AN ANAYSIS OF THE SMALL BUSINESS ADMINISTRATION'S IMPACT ON JOB CREATION

By

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ABSTRACT

CHRISTY LEE FOSTER. An Analysis of the Small Business Administration's Impact on Job Creation. (Under the direction of DR. LOUIS H. AMATO)

This research investigates the potential endogenous relationship between small business financing provided through the Small Business Administration (SBA) and state-level economic growth, specifically job creation and retention, as causality may be bidirectional. The hypothesized causal relationship was assessed by including an instrumental variable, Certified Development Corporations (CDC), suggesting the influence of the CDC on employment can only occur through SBA approval. Annual governmental data for all US states, including D.C., for the years 2020 – 2022 were used in the analysis. The results fail to show a statistically significant relationship between the SBA loan volume and job creation, which may be attributed to the utilization of limited data, particularly from anomalous years due to COVID. The inclusion of data from an atypical period likely introduced confounding factors that influenced overall findings. However, 2022 results did reach statistical significance at the 0.10 level and the CDC variable consistently returned statistically significant results. These findings serve as an empirical foundation for further research and provide practical relevance and value to the existing body of knowledge used by policymakers for insight into the dynamics of SBA program initiatives.

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CHAPTER 1: INTRODUCTION

A record was broken in the US during 2021 with the filing of over 5.4 million new business applications followed by another 5.1 million in 2022 (Ferguson, 2023). Small firms submitted the majority of those applications and became part of the 33.2 million small businesses that make up 99.9% of all US firms and 99.7% of firms with paid employees (Advocacy, 2023). These small business may be a corporation, partnership, or sole proprietorship that is a "for-profit, independently owned and operated business that is not dominant in its field of operation and meets specific industry size standards" (US Department of State, 2020).

Small businesses provide benefit to both national and local economies through job creation, economic growth stimulation, and innovation (Staff, 2023). Small firms in the US represent 43.5% of GDP, create over 60% of net new jobs, employ over 46% of private sector employees, and average 24.9 employees per employer firm (Advocacy, 2023; Staff, 2023). Innovation is commonly measured by patent activity and small businesses engaging in research and development (R&D) generate more patents per employee (Advocacy, 2023b) and per million dollars of R&D spend than larger firms (Plehn-Dujowich, 2013). Some research shows that small businesses are more beneficial to local economies than large firms as they generate higher incomes for those in the community, and they are more likely to outsource functions to other professionals in their community (Treece, 2023). All of these factors contribute to why small businesses are the most trusted institution in the US, hold an 80% favorable opinion among Americans, and are viewed as the backbone of the economy (Roguerisk, 2022).

Despite the positive influence of small businesses, they continue to encounter distinct challenges resulting from credit market imperfections, information asymmetry, and credit rationing. Credit markets play a critical role in economic growth, but these market imperfections

disproportionately affect the small firms (Acemoglu, 2001; Craig et al., 2005. Craig et al, 2007b; Craig et al., 2008b; Dromel et al., 2010; Wasmer & Weil, 2004). Informational asymmetry theory suggests these imperfections lead to credit rationing, especially for small firms (Levenson & Willard, 2000; Rao et al.,2023). As a consequence, successfully obtaining financing becomes frustrating as small businesses are frequently granted insufficient credit which impedes their expansion, innovation, and job creation. Addressing the challenges stemming from these issues requires policy reforms and collaboration between various stakeholders.

The Small Business Administration (SBA), with its mission of aiding, counseling, and assisting the interests of small businesses, stands out as a prominent institution designed to support and promote small businesses (US SBA, n.d.d). Over the past seven decades and acting through the SBA, policymakers have recognized the significance of the relationship of small businesses with job creation and economic prosperity. The relationship has been a topic of interest and debate since the 70s by policymakers, economists, and scholars with a goal of understanding the impact of SBA programs on job creation within the small business sector (Birch, 1987; Dilger & Lowery, 2015; Ribeiro-Soriano, 2017). Both anecdotal evidence and prior research support the important role played by the SBA in fostering job creation and retention.

The path to success for a small business, particularly a young business, is filled with challenges such as information asymmetry and credit rationing which results in limited access to capital and other resources (Cowling & Siepel, 2013; Craig et al., 2007b; Craig et al., 2008b; Kirschenmann, 2016; Kysucky & Norden, 2016; Petersen & Rajan, 1994; Vos et al., 2007). SBA leadership recognized these challenges and implemented a range of strategies and programs, including the 7(a) and 504, to support small business development (US SBA, n.d.d).

Despite the advances in understanding the influence of small businesses, unanswered questions about the relationship between the SBA and job creation remain. While the SBA has been a champion of small businesses by providing a range of support to encourage viability and growth, the precise influence on economic growth and job creation is difficult to ascertain as the relationship between the two includes economic theory, governmental policy, and real-world impact. This dissertation aims to expand the current literature and fill a gap by empirically examining the nuances of the relationship between the SBA and job creation outcomes at the state level. The significance of the study is the opportunity to influence policymakers, government agencies, and other stakeholder's decision making related to existing and future small business interventions and programs.

As research on the relationship between the SBA and job creation expands, an interesting observation that comes into play is the endogenous nature of the relationship (Cortes, 2010), The relationship is not unidirectional but rather simultaneous (Appendix A). With economic growth comes increased opportunity for new business development and expansion of existing businesses (Alsaaty & Makhlouf, 2020; Calza et al., 2003) resulting in higher demand for SBA loan programs, which in turn results in demand for a skilled workforce triggering job creation within local communities (Figure 1). The increase in new businesses further reinforces the impact of SBA programs by encouraging growth, innovation, expansion, and job creation.

Figure 1: BiDirectional Relationship Between the SBA and Economic Growth

The endogenous nature of the relationship adds complexity to the relationship between the SBA and job creation. It requires a methodical approach to the analysis that accounts for the bidirectional relationship between the two. An important contribution of this dissertation is to offer additional insight regarding the endogenous relationship between SBA loan activity and job creation.

Certified Development Companies (CDCs), in collaboration with financial institutions, play a pivotal role in the SBA 504 program by leveraging their knowledge of local communities and regions to assist small businesses. They use their knowledge of regional markets and industries to assist business owners with viability assessment and capital acquisition when facing challenges procuring traditional bank financing (Dilger & Lowry, 2015). CDC location and accessibility are critical factors in influencing SBA driven job creation as states with a higher concentration of CDCs are expected to experience a larger impact on employment as a result of SBA financing. Additionally, CDCs provide outreach programs, education, and counseling services for small business owners which provides them with knowledge to navigate the complexities of ongoing growth, obtaining capital, and improved business acumen (US SBA, 2015).

This dissertation will explore the influence of CDC availability, as driven by political influence, on job creation at the state level. By assessing the relationship between the availability of CDCs, the 7(a) and 504 programs, and employment outcomes, this research seeks to study the role of an intermediary in the creation of jobs. It will contribute to the understanding of the SBA's impact, specifically through the 504 program, on job creation.

The relationship between the SBA and job creation forms the basis for this research which addresses three critical research questions that collectively expand the existing body of knowledge.

RQ1: What is the relationship between the SBA 7(a) and 504 programs and employment?

RQ2: How do different SBA programs, specifically the 7(a) and 504, influence job creation at the state level?

RQ3: What role does CDC availability play in influencing job creation at the state level?

This dissertation will use state level empirical analysis to offer evidence based insight regarding these research questions and the impact of SBA initiatives on employment. The results have the potential to inform policy decisions, provide information to support SBA program revisions and funding, and assist in developing new strategies for the SBA to support job creation and economic growth.

The remainder of this study is organized and presented as follows. Chapter 2 reviews the history and current status of the SBA, capital access program options, eligibility requirements, and prior research on the relationship between the SBA and economic growth. Chapter 3 details the data and methodologies applied to study the relationship between the SBA and job creation at the state level. Empirical results of the analysis are detailed and discussed in Chapter 4. Research conclusions and discussion, along with limitations of the study and future considerations, are detailed in Chapter 5.

CHAPTER 2: HISTORY, LITERATURE REVIEW, & HYPOTHESIS DEVELOPMENT

Small Business Administration (SBA)

SBA researchers, many of whom are affiliated with various government oversight entities, have made considerable progress in developing complex research models to measure the impact of the SBA on economic growth. Prior research suggests that the impact could be either positive or negative. These studies indicate that the SBA plays a significant role in the US economy and in the advancement of small businesses.

While prior studies have contributed to the understanding of the SBA, there are still important research questions to answer as we do not fully understand the impact of the SBA given its complexity. Local market intricacies, and economic influence are just a few areas of interest regarding the purpose, performance, and success of the SBA.

History and Background

The role of government in the financing and support of business dates back almost a century when concerns related to the Great Depression (1929-1939) and the potential for a second world war were escalating rapidly. It began with the creation of the Reconstruction Finance Corporation (RFC) in 1932, expanded during the 1940s to include the Smaller War Plants Corporation (SWPC), the Serviceman's Readjustment Act, and the Small Defense Plants Administration (SDPA). These acts were intended to assist businesses during the Depression and to support necessary war efforts supported by private industry (Litwak, 2020), but they were not without criticism including complaints of political favoritism and unfairness (Dilger & Lowry, 2015).

The Small Business Administration (SBA) was created in 1953 as part of the Small Business Act passed by Congress (P.L. 83-163) and replaced many of the RFC functions including providing funding and financing to businesses. The mission of the SBA is:

> "The essence of the American economic system of private enterprise is free competition. Only through full and free competition can free markets, free entry into business, and opportunities for the expression and growth of personal initiative and individual judgment be assured. The preservation and expansion of such competition is basic not only to the economic well-being but to the security of this Nation. Such security and well-being cannot be realized unless the actual and potential capacity of small business is encouraged and developed. It is the declared policy of the Congress that the Government should, aid, counsel, assist, and protect insofar as is possible, the interests of small-business concerns in order to preserve free competitive enterprise, to insure that a fair proportion of the total purchases and contracts or subcontracts for property and services for the Government (including but not limited to contracts or subcontracts for maintenance, repair, and construction) be placed with small-business enterprises, to insure that a fair proportion of the total sales of Government property be made to such enterprises, and to maintain and strengthen the overall economy of the Nation."(GovTrack, n.d.).

The act provided for multiple governmental programs to support businesses and introduced the following by 1954: 1) capital access through direct loans to businesses, 2) capital access by guaranteeing bank loans, 3) disaster assistance loans, 4) minority focused programs, 5) programs in support of veteran owned businesses, and 6) government contract programs (Bischoff, 2011). While all of these programs are significant and important to small businesses,

this study focuses specifically on the purpose and outcomes of the capital access loan programs. Since its inception the functions and oversight responsibilities of the SBA have been expanded to include the creation of the Chief Counsel of Advocacy (1973) and the SBA Office of Advocacy (1976) with responsibility for representing small businesses to other government agencies in governmental policy reviews, changes, and proposals (Litwak, 2020; Advocacy, n.d.).

From the time of its creation until 1979 the SBA made capital available to small businesses by providing loans directly to the business with no third party involvement. However, the program required a high degree of overhead to satisfy loan application management, underwriting and approval, and ongoing loan servicing needs. The Government Accountability Office (GAO), the supreme audit institution of the federal government known as the "congressional watchdog", concluded that the SBA had sufficient operating procedures in place to underwrite small business loan applicants (Litwak, 2020). Unfortunately, the GAO also determined that the SBA was not following their own procedures and rules. As a result, program revisions were introduced in 1979 to give authority to review and approve loan applications directly to financial institutions (Litwak, 2020) and to limit direct lending by the SBA.

To address concerns of information asymmetry and credit rationing (Appendix A), the SBA initially made loans directly to eligible small businesses, but over time modified the program to eliminate direct lending and offer loan guarantees by working closely with financial institutions, Certified Development Companies (CDC), and other approved business lenders. These third-party entities were better prepared than the SBA to complete the appropriate risk analysis on each deal, which resulted in the SBA transitioning to providing loan guarantees versus lending to the businesses directly (Craig et al., 2007b).

The SBA budget has been a subject of much debate since at least the 1980s with administrations, congress, and lobbying groups pushing their own agendas. The Executive Branch of the US government actively influences policy and budget decisions even though it is not the only Branch involved in final decisions. President Reagan tried, unsuccessfully, to shut down the agency in the 1980s. In the early to mid-1990s, the Clinton administration significantly cut the SBA budget leading the SBA to increase outsourcing of loan activities. The George W. Bush administration decreased the SBA budget by 30% which led to a 27% decrease in SBA-backed lending by 2009 (Litwak, 2020). The Obama administration increased the percentage of the SBA guarantee and lowered SBA loan fees which led to an approximately 30% increase in SBA lending through the 2010 Small Business Jobs Act (Summary of the Small Business Jobs Act, 2010). The Obama administration also reduced the SBA budget in 2012 while at the same time adding the SBA Administrator as a White House cabinet position. The Trump administration proposed additional cuts to the SBA budget in 2017 (Litwak, 2020), and the Biden administration has proposed historic lending levels of $58 billion in the 2024 fiscal year budget to "address the need for greater access to affordable working and fixed capital…" (US SBA, 2023). With ongoing political and partisan influence, the programs, fees, and requirements of an SBA loan change rapidly and impact small business owners both positively and negatively.

Definition of Small Business

In addition to the fluctuation in political support and budget approvals, the SBA has also experienced an evolution in the definition of "small business." The original 1953 definition of small business was simple, "a small-business concern shall be deemed to be one which is independently owned and operated and which is not dominant in its field of operation. In addition… the Administration…may use these criteria among others: number of employees and

dollar volume of business" (GovTrack, n.d.). Initial small business size standards were 500 or less employees for manufacturing companies and $1million or less in average annual receipts for non-manufacturing companies (Dilger, 2012). The governmental definition of small business has been reviewed and modified several times with each modification resulting in an expansion of the number of businesses potentially eligible for SBA program support. Unfortunately, the size requirements were not reviewed on a regular basis and were, at times, considered to not be representative of current industry and market conditions which negatively impacted small firms. It was not until Section 1344 of the 2010 Small Business Jobs Act passed that a consistent review of the size standards utilized in defining a small business was introduced with the goal of reflecting current industry and market conditions. The review must occur on a regular schedule with one third of the size standards reviewed every eighteen months so that all standards are reviewed at least every five years (Board of Governors, n.d.).

Prior academic research on topics related to small businesses indicates a wide range of definitions used to describe a small business. Massaro et al (2016) conducted a literature review that identified numerous definitions used by researchers. While the categories used were similar, such as revenue, asset size, and number of employees, a significant range of values for each category varied across studies (Massaro et al., 2016). They found that the small business definitions used are relative and depend on the "robustness of the host economy" (Massaro et al., 2016). Rao et al (2023) posit that small businesses have fewer than fifty employees and medium businesses have 250 or fewer employees. Even trade groups struggle with how to consistently define small business. A study conducted by the Information Resources Management Association recommended the following in regard to research conducted on small and medium sized businesses; 1) regional definitions must not be ignored, 2) industry variation exists, 3)

multiple characteristics should be considered when defining business size, 4) researchers must clearly identify the definition applied in their study, 5) distinctions should be made between small, medium, and micro business, and 6) it is possible for a small firm to exhibit large firm behaviors and vice versa, as a result the researcher must be explicit when crossing these lines (Burgess, 2003). Since the inception of the SBA researchers attempted to establish a consistent definition but were unable to achieve a definite solution, but their research did successfully support the perceived difficulty faced by the SBA in establishing definitional guidance (Anastasia, 2015).

Despite efforts to clarify the definition of small business, considerable inconsistency remains in the criteria used across studies with many researchers defaulting to the SBA definition. However, caution must be exercised in applying the SBA definition as it has been modified and expanded multiple times since its inception in 1953. The latest expansion of the SBA definition occurred in 2016 bringing an additional 4,000 companies to SBA eligibility (Litwak, 2020). Caution must also be applied when considering prior research on the economic impacts of small business, such as employment, as the data sources may not be comparing similar businesses making interpretation of results across studies difficult and potentially misleading. For purposes of this study, the current SBA definition of small business has been utilized and caution has been applied when considering the suggested outcomes and results of prior research.

The current definition (National Archives, 2007) of and requirements for a business to be eligible for SBA capital access programs include the following: 1) officially registered as a for profit business, 2) operates legally, 3) physically located and operates within the United States or its territories, 4) business owner has invested their own time and money into the business, 5)

unable to obtain traditional bank financing, 6) independently owned and operated, 7) not dominant in its industry, 8) may be a sole proprietorship, partnership, corporation or any other legal business form, 9) meets the current established size standards, and 10) meets tangible net worth and net income requirements where applicable (Dilger 2012; US SBA, n.d.a).

The current size standards are North American Industry Classification System (NAICS) specific and differ across manufacturing companies and non-manufacturing industries. Standards for manufacturing are based upon the average number of employees while non-manufacturing are based on average annual receipts with a small subset based on asset size. Currently there are twenty-eight distinct size standards that cover 1,031 NAICS industries with approximately 51% based on annual receipts, 49% based on number of employees, and only five industries based on average assets (National Archives, 1996).

