow geographic expansion, the dispersed growth strategy constitutes an alternative to the centralized growth strategy. As a result, banks may be encouraged to establish branches to explore markets in remote areas where the population is naturally sparser than that of urban centers and therefore can support only smaller branches. However, establishing branches in more remote areas incurs higher coordination and monitoring costs, which may discourage banks from pursuing the dispersed strategy. As discussed

above, advanced transportation technology can help banks lower these costs, thereby making the dispersed strategy a more attractive alternative strategy than the centralized strategy. All else being equal, the more advanced transportation technology in a state is, the more likely banks are to pursue the dispersed growth strategy to explore more remote areas. As a result, the more banks expand into remote areas, the more likely banks' local branches are to be smaller since population density is typically lower in more remote areas.

***Hypothesis 2b (H2b):** The negative effect of branching policy on the size of banks' locations is likely to be stronger in states with more advanced transportation infrastructure.*

We suggest that, besides moderating the effects of branching policy, transportation technology is likely to directly affect the size of banks' locations, regardless of whether geographic expansion is allowed. One effect of progress in transportation technology is to diffuse a population geographically as residents are able to live farther from their places of work. As a state's population spreads out, its banking infrastructure necessarily diffuses. If branching is not allowed, there are opportunities to found small banks to meet the needs of a geographically-dispersed population. For example, in a study of early bank locations, Southworth (1928: 118) described how, following "the advent of the automobile," as local travel options expanded, there was a push to establish new banks in less-populated areas, leading, for example, to "small independent banks... in Chicago [being] established." When branching is allowed, progress in transportation technology is likely to stimulate banks to pursue a dispersed strategy to achieve growth, relying less on a centralized strategy, as discussed above. Thus, under either condition, progress in transportation technology is likely to decrease the average size of bank locations.

***Hypothesis 2c (H2c):** In states with more advanced transportation infrastructure, the size of individual bank locations, on average, is likely to be smaller.*

## **Economic Environments and Centralized and Dispersed Growth Opportunities**

Along with institutional and technology environments, economic environments affect organizational growth. For example, general economic conditions (e.g., income per capita) need to be developed enough to create sufficient market demand (Nohria, Dyer, & Daltzell, 2002). But we suggest that two other economic conditions, urbanization and degree of business competition, are of particular importance for understanding why banks grow in either a centralized or a dispersed fashion.

**Urbanization.** Since services like banking are greatly contingent on how customers are distributed geographically, urbanization—the degree to which a state’s population is concentrated in cities—is likely to influence the growth strategy pursued by banks. Histories of a number of banks suggest that the urbanization that occurred during the twentieth century was a prime driver in banks’ growth (Collis, 1926; Fischer, 1968; Klebaner, 1990). Urbanization, like the transportation technology discussed above, cannot affect banks’ geographic dispersion in a particular state unless branching is allowed in that state. When it is allowed, urbanization should suppress the effect of branching policy in stimulating a dispersed strategy since geographic expansion is not as attractive a growth strategy when customers and businesses are more concentrated in cities. As a result, banks in states with greater urbanization are likely to be less dispersed geographically and to have larger locations. In contrast, banks in states with less urbanization would likely pursue a dispersed strategy and establish a larger number of branches, owing to the greater dispersion of customers. Moreover, when urbanization is low, bank locations would tend to be small, as the population in any one location would not be big enough to support a large operation. Thus, we suggest that a state’s urbanization moderates the effects of that state’s branching policy on bank dispersion and location size.

***Hypothesis 3a (H3a):** The positive effect of branching policy on banks’ geographic dispersion is likely to be weaker in states with higher urbanization.*

***Hypothesis 3b (H3b):** The negative effect of branching policy on the size of individual banking locations is likely to be weaker in states with higher urbanization.*

In line with the historical studies mentioned above, we also suggest that urbanization is likely to increase the size of individual bank locations, regardless of whether geographic expansion is allowed (Collis, 1926; Fischer, 1968; Klebaner, 1990). Examples of how banks grew as cities expanded abound. A history of NationsBank tied the growth of the company to the growth of urban areas (Covington & Ellis, 1993), a link made more explicit in a history of Detroit-based Comerica Bank, which recounted how the firm's services were limited when the city was sparsely settled, but as Detroit grew, so did the bank (Comerica, 1999). Collis's (1926) early description of branch banking suggested that the growth of cities directly led to bank growth. The foregoing discussion suggested that urbanization directly affects bank growth patterns. The greater urbanization, and, hence, the more concentrated the population in a state, the more likely banks are to pursue a centralized as opposed to a dispersed strategy, which will be reflected in greater location size.

***Hypothesis 3c (H3c):** In states with greater urban populations, banks are likely to have, on average, larger individual banking locations.*

**Business competition.** Another important economic factor likely to influence banking growth is the degree of competition among banks in a state. In general, competition among firms has been shown to reduce profit margins (e.g., Porter, 1980) and threaten organizational survival (e.g., Carroll & Hannan, 2000). For example, Baum and Mezias (1992) showed how hotels in environments where there were greater numbers of similar competing hotels experienced higher mortality. When firms compete intensely by pursuing the same strategy, that strategy is less likely to bring competitive advantage, therefore becoming less attractive (Barney, 1986; Peteraf, 1993).

When there are only a few banks in a state, competition between banks would likely be low. But as the number of banks increases, the necessity of competing with other banks also increases. While competition initially is likely to be localized to the extent that banks mainly compete with others in the same geographic markets in a state (e.g. a city), as the number of banks increases, banks are more likely to expand beyond their home markets to enter other geographical markets in a state,

leading to more intense levels of competition across geographies (Haveman and Nonnemaker, 2000). Thus, as the number of banks increases in a state, we expect that the degree of competition among banks in that state also increases.<sup>4</sup>

When branching policy allows geographic expansion, banks are likely to pursue the dispersed strategy in order to grow. However, if competition in pursuing the dispersed strategy is intense, banks are likely to be discouraged from expanding geographically because competition tends to lower the return from dispersion. Therefore, in states with higher competition among banks, branching policy is less likely to stimulate geographic expansion and, as a result, banks are likely to be less geographically-dispersed. Similarly, Haveman and Nonnemaker (2000) showed that entry and growth of California savings and loans was directly related to geographic market size. Higher competition among firms in the same market effectively shrinks the market size, reducing firms' tendency to enter and grow. Moreover, the dispersed strategy, if its value is dampened by high competition, is less likely to constitute an attractive alternative to the centralized strategy, so banks may pursue the centralized strategy even if branching is allowed. The net result is that the effects of branching policy on the geographic dispersion and the size of individual bank locations, as captured by Hypotheses 1a and 1b, are weaker when competition among banks is more intense.

***Hypothesis 4a (H4a):** The positive effect of branching policy on banks' geographic dispersion is likely to be weaker in states with more intense competition among banks.*

***Hypothesis 4b (H4b):** The negative effect of branching policy on the size of individual banking locations is likely to be weaker in states with more intense competition among banks.*

Finally, competition among banks will likely decrease the size of bank locations, regardless of whether branching is allowed in a state. When branching is not allowed in a state, banks pursue

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<sup>4</sup> While it would be ideal to have more fine-grained measures of banks' localized competition (e.g. number of banks in the banks headquarters city), such data is not available for the time period we study.

the centralized strategy primarily in urban centers where they are headquartered. To the extent that the size of such markets are largely fixed within a given time period, increasing competition among banks simply means that the relative size of the markets decreases so that it becomes more difficult for banks to expand their operation in the markets (Haveman & Nonnemaker, 2000). Moreover, increasing competition tends to squeeze banks' profit margins (Porter, 1980) so that it is not attractive to expand operations in markets with intense competition. When branching is allowed in a state, banks can pursue both the centralized and the dispersed strategy. Given that intense competition makes urban markets unattractive for scale expansion as discussed above, banks may alternatively enter markets outside urban centers. To the extent that population in areas outside of urban centers is naturally sparser, bank operation is likely to be smaller on average than that in urban centers. Moreover, intense competition means that banks are likely to compete with each other in such markets as well. Two results may ensue. First, intense competition may force banks to scale back due to squeezed profit margin as pointed out above. Second, banks may be forced to enter more remote areas where population is even sparser and thereby can only support even smaller operation. In either scenario, the size of bank locations is reduced by intense competition.

***Hypothesis 4c (H4c):** In states with more intense competition among banks, the size of individual bank locations, on average, is likely to be smaller.*

### **Cultural Resistance to Large-Scale Organizations**

A longstanding tradition in organizational theory has focused on how cultural factors influence organizational strategies and forms (e.g., Dobbin, 1994; Haveman & Rao, 1997; Ingram & Simons, 2000; Lounsbury, 2007; Haveman et al., 2007). Important for our study of banking is how U.S. bank growth was affected by a deep-seated general mistrust of centralized power, particularly with regard to large banks. Tocqueville (2000[1835]), for example, during his extended trip to the U.S. in 1831 and 1832, focused on how local organizations developed in the U.S. as an antidote to centralized state and economic powers, an important tension surfaced by other influential sociological analyses (e.g.,

Mills, 1956; Lipset, 1963). Along the same lines, Marquis and Lounsbury (2007) recently showed that community-based resistance to centralized banking power is still an important cultural logic that influences industry dynamics. Building on research that has shown that action in markets is highly influenced by the underlying cultural beliefs and norms of actors (e.g. Thornton, 2002; 2004), Marquis and Lounsbury (2007) showed that such culturally-based market logics can be a source of resistance to institutional change.

During the time period of our study, local agrarianism was a particularly important cultural logic that promoted community-oriented banking (Roe, 1994). In many cases, this stemmed from farmers' interest in having a close banking relationship. For example, Roe (1994) described how local banking was fervently supported by farmers and small-town residents because locally-focused banks would presumably continue supplying credit during economic downturns. Calomiris (1993) similarly documented how farmers have valued local banking throughout the course of U.S. history up to the present, and this cultural support was essential to the U.S. maintaining a decentralized banking system. Recent analyses of bank lending to small farms also suggests that the tight ties between farmers and local banks are persistent considerations when understanding the structure of the U.S. banking industry and size of local banks (Akhavain, Goldberg, & White, 2004). More generally, others have found that agrarian resistance to centralized power has provided an alternative logic as modernization proceeded and specifically how smaller-scale mutual firms developed in insurance and other industries as alternatives to large organizations (Schneiberg, 2002; Schneiberg et al., 2008).

Following these previous studies, we suggest that the greater presence of actors with an agrarian logic in a state is likely to have two implications for bank growth. First, when the relaxation of branching policy in a state encourages banks to expand geographically, these actors are likely to resist banks' geographical expansion and thus moderate the effects of branching policy. Banks that expanded into different geographical areas are likely to be perceived as powerful corporations that



lack a local orientation and are therefore likely to trump local interests (Wright, 2001). As a result, actors representing the agrarian logic are likely to resist banks' geographical expansion. For example, such actors might choose to use services from local banks instead of, and publicly voice negative opinion about, banks focused on branching (see also Carroll & Swaminathan, 2000, and Marquis & Lounsbury, 2007 for similar types of resistance). While organized collective action is critical for enacting the anti-branching policy as in the case of anti-chain laws (Ingram & Rao, 2004), on-going, less organized resistance is important for preventing banks from expanding geographically when branching is legally allowed. Such resistance might render geographic expansion less attractive as a growth strategy for banks, especially when the resistance is strong. Consequently, the effects of laws that allow banks to pursue geographic expansion, as hypothesized in Hypotheses 1a and 1b, are likely to be reduced where there is a greater number of agrarian actors in a state.

***Hypothesis 5a (H5a):** The positive effect of branching policy on the geographic dispersion of banks' locations is likely to be weaker in states with a greater agrarian presence.*

***Hypothesis 5b (H5b):** The negative effect of branching policy on the size of banks' locations is likely to be weaker in states with a greater agrarian presence.*

Second, in line with recent studies of bank lending to small farms (Akhavein, Goldberg & White, 2004), the greater presence of actors with an agrarian logic in a state is likely to keep banks locally oriented, which would cause them to grow by increasing the size of local operations, regardless of whether or not branching is allowed. When branching is not allowed in a state, actors with an agrarian logic provide support for community-oriented institutions, a favorable condition for banks to increase their local operations (Marquis & Lounsbury, 2007). When branching is allowed in a state, actors with an agrarian logic are likely to resist banks' geographic expansion, as pointed out above. Thus, if geographic expansion is a less-attractive growth strategy in states with a higher number of agrarian actors, banks are likely to resort to the alternative strategy outlined above—growing the size of their individual locations.

*Hypothesis 5c (H5c): In states with a greater agrarian presence, banks are likely to have, on average, larger individual locations.*

As a whole, our hypotheses (summarized in Table 1) elaborate the core argument that while branching policy is a baseline condition, different transportation infrastructures, economic conditions and cultural environments—as well as the interaction between these environmental conditions—in different states affected banks’ pursuit of the dispersed or centralized growth strategies.

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Insert Table 1 about here  
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## **METHOD AND ANALYSIS**

To test our predictions, we examined annual state-level banking organization for all the contiguous U.S. states from 1896 through 1978. The turn of the twentieth century is the ideal starting point for this analysis because there were virtually no multi-unit banks in the country at that time and expansion was just becoming a debated topic (Calomiris, 1993). Moreover, a reliable series of state-level data became available in 1896. (All data on state banking characteristics are from Flood, 1998 and Federal Deposit Insurance Corporation (FDIC) annual publications). We ended our study in 1978 because this was the year that banks began interstate branching. Following Schneiberg and Bartley (2001), we performed state-year analyses to determine average bank growth for each state. To address the issue of simultaneity, we lagged our independent variables by one year, so our analyses were based on 3,893 state-year observations (83 observations for every state except Oklahoma, which became a state in 1907, and New Mexico and Arizona, which became states in 1912).

While having bank-level data may have produced a more fine-grained test because we would have been able to observe specific individual banks’ strategies, we are limited in that bank-level data are not available for this early and extended historical period. We believe, however, that examining our hypotheses at the state level is valid for at least two reasons. First, our focus is on comparing

differences across banks' external environments, not differences within given environments. Our comparison is essentially of differences in the policy, technological, economic and cultural conditions across the 48 states to see whether, on average, banks in one state were significantly larger and more dispersed geographically than those in another state. Secondly, we are guided by our more fine-grained, qualitative data on bank histories that support the underlying theory we propose and highlight how individual bank differences would play out across the United States.

### **Dependent Variables**

Our primary goal was to theorize how changes in environmental conditions in the twentieth century contributed to the appearance of large banking firms. Our empirical strategy is to examine whether the different policy, technological, economic and cultural conditions that prevailed in each state created cross-state variation in bank growth along two dimensions: bank geographic dispersion and bank location size. *Bank geographic dispersion* was measured as the percentage of bank locations in a given state that are outside of a bank's headquarters location. This is a direct measure of the extent to which banks rely on outlying locations and captures the extent to which banks in a state are geographically dispersed. These data are from *Federal Reserve Bulletin* (various years), which annually publishes the counts of branches at the state level, indicating whether or not branches are in the bank's head-office city.<sup>5</sup> *Bank location size* is meant to capture bank growth achieved by the centralized strategy whereby banks establish large bank branches without necessarily expanding geographically. The typical measure of a bank's size—its overall financial assets—reflects the results of both the dispersed and centralized growth strategies. In order to estimate whether states

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<sup>5</sup> Because prior to 1929 the Federal Reserve published these and historical counts sporadically, a limited amount of data for missing years between 1896 and 1929 are linearly interpolated. Comprehensive data exists for 1896-1910, 1924 and 1929, and by examining other publications, such as state statutes, which were published by the Federal Reserve in 1925, we were able to identify some, but not all changes between 1910 and 1924. Because (a) this early period was mostly characterized by small numbers of outlying branch locations and (b) these values appear to be stable, interpolating this limited number of values should not be an issue. We also performed a number of robustness checks on our results to verify that the interpolated variables did not have any undue influence on the results and we are very confident that this is the case. For example, analyses without the interpolated values show even stronger effects for variables of interest than the presented models do. Additional analyses without observations before 1929 also returned results quite similar to those reported.

had banks with greater or lesser degrees of focus on large locations, we took the total banking assets in each state for each year from 1896 through 1978 and divided it by the total number of banking locations for that year, including both the headquarters and branches.