Current SBA Capital Access Loan Programs

The SBA currently offers three different capital access programs which take the form of loan guarantees. The benefits of these loans are that they have competitive rates and fees, offer the firm access to optional SBA counseling and education, and often require lower down payments and longer amortizations than traditional financing obtained through financial institutions (US SBA, n.d.a).

The three loan programs have numerous specific requirements including, but not limited to, current stage in the business life cycle, construction status, and requested loan size. However, all SBA loans are categorized based on the three primary programs of 7(a), 504, and Microloan (Loans, n.d.) It is important to note that the SBA still retains authority to make direct loans to businesses but has not used that authority for the 7(a) and 504 programs since 1998 (Dilger & Lowry, 2015). Specific details of each program are provided in Table 1.

The most common capital access program is the 7(a) which provides financing for short and long-term working capital, purchase of real estate as part of a business acquisition, renovations/upfits to real estate, acquiring an existing business, refinance of current business debt, and the purchase of furniture, fixtures, supplies, and smaller equipment. The program is unique in that the financing is provided by a financial institution with the SBA providing an additional guarantee on a sizable portion of the debt. In other words, if the loan were to default the financial institution would recover the portion of the loss guaranteed from the SBA. The percentage of the guarantee is based on the original loan amount, typically 75-85%, but has been temporarily increased at specific times and for specific purposes (US SBA, n.d.c; Dilger & Lowery, 2015). While the SBA tracks the number of jobs the business is expected to create or retain as the result of a 7(a), job creation is not a requirement for approval. Nevertheless, the information is self-identified by the business and/or owner, reported by the financial institution, and tracked by the SBA.

Several criteria must be met for the business owner to receive approval for an SBA 7(a) loan. First, the loan must pass the underwriting criteria of the lender, and secondly, the SBA must also review and agree to provide the established guarantee. In addition, the business owner must be willing to pay an additional fee which is a percentage of the guaranteed portion of the loan. The fee covers the cost of monitoring, reviews, examinations, and other lender oversight activities which are more extensive for SBA loans than for traditional business loans (Streich, 2021). The current SBA lender fee ranges from $127.96 - $145.43 per year for each million of the loan. While the SBA charges this fee directly to the lender, it is typically passed on to the business owner as part of the loan closing costs and is non-negotiable (Glennon & Nigro, 2011).

The 504 program is intended for different purposes than the 7(a) and is specifically used to promote business growth and job creation (US SBA, n.d.b). The program provides long-term fixed-rate financing for the purchase of major fixed assets such as real estate, machinery, and equipment (Dilger & Lowery, 2015; US SBA, n.d.b). The program also functions differently and always involves a Certified Development Company (CDC). A CDC is a private, non-profit corporation that is certified by the SBA and is focused on improving economic development within its local community. The financial institution works collaboratively with a Certified Development Company (CDC) to underwrite and approve the loan with the primary lender providing 50% of the total financing need and taking a first lien collateral position, the CDC lending 40% of the total financing need and taking a second lien collateral position, and the borrower injecting 10% equity. As with the 7(a), the loan must pass the underwriting criteria of the lender, and the SBA must also review and agree to provide the established guarantee. However, in the case of the 504, the CDC must also grant approval. Instead of guaranteeing the debt to the bank, the SBA will guarantee the debt to the CDC which reduces risk to both institutions financing the firm. Given the role of the CDC is to improve economic development and it is expected to meet specific economic development goals (ex: job creation and retention) to remain certified (Mihajlov, 2012), the business is required to create or retain one job for every $75,000 ($120,000 for a small manufacturer) of the debenture guaranteed by the SBA (Dilger & Lowery, 2015; US SBA, n.d.b; Lender and Development Company Loan Programs, 2023). The created or retained jobs are tracked and after two years each CDC is required to report the actual number created/retained in its annual report (US SBA, 2023).

The Microloan program provides direct loans, up to $50,000, from the SBA through non-profit community intermediaries. The Microloan program is out of scope for this study as these

loans are not subject to industry standard underwriting requirements, recipients are not eligible for the 7(a) or 504 programs, the average loan is only $13,000, and job creation/retention is not reported or tracked.

Table 1

Small Business Administration Capital Access Program Summary

	7(a)*	504	Microloan
Maximum Amount	$5,000,000**	$5,000,000	$50,000
Description	Short & long-term working capital Refinance existing business debt Purchase fixtures, equipment, furniture, & supplies	Long-term financing for major fixed assets Major improvements/modernization Not for: working capital, refinance, speculative activities, and rental real estate	Assist with small business expansion – working capital, inventory, supplies, furniture, fixtures, machinery, and equipment Not for: real estate purchase or debt refinance
Eligibility Requirements	For profit Meet SBA definition of small business Reasonable invested equity Used other resources first Demonstrate need for a loan Use funds for sound business purpose Not delinquent on current debt to the US government	For profit Tangible Net Worth <$1MM Average Net Income <$5MM after federal taxes for the prior 2 years	Each intermediary lender has their own lending and credit requirements Collateral typically required Owner guarantee
Repayment Terms	Typically, monthly principal & interest Fixed rate loans will have constant payments Variable rate loan payments will change with interest rate Terms will vary based on purpose and collateral	10, 20, 25-year terms available, vary based on purpose and collateral Typically, monthly principal and interest payments Fixed rate loans will have constant payments Payments on variable rate loans will change with interest rate	Will vary by lender and by loan purpose
Acceptable Base Rates	Prime LIBOR +3% SBA Peg Rate	Pegged to current 5- and 10-year US Treasury	Vary by lender Typically, between 8-13%
Maximum Spread	Maturity < 7 years = 2.25% Maturity >7 years = 2.75%	NA	NA
SBA Guarantee	85% of loans up to $150,000 75% of loans > $150,000	SBA pays off a portion of bank loan after designated period of time (debenture)	SBA provides the funds to the lender

Source: US SBA, n.d.a

The Role of Small Business in US Employment

Congressional interest in the SBA and its loan programs has increased in recent years because it is believed that small businesses stimulate both state and national economies, create jobs, drive economic prosperity, and encourage entrepreneurship (Dilger, 2015; Ribeiro-Soriano, 2017). SBA loan programs were created by Congress to "provide long-term loans and equity capital to small businesses, especially those with potential for substantial job growth and economic impact" (Dilger, 2014). The level of interest in employment in the United States is evidenced by the monthly employment report which provides information to assess the state of the national and state economies and to make economic policy decisions (US Bureau of Labor Statistics, 2023). Empirical studies on the role of small business job creation gained traction in the late 1970s and 1980s through research conducted by Birch (1987). Later studies have expanded on Birch's seminal work by addressing data concerns, appropriate statistical methodology, and study variables with results providing at least partial support for the belief that small businesses create the majority of US jobs (Armington & Acs, 2004; Brown et al., 2015; Haltiwanger et al., 2013; Neumark et al., 2011).

History of the financial services industry shows that financial institutions approve and price loans to businesses based on the perceived risk inherent to each individual transaction (Hancock & Wilcox, 1998). The risks considered cover a broad spectrum including, but not limited to, experience of ownership and management, industry, market conditions, availability and quality of company information, potential reputational concerns, financial performance, and equity contributed by the owner and/or guarantors. Given the analysis and underwriting of risks by lenders, many small businesses were unable to obtain traditional financing which led to small

businesses obtaining financing through other means at much higher interest rates and fees (Craig et al., 2007b).

A primary concern and focus of the SBA is to ensure that small businesses negatively impacted by credit rationing can access credit at affordable fees and interest, with appropriate loan structures, and manageable repayment terms (Craig et al., 2008a). Credit markets play a critical role in facilitating economic growth by enabling efficient allocation of funds to businesses requiring financing (Acemoglu, 2001; Dromel et al., 2010; Wasmer & Weil, 2004). However, credit market imperfections disproportionately affect small businesses' access to credit and limit their potential contributions to state and national economies (Craig et al., 2005; Craig et al., 2007b; Craig et al., 2008a). Imperfect credit markets lead to credit rationing which occurs when certain borrowers are unable to obtain traditional bank financing at reasonable interest and fees but another borrower with the same risk profile obtains financing (Cowling, 2013). The financial institution perceives the risk profile of a potential borrower as too high for its risk tolerance, and the corresponding increase in interest rate and fees to offset the perceived risk of default and resulting loss increases the borrower's proposed repayment amount to a level that negatively impacts availability of cash flow to repay debt or to manage the operation (Bachas, 2021). As a result, the borrower's loan request is declined, and financing must be pursued through other means. Historically the SBA has focused on minimizing credit rationing by ensuring that small businesses have access to credit at affordable fees and interest, with appropriate structures and manageable repayment terms (Craig et al., 2008a). Credit rationing, which occurs when financial institutions fail to allocate loans efficiently at current market interest rates (Craig et al., 2007b), does not occur overtly and is not usually intentional. However, it is evidenced in two forms. The first, borrower rationing, occurs when some

businesses do not receive loans, but other indistinguishable businesses receive loans (Stiglitz and Weiss, 1981). The second, loan rationing, occurs when all businesses receive loans based on the financial institutions risk evaluation, but at lower amounts than is needed or requested (Jaffee and Russell, 1976).

While credit rationing can be triggered by any number of factors, information asymmetry is a common source that generally occurs when a business owner does not have access to provide information that is needed for a financial institution to be confident in the business risk and make an affirmative financing decision (Craig et al., 2007b; Craig, 2008). Kirschenmann (2016) finds that opaque businesses are more likely to be credit rationed than businesses that are considered to be transparent. Information opaqueness can occur for several reasons. First, a new or young business does not have historical performance information to share for risk assessment underwriting activities (Humphries et al., 2020b). Second, a small business owner may not have sufficient financial savvy to understand the bank's information request. Third, a small business may not have established a sufficient relationship with a bank to develop transparency (Kirschenmann, 2016; Ducin et al., 2022, DeYoung et al., , 2019). Fourth, a small business lacks public debt ratings. Fifth, a small business may have intangible collateral, insufficient collateral, or blemished credit, (DeYoung et al., 2019). It is also possible that the financial institution has a lack of knowledge of the industry or sufficient technology (Craig, et al, 2007b). Credit rationing and information asymmetry, which are direct consequences of credit market imperfections, lead to suboptimal lending decisions and reduced access to credit for deserving small businesses.

The literature reports that while SBA programs have not eliminated credit rationing, they have reduced credit rationing to small businesses. Prior research suggests that SBA programs have benefitted businesses owned by minorities (Craig et al., 2007b), economic growth in rural

areas (Cortes and Ooi, 2017), and improved economic performance in low-income markets (Craig et al., 2008a) by addressing credit rationing. Not only do the individual small businesses benefit, but there is also benefit to the state and local economies in which these businesses operate.

Theoretical Framework and Hypotheses

SBA Volume and Employment

Economic development occurs when five key elements are present: materials, manpower, markets, management, and money (Bruno, 1980). Using data provided by the Office of the Advocacy, proponents of the SBA suggest that small businesses are the gatekeepers of these elements (Clark & Saade, 2011). When utilizing the SBA definition of a small business, the SBA Office of the Advocacy reports that 99.9% (over 34.1 million) of businesses in the US are considered small, 46.4% of private sector jobs (manpower) are in a small business, and 62.7% of new jobs (manpower) since 1995 were created in a small business (Advocacy, 2023b). Not all small businesses obtain financing through the SBA, but research shows that firms obtaining financing (money) through a loan guarantee program, such as the SBA, achieve stronger performance in sales and job creation (Cowling & Siepel, 2012). In 2010 the SBA reported, "over the last decade, small businesses across this country have been responsible for the majority of new private sector jobs, leaving little doubt that they are a vital engine for the nation's economic growth." (Dilger, 2014).

The SBA is considered to be a credit guarantee scheme (CGS) which, according to Samujh et al (2012), is intended to achieve national policy goals including job creation, retention and employment (Kang & Choi, 2008). CGS, in varying forms, are used by many countries to increase credit access to small businesses that are credit-worthy, while they are not intended to

subsidize businesses that operate outside of an acceptable risk profile (Putra et al., 2019). They are, however, intended to prevent credit rationing and assist a business in overcoming information asymmetry (Honohan, 2010). While not all CGS have identical criteria as the SBA, the intent and purpose are similar and nearly all are expected to expand economic activity, including employment (Bradshaw, 2002). While CGS are generally viewed to support direct job creation implying jobs created by the borrowing entity, it is also argued that they can be credited with supporting indirect job creation, which are jobs created outside of the borrowing entity (Heidrick et al., 2004). Study results by Riding and Haines (2001) also suggest CGS are an efficient way to support job creation and small business survival.

While prior research and common perception imply there is a relationship between SBA capital access programs and employment, many economists argue that the benefit is short-term and long-term impacts are merely a reallocation of jobs (Dilger, 2014). Research conducted by Cowling and Siepel (2012) suggests that CSG impacts the economy for at least two years, which is consistent with the SBA's requirement for CDCs to report two-year job creation and retention in their annual reports. Brown and Earle's results (2017) reflect that for every million dollars in financing there is an increase of 3-3.5 jobs within three years of loan funding. In another study, Medoff et al (1990) found that jobs created by small businesses are not as desirable, are not long-lived, and the longevity of these roles is in question. However, they do not identify the expected life cycle of these jobs. In a study finding that small firms create more jobs, increases after only one year are considered a gain (Neumark et al., 2011). Lee and Lee (2021) used one-year and three-year timeframes, with two years used as a benchmark, in a study finding that government guaranteed loans redistribute default risk. However, another study found that 30% of the loans in the dataset used in the study defaulted within the first two, which would imply that any jobs

created were also lost (Riding & Haines, 2001). While prior research supports a relationship between SBA (or CSG) financing, it is clear that the timeframe to observe the output of that relationship is not firmly established.

The volume of SBA capital access loans in dollars and/or number during a given year can be used to anticipate the government reported employment numbers at a future date which allows for decisions and policies to be made proactively rather than reactively. Thus, the following hypothesis is proposed:

Hypothesis 1: Annual SBA volume in dollars predicts the percentage change in employment levels two years in advance.

SBA Volume, Employment, and a Bidirectional Relationship

The existing research on the relationship between SBA lending and employment (a proxy for economic growth) has utilized SBA lending as the independent variable and employment as the dependent variable regardless of whether the studies were conducted at the national, state, local, or firm level (Armstrong et al., 2014, Cortes, 2010; Cortes & Ooi, 2017; Craig et al., 2007b; Lee, 2018, Orzechowski, 2019). However, there have also been discussions regarding the proper order of the variables (Cortes, 2010; Lee, 2018). While existing research has established a correlation between the two variables, which is truly the independent variable? There may be an endogenous relationship between the two variables. Does an increase in SBA lending lead to an increase in employment and economic growth, or does economic growth (represented by employment) drive the demand for firms, new and established, to pursue and obtain SBA financing? A positive relationship identified between the two in existing research does not address causation, and it may be that each plays a role in causing the other (Lee, 2018).

While prior SBA research has focused on the relationship between economic growth and SBA volume, few researchers have considered that the relationship may be endogenous. State level research conducted by Cortes (2010) utilized a model that addressed endogeneity by using income growth to represent economic growth as business owners may react to economic growth when seeking SBA financing. Results of his study suggest that the relationship between SBA financing and income growth, lagged by two periods, is not endogenous. While Cortes (2010) took SBA research a step further by considering endogeneity and two-way causality, he did not consider employment as the measure of economic growth. Craig et al (2008) considered that market development may lead to an increase in the amount of credit available to small businesses, but that does not necessarily imply that the demand for credit has increased. Robbins et al (2000) addresses multi-collinearity, autocorrelation, and heteroscedasticity in the relationship between small business and economic growth levels but they did not consider endogeneity.

This study aims to fill a gap in the literature by addressing the potential endogenous relationship between employment and SBA programs by applying informational asymmetry theory, while also recognizing that causality may occur at different time periods. It is common for a small business to be created by entrepreneurs (Appendix A), including self-employed individuals (Yallapragada & Bhuiyan, 2011). Moreover, prior research has shown that entrepreneurial activity increases in response to economic growth (Leebaert, 2006). With increased entrepreneurial activity comes increased demand for financing to provide capital needed for business start-up, expansion, or acquisition (Alsaaty & Makhlouf, 2020; Calza et al., 2003). Owner resources are used to self-capitalize but when those resources are insufficient, outside resources, including bank financing, are pursued (Ngueyn & Canh, 2021; Yilmazor &

Schrank, 2010; Yallapragada & Bhuiyan, 2011). Unfortunately, information asymmetry results in credit rationing (Rao et al., 2021) and a denial of traditional bank financing (Levenson & Willard, 2000). These limitations hinder the ability of a small business to obtain traditional financing in response to economic growth which pushes them toward SBA capital access programs (Kumar, et al., 2012). As a result, a new model is suggested to evaluate the existence of an endogenous relationship between SBA demand and employment (Figure 2).

In summary, economic growth, as represented by employment, leads to increased demand for SBA capital access program financing, which in turn, results in job creation and retention that positively influences employment. Thus, the following hypothesis is proposed:

Hypothesis 2: At the state level, change in annual employment for the prior period is an indicator of SBA financing volume in aggregated dollars in the future period.

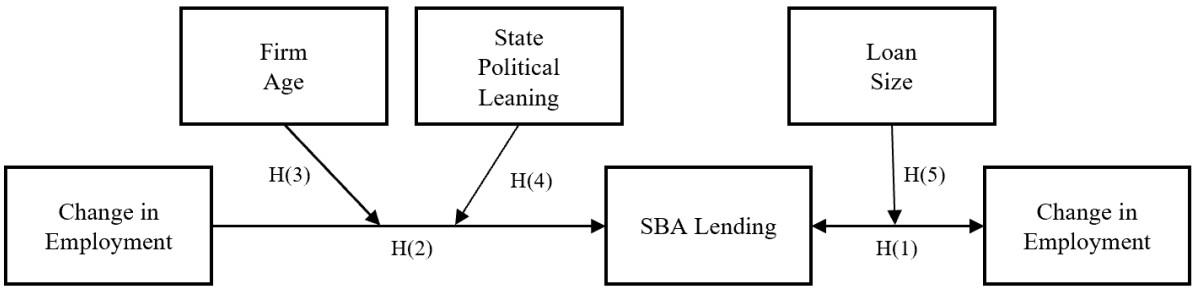

Figure 2: Research Model

Firm Age

Credit rationing can impact any business, in any industry, and at any time. Prior research indicates that certain factors may increase the likelihood that a firm experiences credit rationing. With firm age as a potentially key factor (Becchetti, et al., 2010; Bopaiah, 1998; Drakos & Giannakopoulos, 2018; Freel, 2007; Hyytinen & Vaananen, 2006; Levenson & Willard, 2000; Mancusi & Vezzulli, 2014; Minetti & Zhu, 2011; Steijvers & Voordeckers, 2009; Winker, 1999).

Rationing occurs to younger firms as a result of information asymmetry as they have short-term and insufficient banking relationships (Kysucky & Norden, 2016; Petersen & Rajan, 1994; Vos, et al., 2007), lack of historical financial reporting (Cressy & Toivanen, 2001; Kirschenmann, 2016, Rao et al., 2021), and inadequate acceptable collateral when seeking working capital financing or fixed asset purchases (Jones & Kohers, 1993; Rao et al., 2021). Most banks require two to three years of annual financial statements (dependent on size of requested financing) to obtain traditional bank financing, but new and young firms do not have sufficient information to provide placing them at a disadvantage (Bank of America, n.d.; Guinan, 2023; Wells Fargo, n.d.). Banks may choose to utilize existing banking relationship details of the firm, along with owner and guarantor financial information to help offset the lack of historical data. Nevertheless, these measures are often insufficient to offset rationing risks (Kysucky & Norden, 2016; Petersen & Rajan, 1994; Smith & Stutzer,1989). Traditional banks require collateral to minimize risk in cases of loan default and will only lend up to a specified percentage of the collateral value (loan to value ratio, LTV), but unfortunately, new and young firms have not yet established sufficient equity in the proposed collateral nor do they have enough cash to inject to lower the high risk LTV (Cressy & Toivanen, 2001; Steijvers & Voordeckers; 2009). Prior research also suggests that entrepreneurs with new innovations experience credit rationing as their ideas, and subsequent creation of new (young) firms, may not be easily understood by the financing decision maker from a risk perspective (Dilger, 2014; Gale & Brown, 2013; Levenson & Willard, 2000; Nguyen & Cahn, 2021; Rao, et al., 2021).

The SBA began reporting data on the age of firms receiving support in 2018. Tables 2 (7a) and 3 (504) detail the actual number and percentage of new and young firms by year that received support along with the reported number of jobs created or retained as a result of the

SBA guaranty. To obtain the SBA guarantee the small firm must be credit rationed and denied traditional financing with the bank that is providing the SBA loan certifying the firm would not obtain financing without the SBA guaranty (US SBA, n.d.a). Adelino et al (2017) suggest that new firms account for the majority of net new employment in response to the local economic environment. Gale and Brown (2013) find that job growth is more likely to occur in younger firms, while a study for the Kauffman Foundation concluded that excluding job creation from new firms would result in a loss of jobs (Haltiwanger et al., 2009; Haltiwanger et al., 2013). However, none of these studies differentiate between firms receiving SBA support and those obtaining traditional financing. A study by the Nation Bureau of Economic Research examined the relationship between firm age and job creation by firms obtaining SBA guaranteed financing, but the study only addressed results at the firm level and not the macro level (Brown et al., 2015). Consistent with prior research on the relationship between firm age and credit rationing and the relationship between firm age and job creation, it is evident that new firm age is an important criterion for understanding the role of the SBA in job creation, especially when considering the number and percentage of SBA guaranteed loans to new and young firms detailed in Tables 2 and 3. Information in the tables provides detailed information on the number and percentage of SBA loans for each program (7(a) and 504) by age stratification established by the SBA. The number and percentage of total jobs created by age stratification is also provided to demonstrate that new and young firms create more jobs per loan than older firms.

Table 2

Firm Age SBA 7(a) Volume by Year

	2018					2019				
	# Loans	**% Loans**	**# Jobs**	**% Jobs**	**# Jobs Per Loan**	**# Loans**	**% Loans**	**# Jobs**	**% Jobs**	**# Jobs Per Loan**
Start-Up	9,887	16.47	121,483	20.87	12.29	8,623	16.7	108,502	20.65	12.58
≤ 2 Yrs.	2,393	3.99	21,474	3.69	8.97	16	0.02	428	0.01	26.75
>2 Yrs.	34,538	57.55	321,548	55.23	9.31	27,416	53.11	270,033	51.39	9.85
Other*	13,201	21.99	117,663	20.21	8.91	15,580	30.17	146,467	27.88	9.40
Total	**60,019**	**100**	**582,168**	**100**	9.70	**51,635**	**100**	**525,430**	**100**	10.18
Proportion of Young to >2	**0.2046**		**0.2456**			**0.1673**		**0.2073**		

	2020					2021				
	# Loans	**% Loans**	**# Jobs**	**% Jobs**	**# Jobs Per Loan**	**# Loans**	**% Loans**	**# Jobs**	**% Jobs**	**# Jobs Per Loan**
Start-Up	6,462	15.31	76,262	16.8	11.80	8,991	17.34	113,110	18.08	12.58
≤ 2 Yrs.	3,172	7.51	28,264	6.23	8.91	9,508	18.34	85,971	13.74	9.04
>2 Yrs.	23,008	54.51	248,360	54.72	10.79	26,708	51.5	336,085	53.71	12.58
Other*	9,568	22.67	101,002	22.25	10.56	6,649	12.82	90,550	14.47	13.62
Total	**42,210**	**100**	**453,888**	**100**	10.75	**51,856**	**100**	**625,716**	**100**	12.07
Proportion of Young to >2	**0.2282**		**0.2303**			**0.3567**		**0.3182**		

	2022				
	# Loans	**% Loans**	**# Jobs**	**% Jobs**	**# Jobs Per Loan**
Start-Up	8,357	17.53	102,858	20.27	12.31
≤ 2 Yrs.	10,134	21.26	79,589	15.68	7.85
>2 Yrs.	24,178	50.71	252,745	49.8	10.45
Other*	5,008	10.5	72,330	14.25	14.44
Total	**47,677**	**100**	**507,522**	**100**	10.65
Proportion of Young to >2	**0.3878**		**0.3595**		

*Includes Change of Ownership and Not Reported

Note 1: SBA does not require specific job creation/retention minimums for the 7(a) program

Note 2: Proportion of firms ≤2 years of age is reported to reflect firms who do not meet the 2 years of financial reporting requirement utilized by traditional banks in underwriting

Sources: 7(a) and 504 FOIQ - U.S. Small Business Administration (SBA) | Open Data, n.d.

Table 3

Firm Age SBA 504 Volume by Year

	2018					2019				
	# Loans	**% Loans**	**# Jobs**	**% Jobs**	**# Jobs Per Loan**	**# Loans**	**% Loans**	**# Jobs**	**% Jobs**	**# Jobs Per Loan**
Start-Up	604	10.46	6,684	11.76	11.07	835	14.12	9,566	16.22	11.46
≤ 2 Yrs.	187	3.24	2,121	3.76	11.34	26	0.44	299	0.56	11.50
>2 Yrs.	4,480	77.60	41,285	73.21	9.22	4,800	81.15	39,969	74.92	8.33
Other*	502	8.70	6,301	11.17	12.55	254	4.29	4,424	8.	17.42
Total	**5,773**	**100**	**56,391**	**100**	9.77	**5,915**	**100**	**53,347**	**100**	9.02
Proportion of Young to >2	**0.1370**		**0.1561**			**0.1456**		**0.1678**		

	2020					2021				
	# Loans	**% Loans**	**# Jobs**	**% Jobs**	**# Jobs Per Loan**	**# Loans**	**% Loans**	**# Jobs**	**% Jobs**	**# Jobs Per Loan**
Start-Up	900	12.75	8,628	14.95	9.59	970	10.02	8,760	10.13	9.03
≤ 2 Yrs.	84	1.19	759	1.31	9.04	124	1.28	1,165	1.37	9.40
>2 Yrs.	5,930	84.02	46,561	80.37	7.85	8,416	86.98	73,389	86.35	8.72
Other*	144	2.04	1,779	3.08	12.35	166	1.72	1,675	1.97	10.09
Total	**7,058**	**100**	**57,727**	**100**	8.18	**9,676**	**100**	**87,989**	**100**	9.09
Proportion of Young to >2	**0.1394**		**0.1626**			**0.1370**		**0.1561**		

	2022				
	# Loans	**% Loans**	**# Jobs**	**% Jobs**	**# Jobs Per Loan**
Start-Up	1,023	11.06	10,614	10.91	10.38
≤ 2 Yrs.	151	1.63	1,644	1.69	10.89
>2 Yrs.	7,865	84.99	82,855	85.14	10.53
Other*	215	2.32	2,197	2.26	10.22
Total	**9,254**	**100**	**507,522**	**100**	54.84
Proportion of Young to >2	**0.1456**		**0.1678**		

*Includes Change of Ownership and Not Reported

Note 1: SBA does not require specific job creation/retention minimums for the 7(a) program
Note 2: Proportion of firms ≤2 years of age is reported to reflect firms who do not meet the 2 years of financial reporting requirement utilized by traditional banks in underwriting
Sources: 7(a) and 504 FOIQ - U.S. Small Business Administration (SBA) | Open Data, n.d.

The overall demand for small business loans varies based on the state of economic development with small business owners becoming more risk averse as development slows or declines (Abdulsaleh & Worthington, 2013; Beck, 2013; Dilger, 2014; Peel & Wilson, 1996). Risk aversion can lead to existing businesses refraining from expansion and fixed asset purchases and to entrepreneurs discouraged from starting a new firm if they are unable to self-fund (Rao et al., 2021) and thus dependent upon bank debt (Badal, 2010; Yilmazer & Schrank, 2010). At the same time, it may become more difficult to obtain traditional financing, even in cases where firms are willing to borrow, as banks tighten their credit standards and are less willing to take on increased risk leading to increased credit rationing (Dilger, 2014; Levenson & Willard, 2000). On the other hand, as economic development increases, the demand for small business loans also increases as business owners become more willing to take on additional debt to fund expansion, purchase fixed assets, or introduce new innovations (Dilger, 2014). Once economic conditions improve and firms are ready to pursue debt financing, age will likely play a role (Abdulsaleh & Worthington, 2013). Prior studies suggest that most innovation and job creation occur in new small firms partially because the resources needed to start a large firm are difficult to obtain (Armington & Acs, 2004; Dilger, 2013; Gale & Brown, 2013; Litwin & Phan, 2013; Neumark et al., 2011).

Small firms of all ages face the question of how to finance working capital, fixed asset purchases, expansion, and innovations. As argued previously, small firms are likely to have experienced credit rationing and information asymmetry and must rely on SBA programs for assistance (Kysucky & Norden, 2016; Petersen & Rajan, 1994; Vos, et al., 2007). However, younger firms seeking external financing may experience a greater likelihood of credit rationing age (Becchetti, et al., 2010; Bopaiah, 1998; Drakos & Giannakopoulos, 2016; Freel, 2007;

Hyytinen & Vaananen, 2006; Levenson & Willard, 2000; Mancusi & Vezzulli, 2014; Minetti & Zhu, 2011; Steijvers & Voordeckers, 2009; Winker, 1999). Firm age may influence the relationship between the decision to obtain external financing based on current economic conditions and the number of jobs created or retained as a result of that financing. The current study is concerned with the moderating effect of firm age on the successful approval of SBA support based on economic growth as represented by national and state level employment (Figure 2). As a result, one might expect to see particularly strong positive associations between firm age and jobs created as a result of obtaining and SBA guaranty.

In short, the following hypothesis is proposed.

Hypothesis 3: Firm age moderates the relationship between Change in Employment and SBA Lending such that young firms will be more likely to have influence on job creation and retention.

Political Influence

The SBA was created in 1953, without the support of organized small business groups, as part of a political bargain between Congress and the Eisenhower administration to replace the RFC, which was plagued with corruption and waste (Young, 2008). Going forward, politicians from both sides of the aisle used the SBA as a source of political capital to capture the support of small business owners and entrepreneurs, particularly from those viewed as politically important (Young, 2008; Duchin & Hackney, 2021). While the initial focus of the SBA was support and shelter for small business, that began to shift in the late 1970s following the research on job generation by Birch (Dennis, Jr., 2016). The Birch study suggested that small businesses were a significant source of job creation in the US economy with "…about 60 percent of all jobs in the US are generated by firms with 20 or fewer employees, about 50 percent of all jobs are created

by independent, small entrepreneurs…large firms (those with over 500 employees) generate less than 15 percent of all net new jobs" (Birch, 1979). Birch's findings began to shift the focus of the SBA away from support and shelter in favor of job creation (Dennis, Jr., 2016).

The political environment began to include small business advocacy as a focal point and politicians at the national, state, and local levels from both parties began touting job creation in their platforms (Corder,1998; Dennis, Jr., 2016; Duchin & Hackney, 2021; Young, 2008). Small business owners and advocates found friends in both parties during the eighties as there were moderate to conservative Democrats and moderate to liberal Republicans in office making bi-partisan initiatives easier to accomplish (Dennis, Jr., 2016). Unfortunately, as the parties became more divided and small business interest groups became more politically involved, the support of small business, and subsequently job creation, became a Republican calling card with promises of tax cuts, less government mandates, and decreased regulation (Blomberg & Hess, 2003; Davis, et al., 1996; Dennis, Jr., 2016). Ironically, even while promoting job creation, all the Republican Presidents since 1980 have attempted to either eliminate or slash funding to the SBA. President Reagan attempted to eliminate the SBA (Litwak, 2020), and the House of Representatives under George H.W. Bush also attempted elimination in 1996 (Bischoff, 2011). George W. Bush proposed close to a 40 percent cut in the 2002 budget (Lee, 2001), and Trump proposed a 5% budget cut (Litwak, 2020; Mandelbaum, 2017). While the Republicans were not opposed to small business advocacy and definitively were in support of job creation, they preferred to do so by less government intervention and increased private sector initiatives while the Democrats attempted to stimulate small business advocacy and job creation through increased government services and intervention (Blomberg & Hess, 2003, Dennis, Jr., 2016).

Contingent upon annual budget approval and funding, the SBA provides training programs and resources for small business owners and entrepreneurs to assist business planning, launching a business, managing operations, marketing, and growing the business (Business Guide, n.d.). It offers additional programs for women, transitioning service members, and business owners in underserved locations across the US (US SBA, n.d.f), and also offers assistance for locating a lender to collaborate with on financing options (US SBA, n.d.b). For advanced assistance, the SBA has eight SBA partner groups that include Small Business Development Centers (SBDC), SBA Lenders, Certified Development Companies (CDC), Microlenders, Small Business Investment Companies (SBIC), SCORE counselors, Women's Business Centers (WBC), and Veterans Business Outreach Centers (VBOC) (Wichmann, Jr. & Boze, 2007). These partner groups are all SBA approved with varying degrees of SBA involvement. Table 4 details the number and percentage of businesses, by state and as of December 2020, that meet the SBA size standards to qualify for SBA assistance and access to these partners (Advocacy, 2021; Dilger, 2012). The number of small businesses varies significantly across states dependent on the size of the state (population and geographically), while the percentage of small businesses in each state is more consistent and between 98.2% in Delaware and 99.8% in California, Florida, North Dakota, and West Virginia (Advocacy, 2021).

CDCs, the partner group that is the focus in the current study, are non-profit corporations that are chartered to impact the local economy through numerous offerings, including SBA financing programs like the 7(a) and 504. Each proposed CDC must apply and be certified by the SBA to be eligible to promote the 504 program. There are currently more than 200 CDCs in the US with each CDC approved to operate in a specific geographic area within its own state or in an adjacent state (Dilger & Lowry, 2015; Immergluck & Mullen, 1998; Wichmann et al., 2008).