### **Independent Variables**

**Branching policy.** Because state restrictions on branching varied considerably, we created annual, state-level, legal environment histories for all 48 states in the sample from 1896 to 2001. To construct these regulatory histories of state branching policy, we examined more than 15 secondary sources and, in many cases, the actual statutes.<sup>6</sup> As noted above, there are three primary types of branching law: unit banking, where there is no branching allowed; statewide branching, where banks can branch throughout the state; and limited statewide branching, where banks can branch within a circumscribed area. As we describe above in footnote 2, there is some variation across states in the definitions of these types; in coding the states, we have relied on precedent (Federal Reserve, various years; Welldon, 1910; Fisher, 1968; Kroszner & Strahan, 1997). To capture the variation in regulation, we created a dummy variable coded 1 to indicate a state that allowed branching throughout and 0 otherwise (either a unit-banking or limited-branching state).<sup>7</sup>

**Technological infrastructure.** Because our transportation hypotheses focus on expansion beyond centralized population areas, we obtained data on states' non-urban (i.e., rural) roadway mileage from annual publications of *Highway Statistics* (U.S. Department of Transportation, various issues). These data became available at the state level in 1923; we extrapolated the series back to 1896.<sup>8</sup> Because the outlying highway system did not grow significantly until after 1923, the

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<sup>6</sup> Space considerations prevented us from presenting a detailed two-page description of how this data was gathered. It is available upon request.

<sup>7</sup> Separate analyses were also run with variables indicating whether or not a state allowed any branching (i.e., 1=statewide and limited statewide). These results were quite similar, although some effects were less statistically significant than the reported results. We feel, however, that the current operationalization is the best because, in most cases, limited statewide branching was highly circumscribed (e.g., branches only within sight of the headquarters), so our arguments about coordination and agency relationships are more appropriately tested in states where branching capabilities were more expansive.

<sup>8</sup> To accomplish this, we used the percent change in total annual national highway mileage (for which there are data back to 1900) to guide our determination of how much rural mileage increased each year. By 1900, the end of this data series, total

extrapolation of these values should not bias the analyses; the results are consistent when the extrapolated data are excluded. Although many different technology systems might be important to the coordination needs of banks (e.g., railroads, telephones, and telegraph), we emphasize the development of roadways because, as discussed above, banks relied primarily on road transportation to monitor outlying branches and to transfer paper documents and money between branches and headquarters during our study period.

**Economic conditions.** As discussed above, we focus on two economic conditions that influenced bank growth. *Urbanization* was measured as the percentage of the state's population living in urban areas. We collected the population data from the U.S. Census Bureau at 10-year intervals beginning in 1900, the intervening years being interpolated.<sup>9</sup> Following Carroll and Hannan (2000), we measured *business competition* as the number of banks in a given state (log-transformed to correct a skewed distribution).<sup>10</sup> This measure of business competition is consistent with our theorizing and historical studies of competition in U.S. commercial banking (Wright, 2001).

**Cultural resistance.** As discussed above, our theorizing is mainly concerned with on-going resistance by actors with an agrarian logic. Accordingly, the greater the number of such actors, the stronger the likely resistance against banks' geographical expansion. To capture the influence of cultural resistance, we included a variable, *agrarian presence*, that measures the number of farms in a given state (log-transformed to correct a skewed distribution). The data for this measure was collected from the U.S. Department of Agriculture's historical database on farms.

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national mileage was reduced to 100. To get the 1896 to 1899 values, we linearly interpolated for each state under the assumption that in 1896 there were 0 miles of national highway.

<sup>9</sup> Prior to 1950, the U.S. Census Bureau defined urban area as all territory, persons, and housing units in incorporated places of 2,500 or more persons. After 1950, the U.S. Census Bureau's definition of urban area changed slightly to territory, persons, and housing units in urbanized areas and, outside urbanized areas, in all places, incorporated or unincorporated, that had 2,500 or more persons. This definition remains substantially unchanged. To check whether the 1950 change affected our results, we included a period dummy with 1 indicating years after 1950; the results (available from the authors upon request) were not materially different from the reported results.

<sup>10</sup> We thank an anonymous reviewer for pointing out that competition is likely to be localized in banking and thus our state-level measure may not accurately tap competition for banks. In supplementary analyses, we found that urbanization was a statistically significant moderator of competition, reinforcing a negative effect on dispersion, suggesting that competition is at least partially localized. While we are limited in that more fine-grained data is not available for firms, as we discuss above in our hypotheses section, state-level measures also tap broader competitive forces within a state.

## Control Variables

We included in our analysis a number of controls to account for possible alternative explanations and confounding processes. *Per capita income*, a measure of wealth in a state, was collected for each state from the Bureau of Economic Analysis and prior to 1929, from *Population Redistribution and Economic Growth, 1870-1950* (Lee, Miller, Brainerd, & Easterlin, 1957).

Controlling for per capita income can address two particular issues. First, to the extent that per capita income reflects the economic fluctuations in the U.S. economy, controlling for it should proxy the demand for banking services. Second, recall that urbanization, which reflects the geographic concentration of population in a state, is important for understanding bank growth in the early twentieth century. To the extent that urbanization often correlates with per capita income, as it does in this study ( $r = 0.69$ ), controlling for per capita income can help tease out the effect of population concentration from general economic conditions.

During our period of study, there were some major changes in federal regulations that might have had an impact on the development of the commercial banking industry (Calomiris, 1993). Therefore, we used dummy variables to divide our period of study into (a) the period prior to the Federal Reserve Act (*pre-Fed*, 1896-1913), (b) the period after the Glass-Steagall Act (*post-Depression*, 1934-1978), and (c) the period between these two acts (1914-1933), which serves as the reference category. As a further way to account for the temporal dimension of our study, we also included a linear *time trend* variable to account for the fact that some of our key variables, such as transportation and urbanization were growing over time (see Dobbin & Dowd, 1997 for a similar strategy of using period variables with a time trend).

We also controlled for other factors that may have had an important influence on bank growth. *Percent manufacturing*, measured as the percent of manufacturing employment in a state, captures the variation across states of an important economic constituency that relies on banking services and has an interest in banking growth, and has been shown to be an important lobby for

banking law changes (Abrams & Settle, 1993). This was collected from *Historical Statistics of the States of the United States* (Dodd, 1993) and the Census Bureau. *Total population* (data from the U.S. Census Bureau) is also included to account for state size. *Square miles* measures the size of a state in order to take into account that highway mileage is to some extent a function of the size of a state, and that size may also influence the number of farms and could also directly influence bank dispersion. To control for the alternative growth strategy available to banks, in the analyses of bank geographic dispersion, we included the lagged average bank size and the number of branches in the given state. In the analyses of bank location size, we included bank geographic dispersion.

### **Statistical Models**

Primary considerations in deciding the appropriate model for our analyses included (a) multiple observations for each state and (b) a high degree of autocorrelation between a given year and the previous year. Given this time-series panel structure, we used Prais-Winston regression with a panel-specific autoregressive disturbance structure (xtpcse command in STATA, with autocorrelation = psar 1).<sup>11</sup> In such situations, Beck (2001; and see Guillén & Suárez, 2005 for a recent empirical example) recommends a model with panel-corrected standard errors. Durbin-Watson tests confirmed the existence of autocorrelation in our panels. The Prais-Winston estimator is a generalized least squares (GLS) estimator corrected for first-order serially-correlated residuals specific to each panel (i.e., within states as opposed to across the entire dataset, as is customary with time-series analyses).

One possible concern with our analyses and results is the issue of endogeneity, which refers to the fact that an independent variable included in the regression model is potentially a choice rather than a random variable, correlating with unobservable factors in the error term. Usually, the issue of

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<sup>11</sup> We conducted numerous sensitivity checks, such as running other potential models, including general fixed and random effects models with an autoregressive term (STATA command xtregar) and instrumental variable models (STATA command xtivreg). The results from the Prais-Winston analyses are similar to—and in most cases significantly more conservative than—those obtained by these other methods.

endogeneity can be addressed either by explicitly controlling for those unobservable factors in analyses or by estimating a two-stage model (Millimet, 2001; Greene, 2008). In this context, the enactment of branching policy in a state could be endogenous and due to some unobservable factors that might systematically bias the effects of our independent variables on our dependent variables. For example, a strong agrarian presence in a state could suppress both the passage of branching policy and banks' geographic expansion. If we do not control for this factor, the estimated effect of branching policy on banks' geographic dispersion will be biased. Similarly, other factors, such as business competition among banks, transportation technology, urbanization, and per capita income could all affect both the passage of branching policy and our dependent variables. Since we could largely identify these major factors, including them in our analyses lessens endogeneity concerns. Confirming this observation, the estimated results were very similar when using two-stage instrumental variable models (xtivreg in STATA). As robustness checks, we ran a series of instrumental variable regressions with branching policy and its interactions designated as endogenous (or instrumented) variables. As our primary instrumental variable, with which we also created interaction effect instruments, we selected the degree of progressive laws in a state (an index of progressive laws, based on Fishback & Kantor's (2000) database). This instrument was selected because degree of progressive laws in a state is likely related to the likelihood of states adopting branching laws, yet not specifically related to our dependent variables. These results are available upon request.

## **RESULTS**

Table 2 presents the descriptive statistics and the correlation matrix. There are some fairly high bivariate correlations, raising concerns about multicollinearity. The multicollinearity diagnosis tests show that the average VIF scores for all estimated models are well below 10, the suggested threshold point, indicating that multicollinearity is not a serious issue in our data set.



Insert Table 2 about here

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Tables 3 and 4 present the regression equations for bank geographic dispersion and bank location size analyses. For ease of comparability across tables, the models are presented in the same sequence.

Table 3 indicates whether environmental conditions account for variation in banks' geographic dispersion across the states. Model 1 is the base model with all control variables. Models 2 and 3 test Hypothesis 1a, which predicts that less restrictive branching policy stimulates the geographic dispersion of banks. The difference between these two models is whether agrarian presence, transportation technology, urbanization, and business competition are included. Regardless, the estimated coefficients for branching policy in both models are statistically significant with a positive sign, supporting Hypothesis 1a and suggesting that banks in states with more liberal branching policy were more likely than banks in states with more restrictive branching policy to pursue the dispersed strategy of establishing geographically distant branches.

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Insert Table 3 about here

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Model 4 tests Hypothesis 2a, which predicts that the effect of branching policy on bank geographic dispersion is intensified when the transportation infrastructure in a state is more advanced. The estimated coefficient of the interaction between branching policy and transportation infrastructure is statistically significant with the predicted positive direction, supporting Hypothesis 2a. To assess the moderating effect of transportation infrastructure, we use the estimated equation  $(0.047 * \text{Branching policy} + 0.0363 * \text{Branching policy} * \text{transportation infrastructure})$  in Model 4. All else being equal, when transportation infrastructure takes a low value of 0.197 (the mean), the passage of statewide branching policy decreases average bank geographic dispersion in that state by about 13 percent. When transportation infrastructure takes the high value of 0.521 (1 s.d. above

mean), the passage of statewide branching policy increases average bank geographic dispersion in that state by about 18 percent.

The effects of two economic conditions—urbanization and business competition—on bank geographic dispersion are tested in models 5 and 6 respectively. Model 5 addresses Hypothesis 3a, which predicts that the effect of branching policy on bank geographic dispersion is weaker in states with higher urbanization. The estimated coefficient for the interaction between branching policy and urbanization is statistically significant but the sign was the opposite of our prediction. The history of the commercial banking industry suggests one possible explanation for this unexpected result. As noted, in most states, before branching was allowed, establishing large operations in urban centers was the only way for banks to grow (Fischer, 1968). As a result, competition among banks in urban centers was intense and when branching was allowed, banks might therefore have been driven to expand geographically. This tendency might have been stronger for banks located in bigger urban centers where competition was more intense.

Model 6 tests Hypothesis 4a, which predicts that the effect of branching policy on bank geographic dispersion is weaker in states with more intense business competition. The interaction term between branching policy and business competition is negative and significant as predicted, supporting Hypothesis 4a. At first glance, this finding may sound contradictory to the post hoc explanation for the unexpected moderating effect of urbanization on bank geographic dispersion discussed above. However, while the post hoc explanation above suggests that intense competition among banks in urban centers may have driven banks to pursue the dispersed strategy, the finding in Model 6 suggests that when banks disproportionately pursued the dispersed strategy, the value of this growth strategy was competed away so that banks were discouraged from pursuing or continuing this strategy. Model 7 tests Hypothesis 5a, which predicts that the effect of branching policy on bank geographic dispersion is weaker in a state with a stronger agrarian presence. The estimated

coefficient for the interaction between branching policy and agrarian presence is statistically significant with the predicted negative sign, supporting Hypothesis 5a.

Table 4 considers whether environmental conditions affect bank location size. Model 9 is the baseline model. Models 10 through 15 test the main effects of branching policy, transportation technology, urbanization, business competition and agrarian presence, as predicted by Hypotheses 1b, 2c, 3c, 4c, and 5c respectively. Model 11 tests Hypothesis 2c, and provides support for the prediction that banks in a state with greater transportation infrastructure are less likely to pursue the centralized strategy. In Model 12 the estimated coefficient for urbanization is positive and significant as predicted, supporting Hypothesis 3c. Model 13 tests Hypothesis 4c, which predicts that banks in a state with more intense interbank competition are less likely to pursue the centralized strategy. The estimated coefficient for business competition is negative and significant as predicted, supporting Hypothesis 4c. Model 14 tests Hypothesis 5c, which predicts that banks are more likely to pursue the centralized strategy in a state with a stronger agrarian presence. While the estimated coefficient for agrarian presence is not significant in Model 14, it is positive and significant as predicted in Model 15, supporting Hypothesis 5c. This finding suggests that when two states have the same levels of transportation technology, urbanization, and business competition, agrarian presence becomes an important factor stimulating banks to pursue the centralized strategy.

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Insert Table 4 about here  
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Models 16 through 19 test whether transportation technology, urbanization, business competition and agrarian presence moderate the effects of branching policy on bank location size, as predicted by Hypotheses 2b, 3b, 4b, and 5b respectively.

Model 16 tests Hypothesis 2b, which predicts that the effect of branching policy on bank location size is stronger in a state with a more advanced transportation infrastructure. The estimated coefficient for the interaction between branching policy and transportation technology is negative

and significant at  $p < .06$  in a two-tailed test, providing marginal support to Hypothesis 2b. Model 16 shows that the effect of branching policy on bank location size depends on the condition of a state's transportation infrastructure. Figure 1 illustrates this relationship.

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Insert Figure 1 about here  
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Model 17 tests Hypothesis 3b, which predicts that the negative effect of branching policy on bank location size is weaker in a state with higher urbanization. The estimated coefficient for the interaction between branching policy and urbanization is not significant; the analysis does not support Hypothesis 3b. Model 18 tests Hypothesis 4b, which predicts that the negative effect of branching policy on bank location size is weaker in a state with stronger business competition among banks. The estimated coefficient for the interaction between branching policy and business competition is positive and significant as predicted, supporting Hypothesis 4b. Although the main effect of branching policy is not significant in Models 10 and 15, when the interaction between branching policy and agrarian presence is entered in Model 18, the main effect of branching policy becomes marginally significant and negative as predicted. Figure 2 illustrates the moderating effect of business competition.

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Insert Figure 2 about here  
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Model 19 tests Hypothesis 5b, which predicts that the negative effect of branching policy on bank location size is weaker in a state with a stronger agrarian presence. The estimated coefficient for the interaction between branching policy and agrarian presence is positive and significant as predicted, supporting Hypothesis 5b. Recall that in Models 10 and 15, the main effect of branching policy was not statistically significant. However, when the interaction between branching policy and agrarian presence is entered in Model 19, the main effect of branching policy becomes significant and negative as predicted. Figure 3 illustrates the moderating effect of agrarian presence.

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Insert Figure 3 about here  
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Collectively, these results support our arguments about the importance of policy, technological, economic, and cultural conditions for the growth of the U.S. commercial banking industry in the early twentieth century. Furthermore, there appears to be a trade-off between two distinct growth strategies for these firms, and the environmental conditions seems to shape the dominant strategy pursued by firms in a given state.

## **DISCUSSION**

This study was primarily motivated by the observation that the effects of policy on organizations are likely to depend on other environmental conditions in which organizations are embedded. To investigate the contingent nature of policy, we examined the growth of U.S. commercial banks in the twentieth century. We argued and showed that the growth of banks over the early twentieth century entailed a trade-off between a centralized strategy of establishing a limited number of large units within a narrow geographic location and a dispersed strategy of establishing a large number of small units spanning a wide geographic area. This trade-off is due to certain fundamental characteristics of service industries like commercial banking— the link between production and distribution, intra-organizational coordination, and agency relationships. We further demonstrated that the public policy allowing branching in a particular state led banks in that state to pursue the dispersed strategy of establishing outlying branches in dispersed locations. The observed effect of a state's branching policy became stronger when transportation technology (roadways in particular) was more advanced in that state, but became weaker when interbank competition was more intense or agrarian presence was stronger. The effects of state branching policy on banks' pursuit of the centralized strategy were also highly contingent on transportation technology, interbank competition, and agrarian presence in a state. Moreover, both progress in transportation technology and increased interbank competition discouraged banks from pursuing the centralized

strategy, while urbanization encouraged it. Together, these findings provide strong support for our arguments about bank growth during the early twentieth century. Building on these findings, we now highlight some major implications of this study.