Each CDC must participate in a minimum of two 504 loans a year and must support at least one job created or retained for each $75,000 funded (US SBA, n.d.e; Wichmann & Boze, 2007) to maintain SBA certification. Table 4 reports the number of CDCs located within each state, the total number of CDCs servicing each state, and the average number of small businesses per CDC. The data shows a range of in-state CDCs from eighteen in California to zero in Alaska, West Virginia, and DC. In reviewing the average number of small businesses per CDC it is clear there is wide discrepancy in the availability of CDC support required to participate in the 504 program with a range of 15,809 businesses per CDC in DC to 2.1million businesses per CDC in California (Advocacy, 2021).

Given that the SBA 504 program requires bank and CDC financing it appears that many small businesses are at a disadvantage in obtaining financing for fixed asset purchases due to their location and the state in which they operate. Prior research has shown that distance from a lender moderates the likelihood of small business obtaining both conventional and SBA financing (Adams, et al., 2021; Brevoort & Wolken, 2009; DeYoung et al.,2008; DeYoung et al., 2011), and the data in Table 4 suggests that distance may be a factor due to lack of CDC availability. Prior research has also shown there is a relationship between government small business lending and the electoral college. In other words, electoral college allocations may result in political favoritism causing resources, including CDC approval, to be disproportionately allocated to states with more electoral votes (Duchin & Hackney, 2021). Other political research suggests political favoritism occurs when a state's legislators or governor are in the same party as the sitting President (Berry et al., 2010) or when a state that is solidly red or blue, not marginal or a swing state (purple), support the incumbent President (Larcinese et al., 2006).

Table 4 reports the number of current electoral votes, state political affiliation color, and the Cook Partisan Voting Index (PVI) for each state. The PVI is calculated using results from presidential, state, and local elections from 2016-2022 to determine the degree to which a state is blue or red with the higher number coinciding with strength of the state's political leaning and those with "+1" being considered equal or a true swing state (Cook Report, 2022). In comparing the political identity of each state to its number of small businesses and CDCs along with consideration of prior research and differences in Republican and Democratic views of small business support, the combined data suggests that political identity may have affected the number of jobs created through the SBA 504 program in each state. The current study is investigating whether political identity affects the relationship between new and growing businesses and the likelihood of obtaining SBA 504 financing support.

Small business owners, regardless of their political affiliation, in all states must consider how to finance their small business. As argued previously, politics have historically played a role in programs available to support and shelter small businesses but also in programs aimed at influencing job creation. However, the political leanings of the state may be limiting access to a CDC, and subsequently SBA programs that result in job creation and retention. As a result, one might expect to see strong and positive associations between states with red leaning political affiliations and attainment of SBA 504 financing resulting in job creation as the Republican party has historically been more aligned with establishing non-government resources to support small business, such as CDCs.

In short, the following hypothesis is proposed.

Hypothesis 4: State level political affiliation, as commonly defined by Republican leaning red state versus Democratic leaning blue state, will moderate the relationship between economic

growth represented by state level employment and SBA approval such that red states will be associated with higher job creation and retention.

Table 4

State Political Leanings and CDC Support

State	Electoral Votes	Political Leaning	PVI	# Small Businesses	% of Small Business	# of CDC in State*	Adjacent State CDC Support*	#InState Business Per CDC	# Total Business per CDC
Alabama	9	Red	R+15	417,092	99.4%	2	4	208,546	104,273
Alaska	3	Red	R+8	74,587	99.1%	0	1	0	74,587
Arizona	11	Red	R+2	641,025	99.5%	1	9	641,025	71,225
Arkansas	6	Red	R+16	264,245	99.3%	1	2	264,245	132,123
California	55	Blue	D+13	4.2MM	99.8%	21	2	200,000	2,100,000
Colorado	9	Purple	D+4	691,230	99.5%	4	1	172,808	691,230
Connecticut	7	Blue	D+7	360,127	99.4%	2	3	180,064	120,042
Delaware	3	Blue	D+7	93,686	98.5%	2	2	46,843	46,843
DC	3	Blue	D+43	79,047	98.2%	0	5	NA	15,809
Florida	29	Red	R+3	3MM	99.8%	4	2	750,000	1,500,000
Georgia	16	Red	R+3	1.2MM	99.6%	7	6	171,429	200,000
Hawaii	4	Blue	D+14	141,460	99.3%	1	0	141,460	NA
Idaho	4	Red	R+18	183,972	99.25%	5	5	36,794	36,794
Illinois	20	Blue	D+7	1.2MM	99.6%	5	7	2,400,000	1,714,286
Indiana	11	Red	R+11	534,640	99.4%	5	7	106,928	76,377
Iowa	6	Purple	R+6	273,623	99.3%	5	5	54,725	54,725
Kansas	6	Red	R+10	258,384	99.1%	7	6	36,912	43,064
Kentucky	8	Red	R+16	364,200	99.3%	3	4	121,400	91,050
Louisiana	8	Red	R+12	471,240	99.5%	5	0	94,248	NA
Maine	4	Blue	D+2	151,212	99.2%	2	2	75,606	75,606
Maryland	10	Blue	D+14	634,622	99.5%	2	4	317,311	158,656
Massachusetts	11	Blue	D+15	718,467	99.5%	5	4	143,693	179,617
Michigan	16	Purple	R+1	911,914	99.6%	3	8	303,971	113,989
Minnesota	1	Blue	D+1	534,397	99.4%	5	5	106,879	106,879
Mississippi	6	Red	R+11	270,534	99.3%	2	2	135,267	135,267
Missouri	10	Red	R+10	542,700	99.4%	9	8	60,300	67,838
Montana	3	Red	R+11	129,180	99.3%	2	4	64,590	32,295
Nebraska	5	Red	R+13	182,684	99.1%	2	5	91,342	36,537
Nevada	6	Purple	R+1	313,257	99.2%	1	7	313,257	44,751
New Hampshire	4	Purple	D+1	138,199	99.0%	2	2	69,100	69,100
New Jersey	14	Blue	D+6	953,416	99.6%	3	2	317,805	476,708
New Mexico	5	Purple	D+3	161,921	99.0%	1	7	161,921	23,132
New York	29	Blue	D+10	2.2MM	99.8%	5	3	440,000	733,333
North Carolina	15	Red	R+3	994,576	99.6%	3	6	331,525	165,763
North Dakota	3	Red	R+20	75,265	98.8%	3	3	25,088	25,088
Ohio	18	Purple	R+6	996,693	99.6%	11	1	90,608	996,693
Oklahoma	7	Red	R+20	367,405	99.4%	4	1	91,851	367,405
Oregon	7	Blue	D+6	402,928	99.4%	3	10	134,309	40,293
Pennsylvania	20	Purple	R+2	1.1MM	99.6%	8	4	137,500	275,000
Rhode Island	4	Blue	D+8	108,360	98.9%	1	6	108,360	18,060
South Carolina	9	Red	R+8	463,549	99.4%	4	4	115,887	115,887
South Dakota	3	Red	R+16	90,274	99.0%	4	4	22,569	22,569
Tennessee	11	Red	R+14	652,795	99.5%	5	5	130,559	130,559
Texas	38	Red	R+5	3.1MM	99.8%	15	2	206,667	1,550,000
Utah	6	Red	R+13	324,821	99.3%	2	4	162,411	81,205
Vermont	3	Blue	D+16	78,883	99.0%	1	3	78,883	26,294
Virginia	13	Red	D+3	795,624	99.5%	3	3	265,208	265,208
Washington	12	Blue	D+8	657,529	99.5%	3	6	219,176	109,588
West Virginia	5	Purple	R+22	111,614	98.8%	0	3	NA	37,205
Wisconsin	10	Blue	R+2	462,292	99.4%	2	8	231,146	57,787
Wyoming	3	Red	R+25	72,081	98.9%	1	6	72,081	12,014

Notes: CDC numbers based on activity from 2017-2022

*Refer to Appendix B

Sources: Distribution of Electoral Votes, 2023; Report et al., 2023; Red, Blue, or Purple States: A Colorful Guide to U.S. Elections, n.d.; Advocacy, 2021; SBA District Offices, n.d.

Loan Size

Loan size is meaningful in all commercial and small business loans as it can signal the value and size of company resources and projects (Coco, 2000; Moss et al., 2015), quality of the borrower (Voordeckers & Steijvers, 2006) the strength of the firm's relationship with financial institutions (Riding et al., 2007; Steijvers et al., 2010), ability to repay debt within normal amortization periods (Riding et al., 2007), availability and strength of collateral (Rahman,et al., 2017), owner commitment to the firm (Ang et al., 1995; Avery et al., 1998; Voordeckers & Steijvers, 2006; Steijvers & Voordeckers, 2009; Steijvers et al., 2010; Walker, 1989), and the firm's commitment to continued growth (Arellano et al., 2012). However, in the case of small firms who obtain an SBA loan, loan size signals are not always consistent with signals from firms who obtain traditional financing. Firms who obtain an SBA loan may be signaling a lack of a sufficiently strong relationship with a financial institution for traditional financing (Riding et al., 2007; Steeijvers et al, 2010), the need for longer amortization to support debt payments (US SBA, 2023), and/or a collateral shortfall to support the desired loan amount (Menkoff et al., 2012; Rahman et al., 2017; Walker, 1989).

A small firm obtaining an SBA loan also signals a distinctly different message from their traditionally financed peers. With the belief and perception that small firms are influential in national and state economies, including employment, the SBA tracks jobs created or retained as a result of a loan to a small firm (US SBA, n.d.e). In contrast, traditional financial institutions do not consider economic impacts, including employment, when underwriting a loan application. The SBA currently requires that a small firm either creates or retains a job that would be eliminated for every $75,000 financed ($120,000 for manufacturers) through the 504 program (US SBA, 2023). The requirements are expected to be revised once the proposed 2023 SBA

Standard Operating Procedures revisions are implemented to a requirement of one job created per $90,000 guaranteed by the SBA with exceptions included for firms located in an Opportunity Zone (Appendix A) and small manufacturers (US SBA, 2023). Given the job creation requirement to obtain financing, a firm obtaining a 504 loan is signaling a commitment to job creation within two years from financing and the requested loan size is representative of the strength and degree of that commitment which their traditionally financed peers do not signal.

The average small business C&I (commercial & industrial, non-real estate) loan size at the national level reported in the quarterly Federal Reserve reports on small business (Table 5) ranges from $663,000 - $940,000 across all financial institutions, including SBA loans, during the period of 2015-2017, and loans range from $10,000 to over $10,000,000 for the same period (Board of Governors, n.d.). There is no specified upper dollar limit for conventional small business loans as the final loan amount depends on the individual firm's cash flow, available collateral, and ability to mitigate industry, company, and loan related risks. However, SBA backed loans have an upper dollar limit of $5,000,000 for 7(a) loans (i.e., C&I) and $5,500,000 for 504 loans (i.e., real estate and large fixed asset) (US SBA, 2023) regardless of collateral availability and strength of cash flow.

Table 6 and 7 report the average 7(a) and 504 loan size at the national level for the last five years (2018-2022) with a range of $420,395 - $704,581 for the 7(a) and $809,269 - $995,029 for the 504 (US SBA, n.d.g). The data suggest that the size of the loan, and not number of small business loans, is more impactful on economic growth as over 80% of the dollars are provided to only 26% of the firms and 74% of the firms obtain less than 20% of the dollars financed through the SBA. The data also suggests that larger firms obtain larger loans, and subsequently create more jobs; for example, 1,130 loans over $2million represented 38.4% of the

504 dollars in 2022 and only 12% of the total loans disbursed. While loan size continues to signal a firm's strength and capacity, it is even more important in the context of the SBA 504 program as the loan size is also signaling the size of the and its agreement with and commitment to the constraint of job creation that traditionally financed firms do not experience.

Table 5

Average Small Business Loan as Reported by the Federal Reserve

Date of Report	Reporting Period	Average Size (in 000s)
August 2017	May 1-5, 2017	$663
April 2017	February 6-10, 2017	$940
December 2016	November 7-11, 2016	$713
October 2016	August 1-5, 2016	$850
July 2016	May 2-6, 2016	$671
April 2016	February 1-5, 2016	$814
January 2016	November 2-6, 2015	$871
October 2015	August 3-7, 2015	$670
June 2015	May 4-8, 2015	$646
March 2015	February 2-6, 2015	$717

Note: The Federal Reserve Small Business report was discontinued after the August 2017 report.
Source: Board of Governors, n.d.

Table 6

7A Loan Volume By Year & Size

Loan Amount	<$50,000		>$50,000 - $150,000		>$150,000 - $250,000		>$250,000 - $350,000		>$350,000 - $2,000,000		>$2,000,000		Average	Total
Year	**Loan #**	**% of $**	**Loan #**	**% of $**	**Loan #**	**% of $**	**Loan #**	**% of $**	**Loan #**	**% of $**	**Loan #**	**% of $**	**Loan Size**	**# of Loans**
2018	18,328	2.1%	15,644	6.5%	5,433	4.5%	5,158	6.4%	12,883	44.0%	2,908	36.5%	$420,395	60,354
2019	14,508	1.7%	12,437	5.9%	5,378	4.9%	5,155	7.1%	11,766	43.5%	2,663	36.9%	$446,487	51,907
2020	10,825	1.4%	8,920	4.3%	4,064	3.8%	4,237	5.9%	11,490	45.0%	2,735	39.6%	$533,118	42,271
2021	9,398	0.7%	8,895	2.6%	4,930	2.8%	5,069	4.4%	18,589	45.2%	4,975	44.3%	$704,581	51,856
2022	12,122	1.4%	10,123	4.2%	4,772	3.9%	5,135	6.4%	12,258	42.5%	3,268	41.6%	$538,903	47,678

Source: Workbook: DistrictOfficeLender Report, n.d

Table 7

504 Loan Volume By Year & Size

Loan Amount	<$50,000		>$50,000 - $150,000		>$150,000 - $250,000		>$250,000 - $350,000		>$350,000 - $2,000,000		>$2,000,000		Average	Total
Year	**Loan #**	**% of $**	**Loan #**	**% of $**	**Loan #**	**% of $**	**Loan #**	**% of $**	**Loan #**	**% of $**	**Loan #**	**% of $**	**Loan Size**	**Loan #**
2018	8	0.0%	473	1.1%	872	3.7%	783	4.9%	3,221	56.0%	517	34.2%	$809,269	5,874
2019	4	0.0%	442	1.0%	801	3.2%	823	4.9%	3,516	59.1%	513	31.7%	$813,011	6,099
2020	8	0.0%	555	1.1%	968	3.3%	876	4.5%	4,132	59.36%	580	31.8%	$818,498	3,419
2021	15	0.0%	644	0.9*%	1,191	2.9%	1,246	4.6%	5,715	58.8%	865	32.9%	$849,329	9,676
2022	2	0.0%	347	0.4%	939	2.1%	1,052	3.3%	5,831	55.8%	1,130	38.4%	$995,029	8,988

Source: Workbook: DistrictOfficeLender Report, n.d.

Additional detail is required to fully understand and represent the impact of the job creation requirement based on loan size for the 504 program. The 504 program involves three different parties, 1) a financial institution, 2) the CDC/SBA, and 3) the borrower, but it does not provide 100% SBA financing. The financial institution provides 50% of the purchase price (or project cost), the CDC/SBA provides between 30-40% of the purchase price, with the borrower providing the remaining 10-20% of the purchase price. The variation in CDC/SBA and borrower percentages is based on the type of property requiring finance and the age of the business (refer to Table 8 for specifics) (US SBA, 2023). Only the percentage provided by the CDC/SBA falls under the job creation requirement. For example, a small firm that has been in business for three years is seeking financial assistance through the 504 program to purchase a $3.5 million property. The financing would be provided as a $1.75 million loan from a financial institution, a $1.4 million loan from the CDC/SBA, and $350,000 equity injection from the borrower. Only the $1.4 million would require job creation, which would be 18-19 jobs ($1.4million / $75,000). Using the same scenario except the firm is one year old and is purchasing a special purpose property, the job creation requirement is reduced to 14 as the CDC/SBA will only provide 30% of the financing ($3.5Million x 30% / $75,000) (US SBA, 2023).

Table 8

504 Project Financing

	Standard Financing Structure	New Business OR Limited/Special Purpose Property	Both New AND Limited/Special Purpose Property
Financial Institution/Third Party Lender	50%	50%	50%
CDC/SBA	40%	35%	30%
Borrower Equity	10%	15%	20%
Job Creation Requirement based on $3.5million project	18-19	16	14

Source: US SBA, 2023

Small firm owners successfully cross one hurdle once they gain approval for 504 financing, but they must still address the hurdle of balancing the amount of financing, their job creation commitment, and the relationship between the two through capital investment and labor utilization (Lippitt & Oliver, 1984). Decisions regarding each are dependent on the other and prior research suggests that firm decisions related to financing and employment are endogenous and signals information to others outside the firm (Dixit, 1997). Dixit theorizes that the decision to expand or decrease either capital investment, represented by 504 financing for purposes of this study, or employment is in response to the more flexible of the two factors (Dixit, 1997). In a study regarding labor policies, Garmaise (2008) found small firms, which tend to be more financially constrained, use more labor but also tend to modify their labor policies when a major change in financial position, such as obtaining new financing, occurs. The SBA job creation requirement adds complexity to the firm's decisions as the firm may need to choose between obtaining less financing to lower the job creation commitment or choosing to create more job opportunities than necessary to obtain the amount of financing required for its capital investment. Either of these scenarios results in an impact to the firm's capital to labor ratio, and SBA 504 loan size is representative of the firm's balanced decision made between capital investment and labor utilization.