### **Public Policy and Organizations**

Our study contributes to research on how public policy affects organizations, an important theme in organizational theory. Previous studies have documented that policy changes often have powerful effects on organizations by creating fundamental shifts in the external environment (e.g., Davis, Diekmann, & Tinsley, 1994; Dobbin & Dowd, 1997, 2000; Guthrie & Roth, 1999; Haveman, 1993; Haveman et al., 2001; Russo, 2001; Wade et al., 1998). Our results, while echoing these studies, also suggest that they might, in fact, overemphasize the effect of policy changes. We showed that, although the enactment of a state branching policy stimulated banks to grow geographically, the effects of such a policy also depended on its interaction with technological development, economic conditions, as well as underlying cultural features of states. Our results lead us to conclude that the environments that organizations face are complex and multifaceted, and a given policy exerts a powerful impact only in the presence of other supporting factors.

These contingent effects of policy can be visualized in Figure 4, which depicts relative bank size in three states with dramatically different regulatory histories. Throughout the twentieth century, North Carolina permitted statewide branching, Colorado prohibited statewide branching, and Alabama, an example of a middle ground, started as a unit-banking state but initiated limited statewide banking in 1935. The y-axis plots the z-score of total banking assets for each state, which relates each state-year observation to the mean value of bank size across all 48 contiguous states for that year. Although North Carolina allowed statewide branching, the relative size of its banking industry did not surpass those of Colorado and Alabama until the late 1910s, when other environmental features, such as transportation technologies, had improved sufficiently to allow bank expansion. The state's banks gradually increased as transportation technology continued to progress.

This pattern suggests that the powerful effect of liberal branching policy on bank growth was not unleashed until other supportive environmental conditions were available. Colorado, which prohibited bank branching for the entire twentieth century, remained in the lower half of the distribution, suggesting that its policy did indeed influence (that is, impede) growth. Alabama's banking growth did not begin until after branching policy was liberalized, at which point the state's transportation technologies were already advancing.

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Insert Figure 4 about here  
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### **The Rise of Large Organizations in the Twentieth Century**

Our findings regarding the contingent effects of policy also have implications for debates on how large-scale organizations emerged and developed in the United States (e.g., Chandler, 1977; Fligstein, 1990; Roy, 1997). As noted, prior explanations are mono-causal, giving prominence to only one set of environmental conditions (policy, technological, economic, or cultural). We proposed instead an integrated approach to investigate how three types of environmental conditions affect the rise of large organizations independently and interactively. Our findings largely confirm the value of this approach.

These findings are important more generally because they speak to the significant tension underlying modernization processes in the U.S. With modernization, the U.S. has evolved to have dispersed retail outlets, although there is still a significant resistance to this process (Marquis & Lounsbury, 2007). Our findings track both sides of this contentious process, both the underlying mechanisms that led to centralization and dispersion as well as features of society that hold back the development of large scale firms. This debate over centralized versus decentralized political and economic organization has its roots in the core philosophical positions of the two major political parties present at the founding of the United States. The Republicans, led by Thomas Jefferson, preferred decentralized political and economic systems with community-oriented control of banks.

The major opposing party, the Federalists, led by Alexander Hamilton, preferred centralized political and economic systems with large, multiple-branch, national banks. Friedland and Alford (1991: 246) noted that "...the persistent tendency for Americans to construct decentralized state structures, to separate governmental powers; to prevent the emergence of national banks... derives in part from a culturally contingent concept of power, embedded in a notion of liberty derived from the original settlers' experience of a highly intrusive English state." This historical tension is underexplored in the context of understanding how U.S. industries evolved and are currently structured. While nationally-oriented establishments, such as WalMart and Starbucks, have made extensive inroads in developing large chain organizations, they have also been targets of negative sentiment by community actors wanting to maintain local character and economic bases (Ingram & Rao, 2004). Our study contributes to further exposing this fundamental tension, and future researchers may want to examine the recursive tension between culture and public policy on this issue and how it influences non-financial industries.

Studying the growth of an industry like banking is further important because it is a service industry. In spite of the dramatic increase in service firms in the second half of the twentieth century (Nohria, Dyer, & Daltzell, 2002), much of the theorizing about the rise of large organizations per se has been about manufacturing firms. Thus, our focus on the underlying mechanisms and processes that enable or constrain growth for service firms is a contribution to understanding the rise of these types of firms more generally. Our findings from the banking industry can potentially be generalized to a number of other major service industries. For example, hotel services are—like banking services—characterized by the simultaneity of production and distribution/consumption. As such, they depend on the geographic distribution of customers—usually travelers. Historical accounts show that, before the early twentieth century, the hospitality industry consisted almost entirely of independent hotels in urban centers and resorts near the principal vacation destinations and that the growth strategy for hotels was to expand operations in these locations (e.g., Gomes, 1985; Ingram,



1996; Ingram & Baum, 1997). However, technical and policy changes and their interaction completely reshaped the industry. First, the invention of automobiles allowed travelers to stop between major urban centers, creating a demand for lodging outside those centers. Still, this demand did not become strong until the passage of the Federal Road Aid Act in 1916, which stimulated the construction of roadways (Seely, 1987). As a result, a new growth strategy became possible and attractive for hotels: establishing hotel chains (i.e., motels) along roadways to accommodate customers on road trips. When hotels expanded outside urban centers and major vacation sites, they scaled down their local operations—just as the banks had done—leading to an industry transition from large urban hotels to chains of smaller locations (Kane, 1954).

However, as the broad category of service industries includes many industries with distinctive characteristics, our theory and findings may not be fully generalizable across all types of service firms. For example, while the mutual fund industry is similar to banking in that it provides financial services, mutual funds, unlike traditional banking products, are individually customized portfolios of investments created and managed by a centralized pool of expert labor. As a result, the industry is centralized in locations (New York and Boston) that have deep pools of such professionals as well as healthy markets for such products (e.g., Lounsbury, 2007). The distribution of these products then depends on a variety of alternative channels, including the telephone and mail, which is a technical limit and one likely reason why the growth of the industry did not take off until the 1960s. Further, there were no legal limits to cross-state distribution like those faced by the banking industry. In other service industries, such as management consulting and accounting, scale depends on geographic expansion (e.g., establishing different offices in different places), as it does in banking, but intra-organizational needs and agency relationships are not as important because local offices are relatively independent of headquarters (McKenna, 2006; Greenwood & Suddaby, 2006). How large-scale organizations appeared in service industries like those just discussed may warrant separate consideration by future studies.

## **Implications for Public Policy Makers**

Our study has implications for public policy makers. These contingent effects of branching policy on banks' growth strategies suggest that when policy makers want to influence society and the economy, they need to understand the constraints imposed by technological, economic and cultural conditions. Otherwise, the objectives of public policy may not be fully realizable. Overall, being mindful of how other features of the external environment constrain or enable policy suggests two additional possible strategies for policy makers. First, they could divide their policy objectives into stages and begin by implementing those portions of the policy that is supported by existing conditions. Alternatively, policy makers could initially target their policy to specialized areas with more supportive environments. Both these approaches are exemplified by the Chinese government's economic reformation policy in the 1980s and 1990s, which gradually introduced market principles to a planned economy (Guthrie, 1999). The reforms were carried out in phases and, early on, the Chinese created Special Economic Zones—such as Shenzhen, which borders economically-advanced Hong Kong—to be areas of special reform.

Our analysis suggests a particular link between technology and public policy that is important for policy makers, particularly those in emerging economies. Improvements to the technical infrastructure might be necessary for certain public policy measures to have their desired effect. Certainly there are many more technological tools available today than there were in the early twentieth century and the extent to which a given policy's effectiveness will be dependent on technology in the contemporary economy is an open question. But the transformative impact of modern technology like the computer and information technology suggests that technology still constitutes an important condition for the effectiveness of public policy. For example, while interstate bank growth following 1978 is clearly due to a significant policy change, some have suggested that information technology advances have contributed significantly to that growth (Kroszner & Strahan, 1999). This tension may be particularly salient in emerging economies. For

example, despite the Indian government's extensive regulatory measures to encourage greater rural coverage by banks, approximately 70% of the rural population still lacks access to a local bank, partly because of the lack of such technological infrastructure as transportation (Timmons, 2007).

While prior research has shown how underlying cultural factors impact policy and its effects (Dobbin, 1994), our findings reveal how the deep interaction between policy and culture may have practical implications as well. For example, one implication of our results is that policymakers should take underlying cultural factors into account when anticipating the intended effects of policy. Recent research has shown how economic and social environments are highly complex (Friedland & Alford, 1991; Scott et. al, 2000; Lounsbury, 2007) and thus, while policy may reflect majority will, there may always be significant pockets of resistance or social movements that can condition intended effects (Davis, McAdam, Scott, & Zald, 2005; Schneiberg et al., 2008). Thus, identifying the heterogeneous cultural beliefs and their organization may be important when implementing policy. For example, it is surprising that lawmakers focused so extensively on the efficiency aspects of bank consolidation when they passed the Riegle-Neal Interstate Banking and Branching Efficiency Act in 1994. Ignoring the cultural dynamics underlying local banking led to the irony that this act which was designed to encourage large banks, resulted in the flowering of smaller community banks that Marquis and Lounsbury (2007) documented.

## **CONCLUSION**

While 1978—the beginning of interstate competition in U.S. banking—was a natural breakpoint for our analyses, a lingering question is the degree to which the current banking market reflects the states' varied historical backgrounds of policy, technology, and economics. Anecdotal evidence, such as North Carolina and Ohio being headquarter states for large interstate chains, suggests that the environmental trajectories of certain states may have conferred advantages to their banks. Similarly, others have suggested that understanding the disparate historical backgrounds of firms and industries across nations can provide traction on questions of global competitiveness and

might help explain how some firms come to dominate global environments (North, 1990). Japan's longtime emphasis on state sponsorship led to international success in the automotive and electronics industries, while Germany came to dominate the synthetic dye industry as a result of the lack of patent controls relative to Britain and France (Murmann, 2003). A more recent example is a debate within the European Union about the status of companies and industries that previously enjoyed significant state support (Economist, 2004; Theil, 2004), suggesting that these firms have advantages attributable to their historical backgrounds. Thus, a further implication—extending our findings to a more general level and suggesting some contemporary implications—is that the histories of firms' external environments may be essential to an understanding of their structure and current success.

Such a perspective is consistent with recent calls within social research to understand historical contingencies and, in particular, with a growing literature on the historical contingencies of organizational action (Davis & Marquis, 2005; Mizruchi et al, 2006). Others have noted that the lack of historical perspective on changing environments is an issue for current organizational theory. Zald (1996), for example, argued that organizational scholars need a new awareness of how time matters, particularly as external contexts change over time. We believe that our study of the historical development of external environments and how they contributed to the rise and evolution of the American banking industry is an important step in that direction.

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**TABLE 1**  
**Summary of Hypotheses and Empirical Support**

<b>Theorized Variables</b>	<b>Geographic Dispersion</b>	<b>Empirical Support</b>	<b>Location Size</b>	<b>Empirical Support</b>
Branching policy	H1a (+)	Yes	H1b (-)	No
Transportation infrastructure	-----	-----	H2c (-)	Yes
Transportation infrastructure × branching policy	H2a (+)	Yes	H2b (-)	Yes
Urbanization	-----	-----	H3c (+)	Yes
Urbanization × branching policy	H3a (-)	No	H3b (+)	No
Business competition	-----	-----	H4c (-)	Yes
Business competition × branching policy	H4a (-)	Yes	H4b (+)	Yes
Agrarian presence	-----	-----	H5c (+)	Yes
Agrarian presence × branching policy	H5a (-)	Yes	H5b (+)	Yes

**TABLE 2**  
**Descriptive Statistics and Correlation Matrix**

Variables	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Bank geographic dispersion	0.149	0.212																		
2. Bank location size	7.836	1.363	0.502																	
3. Branching policy	0.306	0.461	0.561	0.067																
4. Agrarian presence	11.11	1.242	-0.421	-0.284	-0.318															
5. Transportation infrastructure	2.225	0.825	0.460	0.817	0.011	-0.028														
6. Urbanization	0.495	0.211	0.361	0.792	0.032	-0.316	0.554													
7. Business competition	5.437	1.146	-0.545	-0.160	-0.507	0.811	0.053	-0.012												
8. Agrarian presence × branching policy	3.217	4.910	0.505	0.024	0.987	-0.212	-0.003	-0.022	-0.424											
9. Transportation infrastructure × branching policy	0.685	1.119	0.715	0.224	0.922	-0.331	0.214	0.150	-0.498	0.900										
10. Urbanization × branching policy	0.155	0.263	0.678	0.254	0.887	-0.450	0.140	0.295	-0.545	0.832	0.914									
11. Business competition × branching policy	1.396	2.196	0.424	-0.004	0.958	-0.148	-0.012	-0.032	-0.326	0.985	0.866	0.799								
12. State population	14.35	1.076	0.061	0.379	-0.205	0.626	0.467	0.436	0.680	-0.151	-0.108	-0.141	-0.103							
13. Per capita income	0.963	0.508	0.575	0.816	0.110	-0.423	0.652	0.693	-0.193	0.055	0.262	0.306	0.029	0.226						
14. Manufacturing	0.074	0.048	0.149	0.399	0.054	-0.193	0.171	0.635	0.060	0.028	0.087	0.173	0.044	0.294	0.293					
15. Average bank size	10.45	1.374	0.718	0.916	0.251	-0.391	0.694	0.811	-0.322	0.194	0.412	0.465	0.142	0.354	0.806	0.442				
16. Square miles	6.455	4.719	-0.060	-0.068	-0.082	0.176	0.035	-0.097	0.088	-0.063	-0.061	-0.057	-0.072	0.017	0.015	-0.520	-0.094			
17. Time	41.87	23.53	0.579	0.861	0.077	-0.221	0.915	0.511	-0.183	0.042	0.271	0.214	0.008	0.278	0.777	0.089	0.755	0.014		
18. Post Depression	0.543	0.498	0.499	0.767	0.111	-0.162	0.747	0.428	-0.229	0.082	0.260	0.212	0.041	0.232	0.613	0.045	0.686	0.010	0.862	
19. Pre Federal Reserve	0.223	0.416	-0.328	-0.609	-0.027	0.090	-0.825	-0.351	0.050	-0.005	-0.199	-0.131	0.010	-0.202	-0.365	-0.072	-0.460	-0.018	-0.724	-0.584