Although currently there are no specific job creation or retention requirements for firms obtaining 7(a) financing, the SBA does request and track the information through the lender in order to monitor the program's support of job creation (US SBA, 2023). The current study focuses on the 504 program job creation as many firms obtain 7(a) and 504 loans concurrently, which could lead to double counting the jobs created or retained. Additionally, only the 504

program requires ongoing annual reporting and documentation on the status of each firm meeting its job creation commitment (US SBA, 2023).

Overall, loan size signals valuable information about a firm seeking SBA financing in relation to its collateral position, cash flow capabilities, commitment of its owners, capital to labor decisions, and commitment to job creation (Ang et al., 1995; Arellano et al., 2012; Avery et al., 1998; Coco, 2000; Menkoff et al., 2012; Moss et al., 2015; Rahman,et al., 2017; Riding et al., 2007; Steijvers et al., 2010; Steijvers & Voordeckers, 2009; Voordeckers & Steijvers, 2006; Walker, 1989). Nevertheless, the most pressing current research question addresses the degree to which changes in employment at the national and state level can be attributed to SBA support.

The following hypothesis is proposed.

Hypothesis 5: Loan size will moderate the direct relationship between SBA 504 financing and lagged economic conditions at the state level as represented by the change in employment.

CHAPTER 3: METHODOLOGY

The dissertation aims to quantitatively investigate the relationship between the Small Business Administration (SBA) and job creation. This chapter details the research methodology utilized to address the research questions. It discusses research design, data collection, and data analysis techniques in detail. The ultimate goal is to provide insights into how SBA loan programs contribute to economic growth and development at the state level, specifically through job creation.

Research Questions

This study pursues answers to the following research questions:

RQ1: What is the relationship between the SBA 7(a) and 504 programs and employment?

- This question attempts to assess the degree of interdependency between SBA program volume and employment. Endogeneity between SBA volume and employment may occur when changes in employment levels influence the volume of SBA loans approved, which makes it challenging to establish the direction of the relationship.

RQ2: How do different SBA programs, specifically the 7(a) and 504, influence job creation at the state level?

- Understanding state-level differences in the analysis of the SBA's influence on employment is essential to understanding the effectiveness of the agency across diverse populations.

RQ3: What role does CDC availability play in influencing job creation at the state level?

- Each state has its own regulations and policies that either facilitate or hinder the growth of small firms. States with favorable regulations, policies, and tax incentives may see

greater Certified Development Company (CDC) support, leading to increased job creation or retention.

Data Sources and Variables

Data to conduct empirical tests and analysis were gathered from seven key resources; 1) 7(a) and 504 loan specific data along with CDC metrics by state were provided by the SBA open data sources (US BA, n.d.h), 2) state political designations provided by Cook Political Report (2023), 3) state level employment and unemployment numbers provided by US Bureau of Labor Statistics (2023, n.d.), 4) rural financial market designations provided by the US Department of Agriculture (Health Resources, n.d.), 5) minority population percentage by state provided by the US Census Bureau (n.d.), 6) Hispanic population percentage by state provided by the World Population Review (n.d.), and 7) economic region identification for each state defined by the Department of Commerce Bureau of Economic Analysis (Li, K., et al., 2021). All data, except the state political designations, are secondary government data and readily available.

The SBA data are presented at the loan level by each program and were aggregated to the state level by year. Each individual loan observation contains data elements including business identifying information, financial institution identifying information, and loan specific details. Refer to Appendix C and D for a detailed list of all data elements included in the SBA files (US SBA, n.d.h).

- 2020-2022 were included in the study with all years prior to 2020 being removed as the SBA did not begin tracking firm age until 2018. The reporting was modified during 2019, leaving 2020 as the first full year of consistent firm age data (Adelino et al., 2017; Brown et al, 2015; Gale and Brown, 2013). Using SBA

prior to 2020 would require exclusion of a key moderator and introduce omitted variable bias into the study

- YearCode variable was added to code each year (Table 9)
- Program type is a dichotomous variable as there are two capital access programs, the 7(a) and 504, included in the study. 7(a) loans were coded as 1 and 504 loans were coded as 0. A dummy variable was created for analysis purposes.
- ProjectState was converted to numbers instead of state abbreviations (Table 10).
- BusinessAge represents the proportion of SBA loans to firms that are ≤ two years of age compared to firms that are ≥ three years of age.
- LoanStatus of cancld were removed as these loans were approved but not originated.
- Loan observations missing data in Program, GrossApproval, SBAGuaranteedApproval, ApprovalFiscalYear, FirstDisbursementDate, ProjectState, BusinessAge, or JobsSupported were excluded from the study.
- GrossApproval, presented as the total Gross Approval Amount for each state, was added for the 7(a) and 504 data.
- AvgLoanSz is a calculated variable that represents the average size of a loan for each state by year and program.
- PolParty variable was added and dummy variables (Red and Blue) created for each state, with purple or neutral states set to 0, and based on the color assigned by Cook Political Report's PVI (2022) and reported in Table 4.
- Employ variable was added to each state based on the employment number reported as of September 30th of each study year (2020-2023).

- ChangeEmploy variable was calculated and added to each state to report the change in employment from year to year.
- Twoyrchangeemploy variable was calculated and added to each state to report the change in employment on a two year lag.
- StateUnem variable was added to each state.
- NonMetro variable was added and reports the proportion of non-metro loan volume to metro loan volume by state.
- Minor variable was added to report the minority percentage of the state's population.
- MinorHis was added to report the Hispanic percentage of the state's population.
- CDC variable was added and represents the number of CDCs approved to support each state that had been active within the past five years.
- EconRegCode variable was added to represent the assigned economic region for each state. Dummy variables were created with Region 7 being the excluded region as it aligned most closely to the national average and performance (Table 11).

Table 9

Year Code

Year	Code
2018	0
2019	1
2020	2
2021	3
2022	4
2023	5

Table 10

State Coding for Analysis

State	Code	State	Code	State	Code	State	Code
Alabama	2	Alaska	1	Arizona	4	Arkansas	3
California	5	Colorado	6	Connecticut	7	Delaware	9
DC	8	Florida	10	Georgia	11	Hawaii	12
Idaho	14	Illinois	15	Indiana	16	Iowa	13
Kansas	17	Kentucky	18	Louisiana	19	Maine	22
Maryland	21	Massachusetts	20	Michigan	23	Minnesota	24
Mississippi	26	Missouri	25	Montana	27	Nebraska	30
Nevada	34	New Hampshire	31	New Jersey	32	New Mexico	33
New York	35	North Carolina	28	North Dakota	29	Ohio	36
Oklahoma	37	Oregon	38	Pennsylvania	39	Rhode Island	40
South Carolina	41	South Dakota	42	Tennessee	43	Texas	44
Utah	45	Vermont	47	Virginia	46	Washington	48
West Virginia	50	Wisconsin	49	Wyoming	51		

Table 11

Economic Region Codes

Region	Code	Region	Code
Far West	1	Great Lakes	2
Mideast	3	New England	4
Plains	5	Rocky Mountain	6
Southeast	7	Southwest	8

Upon completion of all coding and modifications on the SBA data, the information was aggregated to the state and SBA program levels for each year included in the study. The completed data set (Table 11) at the aggregated level includes all loans made within the 7(a) and 504 programs for the years of 2020-2022. It consists of 102 observations per year, one for each state's 7(a) volume and one for each state's 504 volume (plus the District of Columbia) for each of the three sample years yielding a total of 306 observations. The only omissions are observations excluded from the SBA file due to missing data.

Table 12

Study Variables

Variable Name	Description	Variable Type	Model Alignment	Calculated / Reported / Aggregated / Assigned*	Hypothesis Inclusion
Program	Indicator of whether loan was approved under SBA's 7(a) or 504 loan program	Descriptive		Reported	H1, H2, H3, H4, H5
StateID	Number assigned to each state	Descriptive		Assigned	H1, H2, H3, H4, H5
StateAbbr	Abbreviation of state name	Descriptive		Reported	N/A
YearCode	Number assigned to each year	Descriptive		Assigned	H1, H2, H3, H4, H5
Year	Year of loan for analysis	Descriptive		Reported / Assigned	N/A
EconReg	Economic region of the state	Descriptive		Reported	N/A
EconRegCode	Number assigned to each economic region	Control		Assigned	H1, H2, H3, H4, H5
GrossApproval	Total loan amount	Independent	SBA Lending	Aggregated	H1, H2, H3, H4, H5
SBAGuaranteedApproval	Amount of SBA's loan guaranty	N/A		Aggregated	N/A
JobsSupported	# of jobs reported as being created or retained	Descriptive		Aggregated	H1, H2, H3, H4, H5
Count	# of loans by program, state, and year	Descriptive		Aggregated	N/A
NonMetroGty	% of loans made to non-metro areas based on SBA guaranty	N/A		Calculated	N/A
NonMetroGrossappr	% of loans made to non-metro areas based on gross approval	Control		Calculated	H1, H2, H3, H4, H5
AvgLoanSz	Average loans size by program, state, and year	Moderator	Loan Size	Calculated	H1, H2, H3, H4, H5
AvgGtyAmt	Average amount of SBA guaranty by program, state, and year	N/A		Calculated	N/A
PolParty	Indicator of whether state is blue, red, or purple	Moderator	State Political Leaning	Reported	H4
Employ	Number employed by state and year	Descriptive		Reported	N/A
ChangeEmploy	Percentage change in employment over prior year	Dependent	Change in Employment	Calculated	H1, H2, H3, H4, H5
Twoyrchangeemploy	Change in employment lagged by 2 years	Dependent	Change in Employment	Calculated	H1, H2, H3, H4, H5
StateUnem	State Unemployment rate	Control		Reported	H1, H2, H3, H4, H5
Minor	Minority percentage of state population	Control		Reported	H1, H2, H3, H4, H5
MinorHis	Hispanic percentage of state population	Control		Reported	H1, H2, H3, H4, H5
BusinessAge	Proportion of firms ≤ 2 years to firms older than 2 years	Moderator	Firm Age	Reported	H1, H2, H3, H4, H5
CDC	Number of small businesses per CDC by state	Instrumental		Calculated	H1, H2, H3, H4, H5

Note: *Sourced data used to calculate the data used for analysis. Individual loan data by state and year used to establish aggregated data. Reported data used as provided. Assigned data used as an identifier.

Research Design

Various econometric methodologies were considered, but the decision was made to employ a Two-Stage Least Squares (2SLS) regression model instead of panel data regression due to the inclusion of state level characteristics that do not change over the sample period. Variables Minor, MinorHis, PolParty, EconRegCode are the same for all years by state and program Including these variables in a model that includes state level fixed effects would result in perfect multicollinearity and render the model inestimable (Stock & Watson, 2015). Two-stage least squares is necessary to address the endogenous relationship between loan volume and employment growth. Simultaneity violates the OLS regression assumption that regressors are exogenous resulting in biased and inconsistent estimators (Hill et al., 2021, Stock & Watson, 2015)). As a result, the 2SLS approach was deemed appropriate when addressing endogeneity concerns in the relationship as it allows for the use of instrumental variables to mitigate potential bias in unobserved factors (Ao, 2009; Glen, 2020; Stock & Watson, 2015, West, 2021). One of the underlying criteria in considering an instrumental variable is the exclusion restriction which assumes the instrumental variable in the analysis is correlated with the endogenous regressor and either uncorrelated with the primary dependent variable or correlated through the primary dependent variable exclusively through the instrument's influence on the endogenous regressor. (Stock & Watson, 2015). The 2SLS regression with instrumental variable was utilized to estimate the potential endogenous relationship between study variables for H1, H2, H3, and H5.

This study provides insight into the relationship between the changes in employment at the state level (Twoyrchangeemploy and ChangeEmploy) and the volume of SBA 7(a) and 504 loans represented in nominal dollars (GrossApproval). In this scenario Twoyrchangeemploy is the dependent variable, representing fluctuations in job numbers with a two year lag.

GrossApproval acts as the independent variable, representing the extent to which small firms access SBA financing to support new business creation and firm expansion. The degree of CDC support within a state serves as the instrumental variable (IV) (Table 4), defined as the number of small businesses within the state divided by the number CDCs approved to conduct business within the state (CDC). Number of firms per CDC satisfies the essential criteria for a valid instrument as CDC is (1) correlated with gross loan approval and (2) any influence of CDC on employment growth must necessarily occur through loan approval as the transmission mechanism. In a modified scenario, ChangeEmploy is the dependent variable, representing fluctuations in job numbers over the prior year.

In addition to using the 2SLS regression model to address endogeneity concerns in H1, H2, H3, and H5, the research methodology also incorporated correlation tests to analyze H4 within the study. A correlation test provided additional insight beyond the 2SLS regression by allowing a more focused examination to the extent key study variables are linearly related (Miles & Shevlin, 2001). The correlation test was instrumental in exploring the strength and direction of the relationship between the CDC, PolParty, JobsSupported, ChangeEmploy, and Twoyrchangeemploy variables. This dual-method approach facilitated a more robust investigation providing a more comprehensive perspective on the relationship between variables.

Moderators

Moderators added to the analysis help explain the relationship between the SBA and employment. Information obtained due to moderator inclusion in the empirical analysis was used to better understand the strength and direction of the relationship between the SBA and employment under differing conditions. Moderators included in the study are firm age, state political leanings, and loan size.

A firm must be credit rationed and denied traditional bank financing to obtain an SBA loan (US SBA, 2023). Younger firms are more likely to be credit rationed, which implies they are also more likely to pursue SBA support (Becchetti, et al., 2010; Bopaiah, 1998; Drakos & Giannakopoulos, 2016; Freel, 2007; Hyytinen & Vaananen, 2006; Levenson & Willard, 2000; Mancusi & Vezzulli, 2014; Minetti & Zhu, 2011; Steijvers & Voordeckers, 2009; Winker, 1999). It also suggested that new firms account for the majority of net new employment (Adelino et al., 2017) and that job growth is more likely to occur in younger firms (Gale & Brown, 2013), both of which implies that firm age moderates the relationship between the SBA and employment. For purposes of the analysis in this study firm age is represented by a ratio of young firms (≤ two years) to older firms (≥ three years). The segmentation decision is based on the requirement by most banks for a business to provide two years of financial information to underwrite a traditional bank loan (Bank of America, n.d.; Guinan, 2023; Wells Fargo, n.d.). It is also based on the segmentation used by the SBA to collect firm age data (US SBA, 2023).

The SBA was created as the result of political bargaining (Young, 2008) and politics continue to play a role in its operations, budget, and purpose. The political influence occurs most noticeably at the federal level, but state level politics are also influential. CDCs play a pivotal role in the 504 program specifically as businesses must utilize a CDC to gain 504 approval (US SBA, 2023). The availability and allocation of resources for small businesses through CDCs can be influenced by state political leanings (Berry et al., 2010; Duchin & Hackney, 2021). Incorporating state political leanings as a moderator reveals whether the impact of CDC supported 504 programs varies based on the political orientation of the state. Dummy variables were used to examine the influence of state political leanings on the relationship between the SBA and employment. The dummy variable allows the study to quantitatively capture the

categorical nature of political affiliations and determine whether there is an effect that is contingent upon the political leanings of a state.

Given the SBA's requirement to add one job per $75,000 guaranteed through the 504 program (US SBA, 2023), introducing loan size as a moderator between SBA funding and employment will help in discerning how SBA employment effects vary across programs. Firms obtaining a 504 loan are committed to job creation within two years of financing and the requested loan size is representative of the strength and degree of that commitment (US SBA, 2023). Incorporating loan size as a moderator in the model provides information for understanding the relationship between the magnitude of SBA funding and employment. Given that for this study, individual loans were aggregated at the state level, average loan size for the 7(a) and 504 programs provide the unit of analysis for the regression models.

Control Variables

Empirical analysis of the relationship between the SBA and employment includes several control variables. Different states and geographic areas respond differently to SBA support due to varying economic conditions. By including appropriate control variables, the model better isolates differential effects of SBA loans on employment across the individual states. Control variables include state unemployment rate, minority percentage of the state population, Hispanic percentage of the state population, the proportion of loans in each state made to non-metro communities, and the state's economic region.

State level unemployment rates vary across states for a number of reasons. The industry mix between states is one of the most frequently cited explanations as each state has its own unique mix of industries (McGee, 1985; Partridge & Rickman, 1995). In a study of state employment growth, Partridge & Rickman (1995) found that state-idiosyncratic policies and

characteristics explain the majority of variation in state unemployment rates as compared to national influences. By including state level unemployment rates, the study differentiates between general economic conditions within a particular state SBA program effects for explaining employment variation. The unemployment rate for each state and year, StateUnem, was obtained from the US Bureau of Labor Statistics (n.d.).