**TABLE 3**  
**External Environments and Bank Geographic Dispersion, 1896-1978<sup>a</sup>**

Variables	1	2	3	4	5	6	7	8
<b>H1a:</b> Branching policy		0.0353*	0.0321*	0.0470*	0.0104	0.1964*	0.2724*	0.1051+
		(0.0054)	(0.0051)	(0.0054)	(0.0102)	(0.0252)	(0.0385)	(0.0557)
<b>H2a:</b> Transportation infrastructure × branching policy				0.0363*				0.0570*
				(0.0055)				(0.0063)
<b>H3a:</b> Urbanization × branching policy					0.0431**			-0.0011
					(0.0186)			(0.0258)
<b>H4a:</b> Business competition × branching policy						-0.0321*		-0.0676*
						(0.0044)		(0.0078)
<b>H5a:</b> Agrarian presence × branching policy							0.0273*	-0.0225*
							(0.0034)	(0.0067)
Transportation infrastructure			-0.0106	-0.0181**	-0.0127	-0.0124	-0.0362*	-0.0114
			(0.0088)	(0.0091)	(0.0091)	(0.0088)	(0.0087)	(0.0101)
Urbanization			-0.1912*	-0.1839*	-0.1460*	-0.2346*	-0.2315*	-0.2524*
			(0.0465)	(0.0466)	(0.0525)	(0.0475)	(0.0484)	(0.0473)
Business competition (density)			-0.0550*	-0.0624*	-0.0547*	-0.0356*	-0.0459*	-0.0407*
			(0.0055)	(0.0056)	(0.0056)	(0.0056)	(0.0054)	(0.0065)
Agrarian presence			-0.0763*	-0.0768*	-0.0663*	-0.0782*	-0.0723*	-0.0751*
			(0.0081)	(0.0080)	(0.0092)	(0.0087)	(0.0087)	(0.0100)
State population	-0.0125	-0.0107	0.1190*	0.1203*	0.1142*	0.1113*	0.1172*	0.1027*
	(0.0093)	(0.0079)	(0.0100)	(0.0103)	(0.0112)	(0.0106)	(0.0108)	(0.0104)
Per capita income	0.0187**	0.0224*	0.0251*	0.0278*	0.0248*	0.0229*	0.0235*	0.0214*
	(0.0085)	(0.0086)	(0.0075)	(0.0076)	(0.0075)	(0.0073)	(0.0073)	(0.0083)
Percent manufacturing	-0.5032*	-0.3837**	-0.0758	0.0302	-0.1333	-0.0409	-0.0908	0.2775**
	(0.1671)	(0.1505)	(0.1300)	(0.1401)	(0.1392)	(0.1317)	(0.1310)	(0.1403)
Average bank size	0.0267*	0.0323*	0.0123*	0.0128*	0.0102**	0.0112*	0.0104**	0.0155*
	(0.0048)	(0.0048)	(0.0046)	(0.0043)	(0.0045)	(0.0044)	(0.0044)	(0.0045)
Square miles	0.0021	-0.0007	0.0045*	0.0071*	0.0049**	0.0023	0.0004	0.0121*
	(0.0047)	(0.0027)	(0.0017)	(0.0017)	(0.0019)	(0.0018)	(0.0017)	(0.0017)
Time	0.0036*	0.0036*	0.0025*	0.0026*	0.0029*	0.0031*	0.0028*	0.0043*
	(0.0004)	(0.0004)	(0.0004)	(0.0004)	(0.0005)	(0.0004)	(0.0004)	(0.0005)
Pre Federal Reserve Act	0.0035	0.0039	0.0029	0.0032	0.0028	0.0026	0.0026	0.0042
	(0.0048)	(0.0049)	(0.0042)	(0.0044)	(0.0043)	(0.0042)	(0.0041)	(0.0052)
Post Depression	0.0078	0.0081+	0.0126*	0.0146*	0.0132*	0.0125*	0.0124*	0.0166*
	(0.0048)	(0.0049)	(0.0042)	(0.0044)	(0.0043)	(0.0042)	(0.0041)	(0.0052)
Constant	-0.0903	-0.1761	-0.6114*	-0.6119*	-0.6575*	-0.5612*	-0.6266*	-0.5984*
	(0.1295)	(0.1128)	(0.0940)	(0.0934)	(0.1014)	(0.0879)	(0.0930)	(0.0864)
R <sup>2</sup>	0.17	0.30	0.51	0.67	0.50	0.54	0.48	0.81

<sup>a</sup> Standard errors are in parentheses; two-tailed for all variables; N = 3893 for 48 states from 1896 to 1978.

+ p < .10; \* P < .05; \*\* P < .01

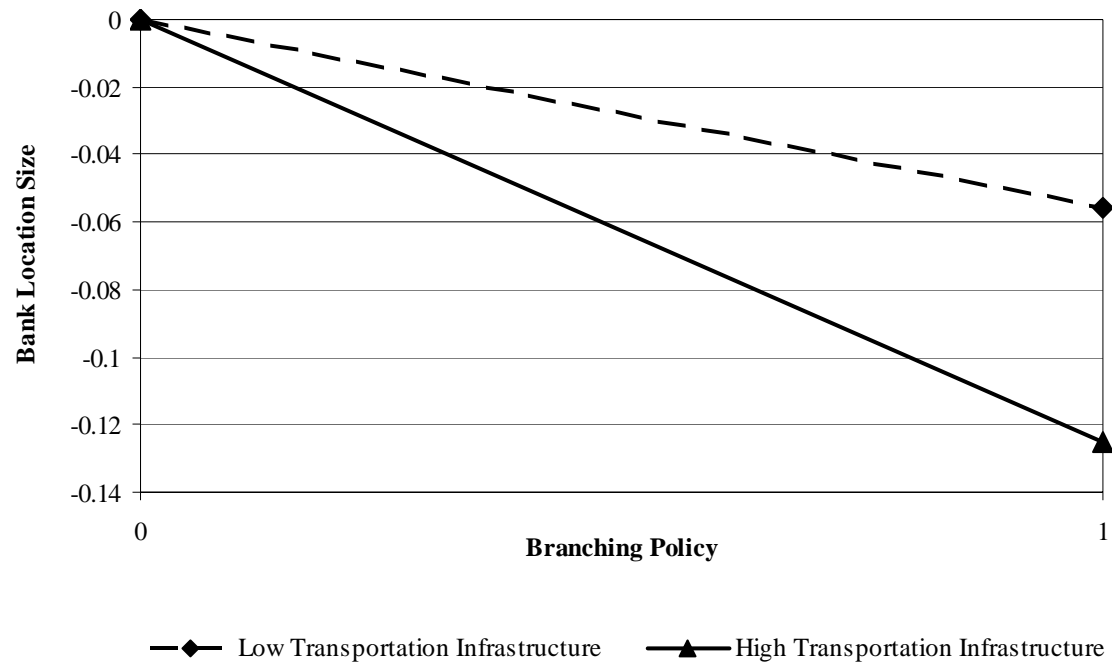
**TABLE 4**  
**External Environments and Bank Location Size, 1896-1978<sup>a</sup>**

Variables	9	10	11	12	13	14	15	16	17	18	19	20	
<b>H1b:</b> Branching policy		0.0249 (0.0194)	0.025 (0.0193)	0.0264 (0.0192)	0.0099 (0.0196)	0.0252 (0.0194)	0.0128 (0.0192)	0.0029 (0.0199)	0.0571 (0.0449)	-0.1771+ (0.0938)	-0.4468* (0.1577)	-0.6458* (0.2195)	
<b>H2b:</b> Transportation infrastructure × branching policy								-0.0420+ (0.0223)				-0.0686** (0.0272)	
<b>H3b:</b> Urbanization × branching policy									-0.0927 (0.0848)			0.1158 (0.1137)	
<b>H4b:</b> Business competition × branching policy										0.0366** (0.0177)		-0.0038 (0.0328)	
<b>H5b:</b> Agrarian presence × branching policy											0.0558** (0.0144)	0.0423* (0.0276)	
<b>H2c:</b> Transportation infrastructure			-0.2842* (0.0361)					-0.2834* (0.0349)	-0.2748* (0.0351)	-0.2831* (0.0349)	-0.2802* (0.0349)	-0.2670* (0.0347)	-0.2812* (0.0352)
<b>H3c:</b> Urbanization				1.9325* (0.2090)				2.4800* (0.2131)	2.4920* (0.2124)	2.5130* (0.2143)	2.5087* (0.2123)	2.5161* (0.2112)	2.5019* (0.2132)
<b>H4c:</b> Business competition (density)					-0.1142* (0.0218)			-0.1001* (0.0213)	-0.0982* (0.0213)	-0.1001* (0.0213)	-0.1203* (0.0233)	-0.1077* (0.0214)	-0.1050* (0.0254)
<b>H5c:</b> Agrarian presence						-0.0193 (0.0390)	0.2191* (0.0374)	0.2198* (0.0373)	0.2181* (0.0373)	0.2221* (0.0372)	0.2061* (0.0374)	0.2082* (0.0383)	
State population	0.1162* (0.0422)	0.1186* (0.0422)	0.1762* (0.0429)	0.0167 (0.0350)	0.2040* (0.0428)	0.1324* (0.0495)	-0.0726 (0.0495)	-0.0706 (0.0494)	-0.0713 (0.0494)	-0.0715 (0.0493)	-0.074 (0.0491)	-0.0721 (0.0490)	
Per capita income	0.2944* (0.0258)	0.2943* (0.0258)	0.2595* (0.0260)	0.2838* (0.0256)	0.3075* (0.0258)	0.2947* (0.0262)	0.2794* (0.0261)	0.2791* (0.0261)	0.2802* (0.0262)	0.2792* (0.0261)	0.2795* (0.0261)	0.2781* (0.0261)	
Percent manufacturing	6.5358* (0.6177)	6.5583* (0.6179)	7.1490* (0.6143)	4.3605* (0.6342)	6.9992* (0.6071)	6.6888* (0.6044)	4.9329* (0.6079)	4.9247* (0.6065)	4.9087* (0.6073)	4.9278* (0.6059)	4.8871* (0.6044)	4.8877* (0.6029)	
Geographic dispersion	-0.0986 (0.0927)	-0.1132 (0.0934)	-0.2144** (0.0927)	-0.1481+ (0.0892)	-0.3292* (0.1002)	-0.1315 (0.0949)	-0.3828* (0.0954)	-0.3560* (0.0967)	-0.3742* (0.0959)	-0.3688* (0.0957)	-0.3877* (0.0950)	-0.3554* (0.0984)	
Square miles	0.0152 (0.0114)	0.0154 (0.0114)	0.0194+ (0.0116)	0.0117 (0.0086)	0.0188+ (0.0105)	0.0167+ (0.0101)	0.0092 (0.0085)	0.0092 (0.0085)	0.0093 (0.0085)	0.0093 (0.0085)	0.0088 (0.0085)	0.0086 (0.0085)	
Time	0.0392* (0.0013)	0.0392* (0.0013)	0.0493* (0.0018)	0.0331* (0.0013)	0.0385* (0.0012)	0.0389* (0.0014)	0.0450* (0.0018)	0.0450* (0.0018)	0.0449* (0.0018)	0.0448* (0.0018)	0.0450* (0.0018)	0.0450* (0.0018)	
Pre Federal Reserve Act	-0.0684* (0.0139)	-0.0683* (0.0139)	-0.0829* (0.0140)	-0.0710* (0.0139)	-0.0677* (0.0139)	-0.0685* (0.0140)	-0.0832* (0.0140)	-0.0836* (0.0140)	-0.0834* (0.0140)	-0.0832* (0.0140)	-0.0833* (0.0140)	-0.0838* (0.0140)	
Post Depression	0.0370* (0.0140)	0.0372* (0.0140)	0.0330** (0.0139)	0.0420* (0.0140)	0.0464* (0.0141)	0.0386* (0.0141)	0.0395* (0.0140)	0.0392* (0.0140)	0.0394* (0.0141)	0.0400* (0.0140)	0.0401* (0.0140)	0.0397* (0.0140)	
Constant	3.6862* (0.5834)	3.6438* (0.5841)	2.2888* (0.6096)	4.6056* (0.4711)	3.0277* (0.5584)	3.6562* (0.5275)	3.1754* (0.4808)	3.1230* (0.4811)	3.1548* (0.4802)	3.2341* (0.4786)	3.3530* (0.4816)	3.3421* (0.4851)	
R <sup>2</sup>	0.86	0.87	0.87	0.91	0.88	0.87	0.92	0.92	0.92	0.92	0.92	0.92	