Rural and urban areas often possess distinct economic conditions, access to resources, and labor market characteristics. The Consumer Financial Protection Bureau (CFPB) reports that rural communities face increased challenges with regard to banking and obtaining loans (Consumer Financial Protection Bureau, 2022). A Department of Agriculture report that rural financial markets differ from non-rural markets (Collender et al.,1999). Multiple research studies examined the influence of SBA programs in rural markets finding that 1) loans in rural markets perform differently from loans made to urban areas (Deyoung et al., 2019), 2) the SBA has a small positive influence on the rate of economic growth in low-income markets which are typically identified as disproportionately rural (Cortes and Ooi, 2017; Craig et al., 2008a), and 3) the SBA has a more positive influence on markets that are less developed (Armstrong et al., 2014). Including the proportion of metro to non-metro loans by state as a control variable allows assessment of whether SBA programs have varying effects on employment across rural and metro areas due to differences in proximity capital access, small labor pools and other unique state level conditions. The non-metro variable was calculated by identifying the project county, as reported by the SBA, as among the list of non-metro counties based on US census data (Health Resources, n.d.).

By controlling for minority populations in each state, the study examines whether SBA programs contribute to addressing racial disparities among different racial and ethnic groups and

whether the racial make-up of a state distorts the relationship between the SBA and employment. Two control variables representing minority populations were included in the study. The Minor variable represents the overall minority population percentage of each state, and the MinorHis variable represents the Hispanic population percentage of each state. Prior research suggests that SBA programs gave preference to minority owned businesses (Craig et al., 2007a), but another study found that black-owned businesses received less Paycheck Protection Program (PPP) funding from the SBA (Atkins et al., 2022). Studies on productivity and economic growth at the state level show that states with a higher growth rate in the Hispanic population have increased productivity as compared to other states (Amato et al., 2022; Coates & Gindling, 2012). Ultimately, considering minority populations as a control variable reinforces the need for a comprehensive understanding of the relationship between the SBA and employment for each state.

The US Department of Commerce Bureau of Economic Analysis (BEA) identifies eight regions for comparison and reporting of economic data (Li, K., et al., 2021). Prior research utilizes BEA regions as the best representation of US economic regions (Crone, 2005) as they provide a systematic and standardized approach for classifying geographic areas based on economic similarities and interdependencies. Incorporating the BEA economic regions as a control variable (Table 13) in this study allows for the examination of regional variations in the relationship between the SBA and employment.

Table 13

US Economic Region

Region	Assigned Identifier	States Included	Region	Assigned Identifier	States Included
Far West	1	AK, CA, HI, NV, OR, WA	Plains	5	IA, KS, MN, MO, ND, NE, SD
Great Lakes	2	IL, IN, MI, OH, WI	Rocky Mountain	6	CO, ID, MT, UT, WY
Mideast	3	DC, DE, MD, NJ, NY, PA	Southeast	7	AL, AR, FL, GA, KY, LA, MS, NC, SC, TN, VA, WV
New England	4	CT, MA, ME, NH, RI, VT	Southwest	8	AZ, NM, OK, TX

Source: Li, K. et al., 2021

CHAPTER 4: RESULTS

The arguments presented previously suggest that SBA programs not only influence individual businesses, but also influence economic growth by increasing employment. Prior research supports a relationship between SBA financing and employment but the time lag to observe the output of the relationship is not well established. Variable time periods were considered when studying the relationship between a credit guarantee scheme (CGS), such as the SBA, and its influence on the national economy (Brown & Earle, 2017; Cowling & Siepel, 2012; Lee & Lee, 2021; Medoff et al., 1990; Neumark et al., 2011). These prior studies contributed meaningful results to the body of existing literature but did not specifically address the SBA by using a set time period and considering state level employment as the dependent variable. The prior studies did, however, contribute to the theoretical foundation for Hypothesis 1 which predicts that annual SBA volume, measured by GrossApproval dollars, influences the change in state-level employment. Given that job creation resulting from the 7(a) and 504 programs may not be immediate and the business has up to two years to create the jobs under the 504 program (US SBA, 2023), a two year lag was hypothesized, creating the twoyrchangeemploy variable.

Hypothesis 2 suggests potential endogeneity between SBA loan volume and employment as causality may be bi-directional. Clearly there is basis for believing that causality runs from loan volume to employment growth given that increased employment constitutes a major program goal for SBA lending (SBA). The argument for causality running from state level change in annual employment to SBA financing volume is supported by research suggesting that economic growth leads to increased entrepreneurial activity and demand for financing (Alsaaty & Makhlouf, 2020; Calza et al., 2003; Leebaert, 2006). Further research also suggests that current business owners pursue SBA financing in response to economic growth (Cortes, 2010).

It is unrealistic to expect that the relationship between GrossApproval and the change in employment exists without moderating factors. The study considers three key moderators on the relationship, firm age, state political leanings, and average loan size. Consistent with prior research, Hypothesis 3 predicts that firm age moderates the relationship between GrossApproval and Twoyrchangeemploy (Cressy & Toivanen, 2001; Dilger, 2014; Gale & Brownm, 2013; Levenson & Willard, 2000; Nguyen & Cahn, 2020; Steijvers & Voordeckers; 2009, Rao, et al., 2021). Hypothesis 4 suggests that a state's political leaning moderates the relationship between economic growth, represented by employment, and GrossApproval (Blomberg & Hess, 2003; Duchin & Hackney, 2021). Hypothesis 5 indicates that AvgLoanSz also moderates the relationship between GrossApproval and the change in employment at the state level as the size of the loan determines the required number of jobs to be created or retained (US SBA, n.d.b).

The hypothesized causal relationship between the two variables, along with the moderating effects, is resolved by including CDC as an instrumental variable in the following Two Stage Least Squares (2SLS) regression model. According to Stock & Watson (2015), 2SLS with an instrumental variable is an appropriate model when there is a single dependent variable represented on the left-hand side of the equation. There must also be a relationship between the instrument and the independent variable such that the impact from the instrument to the dependent variable can only occur through the independent variable. The instrument presents an opportunity to account for the endogenous relationship between loan approval and employment growth (Zach, 2020). The SBA requires a business to obtain 504 financing through a CDC (Advocacy, 2021) but the CDC may also assist the business with obtaining 7(a) financing, which suggests that the influence of the CDC instrument on changes in employment can only occur through GrossApproval.

First Stage Equation

$$GrossApproval=\beta_0+\beta_1 Program+\beta_2 BusinessAge+\beta_3 AvgLoanSz+\beta_4 AvgGtyAmt+\beta_5 Minor+\beta_6 MinorHis+\beta_7 NonMetroGrossappr+\beta_8 JobsSupported+\beta_9 StateUnem+\beta_{10} region1+\beta_{11} region2+\beta_{12} region3+\beta_{13} region4+\beta_{14} region5+\beta_{15} region6+\beta_{16} region8+\beta_{17} Red+\beta_{18} Blue+\beta_{19} CDC+\varepsilon$$

Second Stage Equation

$$Twoyrchangeemploy=\gamma_0+\gamma_1 GrossApproval_{predicted}+\gamma_2 Program+\gamma_3 BusinessAge+\gamma_4 AvgLoanSz+\gamma_5 AvgGtyAmt+\gamma_6 Minor+\gamma_7 MinorHis+\gamma_8 NonMetroGrossappr+\gamma_9 JobsSupported+\gamma_{10} StateUnem+\gamma_{11} region1+\gamma_{12} region2+\gamma_{13} region3+\gamma_{14} region4+\gamma_{15} region5+\gamma_{16} region6+\gamma_{17} region8+\gamma_{18} Red+\gamma_{19} Blue+\gamma_{120} cons+\eta$$

Political Party and CDC Support Correlation Analysis

Prior research and study hypotheses suggest that Republican, or red states, will be associated with higher job creation and retention than Democratic, or blue, states. The 2SLS regression analysis specifically considers the moderating effect of political party on the relationship between GrossApproval and the change in employment. It also considers the role of the CDC variable as an instrumental variable. However, the regression does not specifically address the relationship between the political leanings of each state and the CDC support provided to each state. Data shows a range of in-state CDCs from eighteen in California to zero in Alaska, West Virginia, and DC (Table 4). The data also show that the average number of small businesses per CDCC ranges from 15,809 in DC to 2.1million in California (Table 4). It is clear there is a broad discrepancy in the availability of CDC support state-by-state.

Given the proposed use of the CDC as instrumental variable in the 2SLS regression, correlation analysis was conducted to assess the strength of the relationship between state political leanings and CDC support available to each state. The purpose of the correlation analysis is to confirm CDC as an appropriate instrumental variable by ruling out the potential influence of state political leanings on the number of CDCs at the state level. High correlation

results between the political party and CDC variables could invalidate the 2SLS regression model with CDC as the instrument.

The correlation matrix compiled using data from 2020-2022 reveals insight into the political influence on the number of CDCs in a state. The negative correlation of -0.5575 (Table 14) between the two political parties suggests an inverse relationship consistent with their polarized ideologies, implying that as one party's influence or support increases, the other party's support and influence decreases. Of particular interest to the current study, however, is the correlation of each party's influence with the CDC variable, which indicates the number of CDCs actively supporting a specific state. Given the negative correlations between these two variables, it would be expected that the correlation results of each political party with CDC would be opposite from each other as the differing policy and budgetary priorities of the parties may influence the location and establishment of CDCs in any given state.

Table 14

CDC and Political Leaning Correlation, 7(a) and 504 Data

	Red	Blue	CDC
Red	1.00		
Blue	-0.5575	1.00	
CDC	0.0631	-0.0087	1.00

The correlation coefficient of 0.0631 (Table 14) between Republican states and CDC suggests an extremely weak positive relationship, and the negative correlation of -0.0087 (Table 14) between Democratic states and CDC suggests an extremely weak negative relationship. It is important to note that these correlations suggest that the political party identity of a state does not

determine the number of CDCs that support the same state. The absence of a meaningful correlation between CDC and a state's political leanings eliminates concerns and supports the use of CDC as the instrument to address endogeneity in the 2SLS regression model.

2SLS Regression Results

The use of the 2SLS regression model produced mixed results. The first stage includes GrossApproval as the dependent variable of interest and creates a predicted value for GrossApproval, $GrossApproval_{predicted}$, which is then used in the second stage equation on the right-hand side in place of GrossApproval. The first stage results report an F-statistic of 103.45 implying the overall model has substantial explanatory power. The reported R-Square value of .8730 suggests the included model variables collectively explain about 87.30% of the variance in GrossApproval (Table 15). According to Stock and Watson (2015), the F-statistic should be greater than 10 in instrumental variable analysis to rule out weak instruments, a value that this model exceeded by ten-fold, providing a very comfortable margin. The data set described in Chapter 3, in context of Stock and Watson's criteria, produces results that establish confidence in the strength of the model. The model also encompasses a strong instrumental variable, CDC, with a p-value less than 0.05 providing evidence of instrument validity. In applying the criteria identified by Stock & Watson (2015), the results appear to reflect an overall significant fit, while a review of individual coefficients offers insight into the statistical significance of each variable. In addition to CDC, other variables including MinorHis, NonMetroGrossapprv, JobsSupported, StateUnem, region2, region 5, and region8 all report p-values less than the significance threshold of 0.05, suggesting that the coefficients for these variables are significantly different from zero and provide confidence that they contribute to the variation in GrossApproval (Table 15). However, the individual coefficients for multiple moderating and control variables, including Program, BusinessAge, AvgLoanSz, AvgGtyAmt, Minor, region1, region3, region4, region6,

Red, and Blue report p-values exceeding the significance threshold of 0.05, indicating no statistical significance in these relationships when analyzing the pool of years 2020-2022 (Table 15).

The estimated coefficients obtained from estimating the first stage are found in Table 15 with coefficients for the second stage regression found in Table 16. The second stage equation examines the impact of the $GrossApproval_{predicted}$ variable, calculated in stage one, on the dependent variable Twoyrchangeemploy. Table 16 reports the Wald chi-square statistic of the pooled 2020-2022 data, used to test the joint significance of all coefficients, result of 469.44 which reflects the overall joint significance of the model. With a p-value of 0.749, the coefficient for GrossApproval fails to reach statistical significance at the 0.05 level suggesting the inability to establish a statistically significant relationship with TwoyrchangEmploy. The moderating and control variables Minor, MinorHis, NonMetroGrossappr, JobsSupported, region2, region3, region6, region8, Red, and Blue also failed to reach statistical significance at the .05 level. While certain variables such as Program, BusinessAge, AvgLoanSz, AvgGtyAmt, StateUnem, region1, region4, and region5 reflect statistical significance, the overall R-Square value of 0.6073 indicates a strong model that explains 60.73% of variation in Twoyrchangeemploy (Table 16).

The findings using pooled data from 2020-2022 do not offer significant support for the hypotheses, including the primary independent variable that is the primary focus of this study. These findings highlight the potential presence of other factors, especially for the time period of 2020-2022 when the COVID pandemic played a role in influencing national, state, and local economies.

Table 15

First Stage Regression Results: GrossApproval and Twoyrchangeemploy

		Pooled '20-'22		2020		2021		2022	
	F-Statistic	103.45*		29.18*		61.58*		21.65*	
	R-Square	.8730		0.8712		0.9345		0.8338	
	Adj. R-Square	.8645		0.8413		0.9193		0.7953	
Variable	Type	Coeff. (t stat)	p>|t|	Coeff. (t stat)	p>|t|	Coeff. (t stat)	p>|t|	Coeff. (t stat)	p>|t|
Program	Moderator	1.57e+08 (1.36)	0.176	2.37e+07 (0.15)	0.883	2.96e+08 (1.38)	0.172	-2.38e+08 (-0.73)	0.47
BusinessAge	Moderator	1.00e+08 (0.45)	0.652	2.54e+08 (0.85)	0.401	1.35e+08 (0.36)	0.723	7.25e+08 (1.07)	0.286
AvgLoanSz	Moderator	-59.6821 (-0.55)	0.585	148.3684 (0.61)	0.542	-240.057 (-1.32)	0.191	330.6894 (0.89)	0.375
AvgGtyAmt	Moderator	356.2945 (1.45)	0.148	-323.3113 (-0.56)	0.58	673.0335 (1.57)	0.12	-454.163 (-0.52)	0.608
Minor	Control	1837238 (1.11)	0.268	5403699 (1.94)	0.055*	1848723 (0.71)	0.481	231750 (0.06)	0.949
MinorHis	Control	1.07e+07 (4.32)	0.00**	1.02e+07 (2.90)	0.005**	1.10e+07 (2.56)	0.012**	1.52e+07 (2.79)	0.007**
NonMetroGrossappr	Control	2.20e+08 (3.35)	0.001**	1.35e+08 (1.49)	0.139	3.18e+08 (2.82)	0.006**	2.42e+08 (1.65)	0.103
JobsSupported	Moderator	57915.31 (23.72)	0.00**	51539 (11.89)	0.00**	64323.89 (19.28)	0.00**	53686.25 (9.59)	0.00**
StateUnem	Control	-1.55e+07 (-2.06)	0.04**	-3.73e+07 (-2.25)	0.027**	3.49e+07 (-1.13)	0.262	-1.57e+08 (-2.45)	0.016**
region1	Control	9.58e+07 (1.60)	0.111	9.58e+07 (1.07)	0.289	9.35e+07 (0.97)	0.333	2.36e+08 (1.67)	0.098*
region2	Control	-1.46e+08 (-1.83)	0.014**	-8.21e+07 (-0.95)	0.343	-2.43e+08 (-2.49)	0.015**	-7.42e+07 (-0.58)	0.565
region3	Control	-1.12e+08 (-1.83)	0.069*	-1.01e+08 (-1.14)	0.258	-8.93e+07 (-0.85)	0.40	-1.18e+08 (-0.87)	0.389
region4	Control	2.50E+07 (0.35)	0.727	3.66e+07 (0.35)	0.728	3.56e+07 (0.31)	0.76	-7.23e+07 (-0.58)	0.565
region5	Control	-1.26e+08 (-2.31)	0.022**	-14.2e+08 (-1.82)	0.072*	-1.76e+08 (-1.91)	0.059*	-2.91e+08 (-2.11)	0.038**
region6	Control	-4.28e+07 (-0.70)	0.483	-3.10e+07 (-0.35)	0.762	-8.50E+07 (-0.86)	0.394	-1.41e+08 (-0.99)	0.327
region8	Control	-.05e+08 (-4.01)	0.00**	-2.97e+08 (-2.66)	0.009**	-3.15e+08 (-2.58)	0.012**	-3.81e+08 (-2.33)	0.022**
Red	Moderator	-1.45e+07 (-0.39)	0.696	-2.48e+07 (-0.46)	0.644	2577712 (0.04)	0.965	-2.63e+07 (-0.33)	0.744
Blue	Moderator	6186306 (0.12)	0.906	-5812182 (-0.08)	0.938	2.23e+07 (0.27)	0.791	4.09e+07 (0.36)	0.722
CDC	Instrumental	3.02e+07 (6.28)	0.00**	2.91e+07 (4.13)	0.00**	3.15e+07 (4.15)	0.00**	3.70e+07 (3.45)	0.001**

Notes: ** denotes significance at the 95 confidence interval; *denotes significance at the 90 confidence interval. T-statistic reported in parentheses.