<sup>a</sup> Standard errors are in parentheses; two-tailed for all variables; N = 3893 for 48 states from 1896 to 1978.

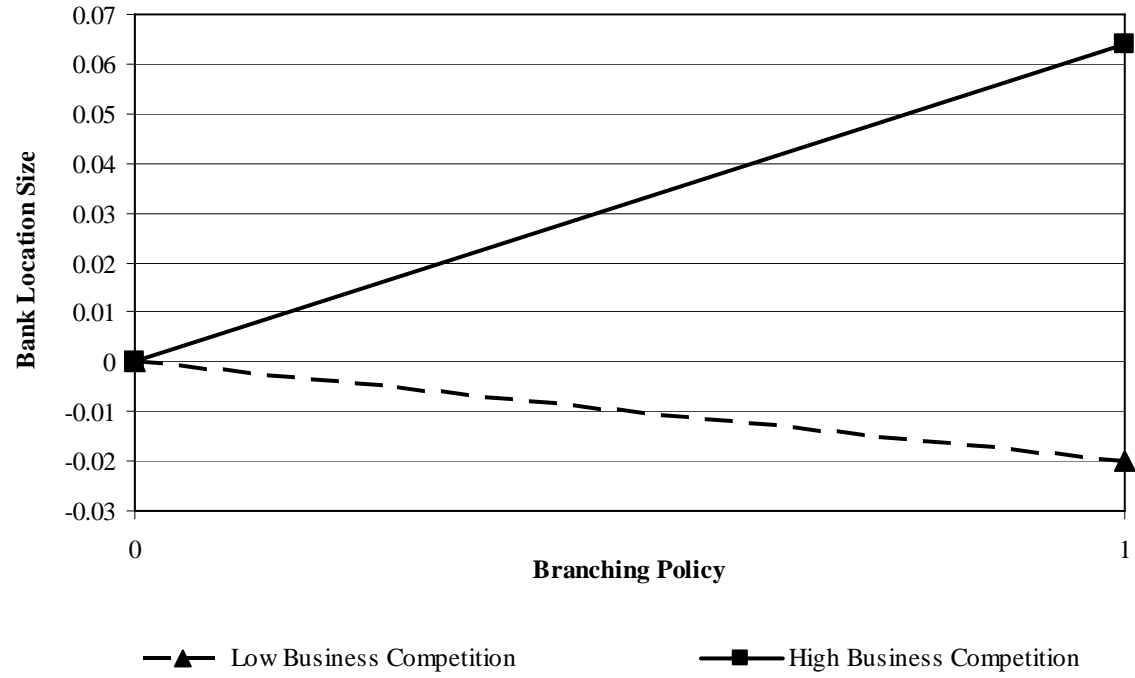
+ p < .10; \* P < .05; \*\* P < .01

**FIGURE 1**  
**Bank Location Size and the Interaction between Branching Policy and Transportation Infrastructure**

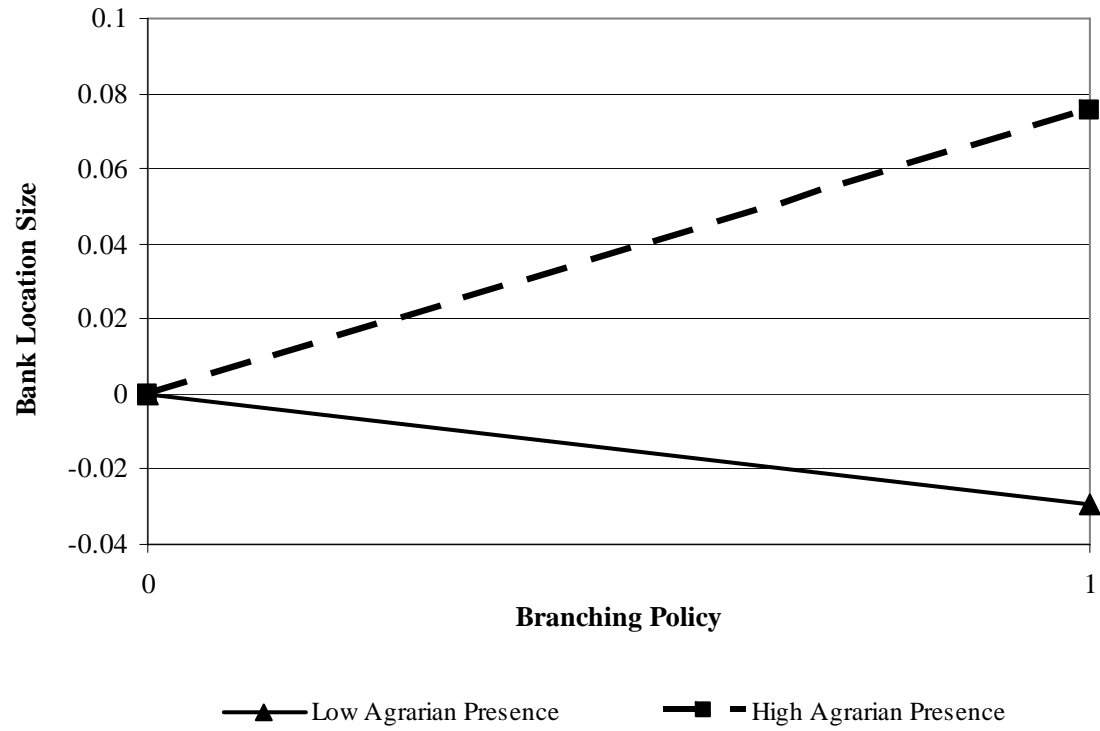




**FIGURE 2**  
**Bank Location Size and the Interaction between Branching Policy and Business Competition**



**FIGURE 3**  
**Bank Location Size and the Interaction between Branching Policy and Agrarian Presence**



**FIGURE 4**  
**Relative Size of Banks in Three States, 1896-1978**