Table 16

Second Stage Regression Results: GrossApproval and Twoyrchangeemploy

		Pooled '20-'22		2020		2021		2022	
	Wald Chi2	469.44		213.57		177.03		135.05	
	R-Square	0.6073		0.6513		0.6339		0.5565	
Variable	Type	Coeff. (z value)	p>|z|	Coeff. (z value)	p>|z|	Coeff. (z value)	p>|z|	Coeff. (z value)	p>|z|
GrossApproval	Independent	7.62e-12 (0.32)	0.749	4.59e-11 (1.63)	0.104	1.93e-12 (0.11)	0.913	-4.20e-11 (-1.79)	0.074*
Program	Moderator	-0.07377 (-4.26)	0.00**	-0.051848 (-2.45)	0.014**	0.0076157 (0.47)	0.639	0.021073 (0.76)	0.445
BusinessAge	Moderator	0.0898578 (2.67)	0.008**	0.0927761 (2.57)	0.010**	-0.006183 (-0.22)	0.826	-0.049178 (-0.83)	0.405
AvgLoanSz	Moderator	8.75e-08 (5.36)	0.00**	-7.18e-09 (-0.25)	0.800	-1.32e-08 (-0.93)	0.352	4.03e-08 (1.30)	0.194
AvgGtyAmt	Moderator	-2.08e-07 (-5.47)	0.00**	1.85e-08 (0.27)	0.785	4.40e-08 (1.27)	0.205	-9.47e-08 (1.30)	0.186
Minor	Control	0.0003225 (1.35)	0.178	-0.001170 (-3.71)	0.00**	-0.000508 (-2.76)	0.006**	0.0014948 (5.13)	0.00**
MinorHis	Control	0.00091036 (1.79)	0.073*	-0.00029 (-0.52)	0.605	0.0003433 (0.83)	0.407	0.0012835 (2.03)	0.043**
NonMetroGrossappr	Control	-0.0071164 (-0.66)	0.507	-.0189432 (-1.77)	0.077*	0.0021494 (0.23)	0.821	-0.0028778 (-0.21)	0.83
JobsSupported	Moderator	-1.32e-07 (-0.08)	0.933	-2.75e-06 (-1.59)	0.112	-1.85e-07 (-0.15)	0.881	2.51e-06 (1.64)	0.10*
StateUnem	Control	-0.0214846 (-18.80)	0.00**	-0.006592 (-3.10)	0.002**	-0.010582 (-4.57)	0.00**	-0.0054558 (-0.91)	0.365
region1	Control	0.021152 (2.26)	0.024**	-0.004402 (-0.40)	0.688	0.0010901 (0.15)	0.881	0.0241085 (1.85)	0.064*
region2	Control	-0.0082537 (-0.97)	0.334	-0.016303 (-1.68)	0.094*	-0.01305 (-1.82)	0.069*	-0.0091224 (-0.91)	0.365
region3	Control	-0.0018332 (-0.19)	0.851	0.0118563 (1.10)	0.273	-0.010584 (-1.33)	0.183	-0.0291276 (-2.49)	0.013**
region4	Control	-0.0244802 (-2.30)	0.021**	-0.035227 (-2.90)	0.004**	-0.027163 (-3.22)	0.001**	-0.0045175 (-0.34)	0.735
region5	Control	-0.027121 (-3.43)	0.001**	-0.005516 (-0.62)	0.536	-0.014707 (-2.25)	0.025**	-0.0011753 (-1.05)	0.294
region6	Control	0.0063653 (0.69)	0.493	0.0178884 (1.72)	0.085*	0.0110438 (1.47)	0.142	0.0191426 (1.57)	0.116
region8	Control	0.0048882 (0.36)	0.719	0.0439404 (2.86)	0.004**	0.02109 (1.99)	0.046**	-0.0327456 (-2.04)	0.041**
Red	Moderator	-0.0012551 (-0.23)	0.819	0.0062718 (1.02)	0.308	0.0057256 (1.33)	0.184	-0.0103227 (-1.61)	0.107
Blue	Moderator	0.0011672 (0.15)	0.882	0.0044763 (0.52)	0.606	0.0042424 (0.68)	0.493	-0.0017709 (-0.19)	0.852

Notes: ** denotes significance at the 95 confidence interval; *denotes significance at the 90 confidence interval. Z-value reported in parentheses.

The 2SLS regression analysis of the pooled years of 2020-2022 overlooks nuances of each year. The pooled results of the model are weak, but that may be due to the fact that panel data analysis cannot be incorporated into the study as non-SBA state level variables did not change year to year. Consequently, the decision to analyze each year individually is not only a response to the absence of time-varying state-level data but also a choice to investigate whether the model performs differently for individual years. The observed lack of statistical significance

in the first and second stages leads to a closer review of potential variation that may have been missed in the pooled analysis of 2020-2022. Analyzing each individual year allows for a better understanding of the factors that influence Gross Approval and the impact on Twoyrchangeemploy over the three-year span. Executing the model separately for each year, particularly in context of the timing of the COVID pandemic that occurred during a portion of the years included in the study, allows for assessment of pandemic impacts experienced at the state-level. As economic conditions change over time, with conditions changing rapidly during COVID, a detailed analysis of each year provides an opportunity to capture fluctuations that may contribute to the overall findings of the study. The focus shifts towards individual years in the upcoming section and changes over time enabling a more comprehensive understanding of the economic complexity over a specified period of time.

2020 Individual Year Results: GrossApproval and Twoyrchangeemploy

The first-stage regression results for the year 2020 revealed a reported F-statistic of 29.18 with a significance level of 0.05 indicates the model, as a whole, has significant explanatory power. The reported R-Square value of .8712 suggests the included model variables collectively explain about 87.12% of the variance in GrossApproval (Table 15). Applying Stock & Watson's criteria requiring an F-statistic greater than 10 and a statistically significant coefficient for the instrument, results appear to reflect an overall significant fit of the model at the first stage. As with the pooled model, the CDC instrument also indicates statistical significance supporting validity of the selected model. In addition to CDC, the MinorHis, JobsSupported, StateUnem, and region8 variables all report p-values less than the significance threshold of 0.05, suggesting that the coefficients for these variables are significantly different from zero and provide confidence that they contribute to the variation in GrossApproval. However, the individual

coefficients for multiple moderating and control variables, including Program, BusinessAge, AvgLoanSz, AvgGtyAmt, Minor, NonMetroGrossappr, region1, region2, region3, region4, region5, region6, Red, and Blue report p-values exceeding the significance threshold of 0.05, indicating they are not significant when analyzing 2020 individually (Table 15).

As with the previously discussed pooled model, the second stage of the analysis examines the impact of the predicted GrossApproval variable on the dependent Twoyrchangeemploy variable with similar results. The Wald chi-square statistic, used to test the joint significance of all coefficients, result of 213.57 reflects the overall joint significance of the model. Looking more deeply at the individual variable results, with a p-value of 0.104 the coefficient for GrossApproval fails to reach statistical significance at the 0.05 level suggesting the inability to establish a significant relationship with Twoyrchangeemploy. The moderating and control variables AvgLoanSz, AvgGtyAmt, MinorHis, NonMetroGrossappr, JobsSupported, region1, region2, region3, region5, region6, Red, and Blue also failed to reach statistical significance at the .05 level. While certain variables such as Program, BusinessAge, Minor, StateUnem, region4, and region8 reflect statistical significance, the overall R-Square value of 0.6513 indicates the model explains 65.13% of the variance in the dependent variable, Twoyrchangeemploy (Table 16). While the overall model is a strong fit, the individual variables do not support the hypothesis.

These overall findings of the model using data from 2020 are consistent with the pooled results previously reported with the presence of statistical significance in some variables but not in others, including a lack of significance for the independent variable that is the primary focus of this study. The first-stage results suggest the existence of a strong relationship between the number of CDCs and loan approval at the state level.

2021 Individual Year Results: GrossApproval and Twoyrchangeemploy

Extending the analysis to 2021, a review of the first-stage regression provides results similar to those for 2020 into the variables influencing GrossApproval during the specific period. The reported F-statistic of 61.58 indicates the model, as a whole, has significant explanatory power, and the reported R-Square value of .9345 suggests the included model variables collectively explain about 93.45 % of the variance in GrossApproval (Table 15). Once again, the F-statistic of 61.58 satisfies Stock and Watson's greater than 10 criteria (2015). The instrumental variable, CDC, continues to reflect statistical significance at 0.05 suggesting the data for 2021 is a good fit for the model. Consistent with the results of the pooled and 2020 analysis, in addition to CDC the MinorHis, NonMetroGrossappr, JobsSupported, region2, and region8 variables all report p-values less than the significance threshold of 0.05, suggesting that the coefficients for these variables are significantly different from zero and provide evidence that they contribute to the variation in GrossApproval. However, the individual coefficients for multiple moderating and control variables, including Program, BusinessAge, AvgLoanSz, AvgGtyAmt, Minor, StateUnem, region1, region3, region4, region5, region6, Red, and Blue report p-values exceeding the significance threshold of 0.05, which challenges the statistical significance of these relationships when analyzing 2021 individually (Table 15).

The second stage of the analysis for 2021 produces similar results to the pooled and 2020 results.The Wald chi-square statistic result of 177.03 reflects the overall joint significance of the model. Examining the individual variable results, the coefficient for GrossApproval fails to reach statistical significance at the .05 level suggesting the inability to establish a significant relationship with Twoyrchangeemploy (Table 16). The moderating and control variables Program, BusinessAge, AvgLoanSz, Avg GtyAmount, MinorHis, NonMetroGrossappr,

JobsSupported, region1, region2, region3, region6, Red, and Blue also failed to reach statistical significance at the .05 level. While certain variables such as Minor, StateUnem, region4, region5, and region8 reflect statistical significance, the overall R-Square value of 0.6339 indicates the model explains 63.39% of the variation in Twoyrchangeemploy (Table 15). While the overall model is a strong fit, the individual variables do not support the respective hypotheses

These overall findings of the model using data from 2021 are consistent with the previously reported pooled and 2020 model results with the presence of statistical significance in some variables but not in others, including the primary independent variable. Even though several of the individual variables lack statistical significance, the CDC instrumental variable does have a robust effect on GrossApproval and can be considered a meaningful contributor to the overall study results. The 2021 results continue to collectively suggest the chosen instruments effectively report important information leading to a better understanding of the relationships within the model, regardless of the lack of statistical significance in certain individual variables.

2022 Individual Year Results: GrossApproval and Twoyrchangeemploy

Extending the individual year analysis to 2022, a review of the first-stage regression provides additional evidence regarding the variables influencing GrossApproval during the specific period. The reported F-statistic of 21.65 indicates the model, as a whole, has good explanatory power, and the reported R-Square of .8338 indicating that the included variables collectively explain about 83.38% of the variance in GrossApproval (Table 15). Consistent with the pooled, 2020, and 2021 results, CDC continues to provide statistically significant results at 0.01 indicating a robust relationship. Five additional variables including MinorHis, JobsSupported, StateUnem, region5, and region8 also report p-values less than the significance threshold of 0.05, suggesting that the coefficients for these variables are significantly different

from zero and provide confidence that they contribute to the variation in GrossApproval. However, the individual coefficients for other moderating and control variables, including Program, BusinessAge, AvgLoanSz, AvgGtyAmt, Minor, NonMetroGrossappr, region1, region2, region3, region4, region6, Red, and Blue report p-values exceeding the significance threshold of 0.05, which opposes the statistical significance of these relationships when analyzing 2022 individually (Table 15).

As in the cases of the pooled, 2020, and 2021 models, the second stage of the analysis for 2022 examines the impact of the predicted GrossApproval variable on the dependent Twoyrchangeemploy. The Wald chi-square statistic result of 135.05 reflects the overall joint significance of the model. Looking more deeply at the individual variable results, with a p-value of 0.074 the coefficient for GrossApproval does not reach statistical significance at the 95th confidence interval but does reach statistical significance at the 90th confidence interval which suggests a possible relationship with ChangeEmploy. However, the moderating and control variables Program, BusinessAge, AvgLoanSz, AvgGtyAmt, NonMetroGrossappr, JobsSupported, StateUnem, region1, region2, region4, region5, region6, Red, and Blue all failed to reach statistical significance at the .05 level. While the Minor, MinorHis, region3, and region8 variables reflect statistical significance at the .05 level, the overall R-Square value of 0.5565 indicates the model explains over 55% of the variation in Twoyrchangeemploy (Table 16), which remains a strong fit for the cross-sectional data even with a decline in the result from 2020 and 2021.

A lower R-Square in 2022 may be attributed to various factors influencing the relationship between the variables. Changes in external factors and economic conditions can impact the explanatory power of a model from one year to the next, and as variables may evolve

over time it may lead to fluctuations in the model's explanatory ability. The study data, however, does not reflect a "persistent long-term movement of a variable over time" (Stock &Watson, 2015) leading to the inference that the variation in R-Square year over year may be due to external factors and economic conditions instead of a trend in variable evolution.

The explanatory power of the model dropped from 63.39 in 2021 to 55.65 in 2022 (Table 16), which may be a result of COVID influences. The 2021 results were generated from a dependent variable expressing the percentage change in employment from 2019, which was pre-pandemic, to 2021, which was at the end of the pandemic. The 2022 results were generated from a dependent variable expressing the percentage change in employment from 2020, at the height of the pandemic, to 2022, which was post-pandemic.

The distinctive results for 2022 as compared to the pooled, 2020, and 2021 results may be an indication of the economic landscape shaped by the COVID-19 pandemic. The ongoing global health crisis that began in 2020 led to unprecedented disruptions in various industries with regional and state-level differences due to degree and length of lockdown that influenced local, state, and national economics. The varying impact across regions and industries may contribute to the variation in the relationship between GrossApproval and changes in employment at the state level during 2022 as the nation was finally emerging from the pandemic, but the speed of "returning to normal" varied state to state. Factors such as lockdowns, supply chain disruptions, change in consumer behavior, and availability of Paycheck Protection Program (PPP) during 2020 and 2021 may have influenced business owner's decisions, specifically related to increasing debt for business creation or expansion, which led to an influence on employment outcomes (Ballew et al., 2022; CARES, 2021; Duchin et al., 2021; Humphries et al., 2020a). Overall findings of the model using data from 2022 alone vary from the pooled, 2020, and 2021

findings as they are consistent with the hypotheses of the current study in that the results indicate a statistically significant relationship between GrossApproval and ChangeEmploy through the CDC instrumental variable at the 90% confidence internal. While the 2022 model captures significant variables, the effects of the pandemic on employment patterns reinforce the importance of considering a broader context when interpreting the results of all four models.

ChangeEmploy as the Dependent Variable

While Hypothesis 1 specifically studies the relationship between GrossApproval and employment changes at the state level using a two year lag, Hypotheses 2, 3, and 4 do not. To further study H2, H3, and H4 the same model was utilized for the years 2020 – 2022 on a pooled basis and on each year individually, but the time period for the dependent variable was modified and reflected as ChangeEmploy. The only difference between the Twoyrchangeemploy and ChangeEmploy variables is the time period represented as they both measure year-over-year change in the employment rate at the state-level as reflected in the modified second stage equation.

Second Stage Equation

$$ChangeEmply = \gamma_0 + \gamma_1 GrossApproval_{predicted} + \gamma_2 Program + \gamma_3 BusinessAge + \gamma_4 AvgLoanSz + \gamma_5 AvgGtyAmt + \gamma_6 Minor + \gamma_7 MinorHis + \gamma_8 NonMetroGrossappr + \gamma_9 JobsSupported + \gamma_{10} StateUnem + \gamma_{11} region1 + \gamma_{12} region2 + \gamma_{13} region3 + \gamma_{14} region4 + \gamma_{15} region5 + \gamma_{16} region6 + \gamma_{17} region8 + \gamma_{18} Red + \gamma_{19} Blue + \gamma_{120} cons + \eta$$

Consistent with the use of the two-stage least square (2SLS) regression analysis in the initial model, the results, which can be found in Table 17, were mixed when using the model with ChangeEmploy as the dependent variable. The first stage includes GrossApproval as the endogenous variable of interest and creates a predicted value for GrossApproval. The key findings for the first stage were identical for both ChangeEmply and Twoyrchangeemploy (Table 15 and Table 17) when analyzing the combined years of 2020 - 2022.

The use of the 2SLS regression model produced mixed results. The first stage includes GrossApproval as the endogenous variable of interest and creates a predicted value for GrossApproval. The reported F-statistic of 103.45, which clearly exceeds Stock and Watson's criteria of 10, implies that the overall model had substantial explanatory power, and the reported R-Square value of .8730 suggests the included model variables collectively explain about 87.30% of the variance in GrossApproval (Table 17), exceeding the Stock & Watson (2015) requirement of greater than 10. The high F-statistic and R-Square suggest a collective statistical significance in the model's explanatory variables indicating a joint contribution to explaining the variance in the dependent variable. The model also encompasses a strong instrumental variable, CDC, with a p-value result of less than 0.05 providing evidence of instrument validity. In addition to CDC, variables MinorHis, NonMetroGrossapprv, JobsSupported, StateUnem, region2, region 5, and region8, all report p-values less than the significance threshold of 0.05, suggesting that the coefficients for these variables are significantly different from zero and confirm that these variables contribute to explaining the variation in GrossApproval (Table 17). However, the individual coefficients for several moderating and control variables, including Program, BusinessAge, AvgLoanSz, AvgGtyAmt, Minor, region1, region3, region4, region6, Red, and Blue report p-values exceeding the significance threshold of 0.05, indicating these variables are individually insignificant when analyzing the pooled model (2020-2022) (Table 17).

The second stage of the analysis examines the impact of the $\text{GrossApproval}_{\text{predicted}}$ variable on the dependent ChangeEmploy variable through the CDC instrument. The results, while similar, are slightly different than the results from the model using Twoyrchangeemploy. The Wald chi-square statistic, used to test the joint significance of all coefficients, result of

684.98 reflects the overall joint significance of the model (Table 18). However, the coefficient for GrossApproval fails to reach statistical significance at the 0.05 level suggesting the inability to establish a significant relationship with ChangeEmploy. The moderating and control variables Program, BusinessAge, NonMetroGrossappr, JobsSupported, region2, region3, region4, region6, region8, Red, and Blue also failed to reach statistical significance at the .05 level. The overall R-Square value of 0.6986 indicates a strong overall model fit with the model explaining 69.86% of variation in ChangeEmploy (Table 18). Additional, certain variables such as AvgLoanSz, AvgGtyAmt, Minor, MinorHis, StateUnem, region1, and region5 are statistically significant reflect statistical significance.

As with the initial model, the overall findings using pooled data from 2020-2022 require a critical evaluation of the model's reliability, with the presence of statistical significance in some variables but not in others, including the primary independent variable. These findings continue to highlight the potential presence of other factors, especially for the time period of 2020-2022 when the COVID pandemic played a role in influencing national, state, and local economies.

Table 17

First Stage Regression Results: GrossApproval and ChangeEmploy

		Pooled '20-'22		2020		2021		2022	
	F-Statistic	103.45*		29.18*		61.58*		21.65*	
	R-Square	0.8730		0.8712		0.9345		0.8338	
	Adj. R-Square	0.8645		0.8413		0.9193		0.7953	
Variable	Type	Coeff. (t-value)	p>|t|	Coeff. (t-value)	p>|t|	Coeff. (t-value)	p>|t|	Coeff. (t-value)	p>|t|
Program	Moderator	1.57e+08 (1.36)	0.176	2.37e+07 (0.15)	0.883	2.96e+08 (1.38)	0.172	-2.38e+08 (-0.73)	0.47
BusinessAge	Moderator	1.00e+08 (0.45)	0.652	2.54e+08 (0.85)	0.401	1.35e+08 (0.36)	0.723	7.25e+08 (1.07)	0.286
AvgLoanSz	Moderator	-59.6821 (-0.55)	0.585	148.3684 (0.61)	0.542	-240.057 (-1.32)	0.191	330.6894 (0.89)	0.375
AvgGtyAmt	Moderator	356.2945 (1.45)	0.148	-323.3113 (-0.56)	0.58	673.0335 (1.57)	0.12	-454.163 (-0.52)	0.608
Minor	Control	1837238 (1.11)	0.268	5403699 (1.94)	0.055*	1848723 (0.71)	0.481	231750 (0.06)	0.949
MinorHis	Control	1.07e+07 (4.32)	0.00**	1.02e+07 (2.90)	0.005**	1.10e+07 (2.56)	0.012**	1.52e+07 (2.79)	0.007**
NonMetroGrossappr	Control	2.20e+08 (3.35)	0.001**	1.35e+08 (1.49)	0.139	3.18e+08 (2.82)	0.006**	2.42e+08 (1.65)	0.103
JobsSupported	Moderator	57915.31 (23.72)	0.00**	51539 (11.89)	0.00**	64323.89 (19.28)	0.00**	53686.25 (9.59)	0.00**
StateUnem	Control	-1.55e+07 (-2.06)	0.04**	-3.73e+07 (-2.25)	0.027**	3.49e+07 (-1.13)	0.262	-1.57e+08 (-2.45)	0.016**
region1	Control	9.58e+07 (1.60)	0.111	9.58e+07 (1.07)	0.289	9.35e+07 (0.97)	0.333	2.36e+08 (1.67)	0.098*
region2	Control	-1.46e+08 (-1.83)	0.014	-8.21e+07 (-0.95)	0.343	-2.43e+08 (-2.49)	0.015**	-7.42e+07 (-0.58)	0.565
region3	Control	-1.12e+08 (-1.83)	0.069*	-1.01e+08 (-1.14)	0.258	-8.93e+07 (-0.85)	0.40	-1.18e+08 (-0.87)	0.389
region4	Control	2.50E+07 (0.35)	0.727	3.66e+07 (0.35)	0.728	3.56e+07 (0.31)	0.76	-7.23e+07 (-0.58)	0.565
region5	Control	-1.26e+08 (-2.31)	0.022**	-14.2e+08 (-1.82)	0.072*	-1.76e+08 (-1.91)	0.059*	-2.91e+08 (-2.11)	0.038**
region6	Control	-4.28e+07 (-0.70)	0.483	-3.10e+07 (-0.35)	0.762	-8.50E+07 (-0.86)	0.394	-1.41e+08 (-0.99)	0.327
region8	Control	-.05e+08 (-4.01)	0.00**	-2.97e+08 (-2.66)	0.009**	-3.15e+08 (-2.58)	0.012**	-3.81e+08 (-2.33)	0.022**
Red	Moderator	-1.45e+07 (-0.39)	0.696	-2.48e+07 (-0.46)	0.644	2577712 (0.04)	0.965	-2.63e+07 (-0.33)	0.744
Blue	Moderator	6186306 (0.12)	0.906	-5812182 (-0.08)	0.938	2.23e+07 (0.27)	0.791	4.09e+07 (0.36)	0.722
CDC	Instrumental	3.02e+07 (6.28)	0.00**	2.91e+07 (4.13)	0.00**	3.15e+07 (4.15)	0.00**	3.70e+07 (3.45)	0.001**

Notes: ** denotes significance at the 95 confidence interval; *denotes significance at the 90 confidence interval. T-statistic reported in parentheses

Table 18

Second Stage Regression Results: GrossApproval and ChangeEmploy

		Pooled '20-'22		2020		2021		2022	
	Wald Chi2	684.98		247.54		141.54		57.49	
	R-Square	0.6986		0.6989		0.5731		0.3076	
Variable	Type	Coeff. (z value)	p>|z|	Coeff. (z value)	p>|z|	Coeff. (z value)	p>|z|	Coeff. (z value)	p>|z|
GrossApproval	Independent	-1.38e-11 (-0.76)	0.45	3.53e-11 (1.48)	0.138	-3.35e-11 (-1.64)	0.101	-2.11e-11 (-1.86)	0.063*
Program	Moderator	0.0101911 (0.77)	0.443	-0.041289 (-2.32)	0.02**	-0.0136667 (-0.72)	0.47	0.004675 (0.35)	0.726
BusinessAge	Moderator	0.0373941 (1.45)	0.147	0.0817289 (2.69)	0.007**	0.0346713 (1.06)	0.29	-0.003347 (-0.12)	0.907
AvgLoanSz	Moderator	-5.72e-08 (-4.57)	0.00**	-3.75e-09 (-0.16)	0.875	1.27e-08 (0.77)	0.443	-2.12e-09 (-0.14)	0.887
AvgGtyAmt	Moderator	1.34e-07 (4.60)	0.00**	4.20e-09 (0.07)	0.941	-3.91e-08 (-0.97)	0.331	1.99e-08 (0.58)	0.565
Minor	Control	0.0004373 (2.38)	0.017**	-0.001063 (-4.01)	0.00**	0.0013579 (6.35)	0.00**	0.0001985 (1.41)	0.158
MinorHis	Control	0.0009082 (2.33)	0.020**	-0.000410 (-0.85)	0.393	0.000892 (1.85)	0.064*	0.0008257 (2.70)	0.007**
NonMetroGrossappr	Control	0.0062406 (0.76)	0.447	-0.009881 (-1.10)	0.273	0.0000953 (0.01)	0.993	0.0085302 (1.32)	0.187
JobsSupported	Moderator	7.65e-07 (0.64)	0.524	-1.97e-06 (-1.35)	0.176	2.31e-06 (1.60)	0.110	1.42e-06 (1.93)	0.054*
StateUnem	Control	-0.020414 (-23.31)	0.00**	-0.006168 (-3.44)	0.001**	-0.0081759 (-3.04)	0.002**	-0.000839 (-0.20)	.773
region1	Control	0.0261661 (3.64)	0.00**	-0.004779 (-0.52)	0.605	0.00224459 (2.64)	0.008**	0.0087181 (1.39)	0.166
region2	Control	0.0101484 (1.55)	0.121	-0.007893 (-0.96)	0.336	-0.0061345 (-0.74)	0.462	-0.003099 (-0.64)	0.523
region3	Control	0.0090234 (1.21)	0.227	0.0073869 (0.81)	0.417	-0.0214605 (-2.32)	0.02**	0.0026869 (0.48)	0.635
region4	Control	0.0049436 (0.61)	0.544	-0.028857 (-2.82)	0.005**	0.0071702 (0.73)	0.465	-0.000019 (-0.00)	0.998
region5	Control	-0.015144 (-2.50)	0.012**	-0.004239 (0.56)	0.572	-0.0127145 (-1.67)	0.095*	-0.000334 (-0.06)	0.951
region6	Control	-0.001232 (-0.7)	0.863	0.0099086 (1.13)	0.258	0.00451 (0.52)	0.607	0.0112831 (1.92)	0.055*
region8	Control	-0.007192 (-0.69)	0.49	0.0415708 (3.21)	0.001**	-0.0250313 (-2.03)	0.042**	-0.013311 (-1.72)	0.085*
Red	Moderator	-0.001928 (-0.46)	0.647	0.0083663 (1.61)	0.106	-0.0044549 (-0.89)	0.374	-0.003805 (-1.23)	0.219
Blue	Moderator	0.0018096 (0.30)	0.765	0.0060361 (0.83)	0.408	0.0024879 (0.35)	0.73	-0.003877 (-0.85)	0.397

Notes: ** denotes significance at the 95 confidence interval; *denotes significance at the 90 confidence interval. Z-value presented in parentheses.

Similar to the previous analysis, the years were also analyzed individually to assess the relationship between GrossApproval and ChangeEmply. The years 2020 and 2021 yielded results that indicate the coefficient for GrossApproval fails to reach statistical significance at 0.05 indicating there is no evidence that GrossApproval affects the change in employment. The 2022 analysis resulted in a p-value of 0.063 that also indicates no statistical significance in the endogenous relationship between GrossApproval and ChangeEmploy at the 95th confidence

interval but does indicate statistical significance at the 90th confidence interval (Table 18) across different employment time periods and offers empirical support for the existence of a meaningful relationship. For 2022 the MinorHis variable reports a p-value less than 0.05 indicating statistical significance. The JobsSupported, region6, and region8 variables all report p-values less than 0.10 and imply statistical significance at the 90th confidence interval (Table 18).

Prior research on the role of the Hispanic population in economic growth supports the statistically significant coefficient for Hispanic in the 2022 model. Chakraborty (2007) found that a vibrant Hispanic population influences the local economy through consumer spending as it creates additional jobs shared by the Hispanic and non-Hispanic populations. Keilkopf (2000) found that the output produced by undocumented workers, primarily Hispanic, resulted in the creation of at least one more job to the local economy. Data from the Bureau of Labor Statistics (USA Facts, 2020) found that during the COVID pandemic the Hispanic unemployment rate was higher than the black unemployment rate and three points higher than the white unemployment rate. With the COVID rebound occurring and the US economy returning to pre-pandemic performance in 2022 (Richter, 2023), the statistically significant influence of the Hispanic population on the relationship between GrossApproval and ChangeEmploy in the 2022 model is noteworthy.

Interestingly, the two economic regions that show statistical significance at the 0.10 level are the Southwest (region 8) and the Rocky Mountains (region 6). Table 19 indicates the Southwest region has the highest average Hispanic population by far at 32.9%. The Rocky Mountains have the 4th largest average Hispanic population at 12.48%. However, a closer review shows that these two regions do not have any blue, or Democratic, leaning states. While the impact of COVID is beyond the scope of this study, these results offer an interesting

perspective. It is possible that the speed of COVID recovery within each state and region is a factor in the statistical significance of the region on the study model. News reports support this notion (Rainey & Mueller, 2021; Zilber, 2022) as they report Republican leaning states recovered more quickly than Democratic leaning states. Although there is limited academic research at this time on the party line impact on recovery, it may be an indicator as to why the results of the 2022 model were inconsistent with the pooled, 2020, and 2021 models.

Table 19

Average Hispanic Population with Political Leanings by Economic Region

Economic Region	Economic Region	Average Hispanic Population	Political Leaning
Far West	1	18.85%	2 Purple 2 Red 8 Blue
Great Lakes	2	7.91%	4 Purple 4 Red 2 Blue
Mideast	3	13.26%	0 Purple 2 Red 10 Blue
New England	4	9.46%	4 Purple 0 Red 8 Blue
Plains	5	6.40%	2 Purple 12 Red 0 Blue
Rocky Mountain	6	12.48%	2 Purple 8 Red 0 Blue
Southeast	7	7.85%	10 Purple 14 Red 0 Blue
Southwest	8	32.9%	4 Purple 4 Red 0 Blue

H1, H2, H3, H4 and H5 Regression Results Summary

The weak study results of all hypotheses may be attributed to the utilization of limited data, particularly from anomalous years due to COVID. The inclusion of data from an atypical period likely introduced confounding factors that influenced overall findings. While SBA data at the loan level are available since its inception in 1954, firm age data was not consistently

collected and reported until sometime in 2019. Using SBA data prior to 2020 would require exclusion of the BusinessAge variable and would introduce omitted variable bias into the study as prior research has strongly established the role of firm age with the SBA program. Additionally, this limited the available data for this study to a period concurrent with the COVID pandemic that resulted in unprecedented disruption to national, state, and local economies (Centers for Disease Control, n.d.).

After reducing the SBA data to the years of 2020-2022, the results consistently failed to yield statistical support at the conventional significance level of 0.05 for all study hypotheses, indicating a lack of evidence to support the proposed relationships or effects. Not only did the coefficients fail to meet statistical significance at .05 level, but there was also limited consistency in the statistical significance of the moderating and control variables as evidenced in Tables 20 and 21. A number of factors, such as sample size, variability, economic factors, and COVID influences may explain the lack of statistical significance among the independent variables.

Although the alternative models estimated (i.e. pooled years, individual years, Twoyrchangeemploy, and ChangeEmploy) did not reach statistical significance at the 0.05 level, the 2022 analysis using ChangeEmploy did reach statistical significance at the 0.10 level. While this result does not meet the stringent criteria commonly used in hypothesis testing, it does suggest a potential relationship that warrants further exploration. The consistent statistically significant results of the CDC variable serve as an empirical foundation for further research and provides practical relevance and value to the existing body of knowledge used by policymakers for insight into the dynamics of SBA program initiatives. These particular findings open the door for deeper investigation, prompting a closer review of the variables involved and consideration of potential additional variables that may influence the relationship between GrossApproval and

changes in employment at the state level. Moreover, the result of significance at the 90th confidence interval justifies continued investigation as data for additional years become available.

Table 20

Variable Significance Summary Across Models, Twoyrchangeemploy

Significant Variable	Combined Years		2020		2021		2022	
	.05	.01	.05	.01	.05	.01	.05	.01
GrossApproval								
Program	0.000		0.014					
BusinessAge	0.008		0.100					
AvgLoanSz	0.000							
AvgGtyAmt	0.000							
Minor			0.000		0.006		0.000	
MinorHis		0.073					0.043	
NonMetro				0.077				
Grossappr								
JobsSupported								0.100
StateUnem	0.000		0.002		0.000			
region1	0.024							0.064
region2				0.094		0.069		
region3							0.013	
region4	0.021		0.004			0.001		
region5	0.001				0.025			
region6				0.085				
region8			0.004		0.046		0.041	
Red								
Blue								

Table 21

Variable Significance Summary Across Models, ChangeEmploy

Significant Variable	Combined Years		2020		2021		2022	
	.05	.01	.05	.01	.05	.01	.05	.01
GrossApproval								0.063
Program			0.020					
BusinessAge			0.007					
AvgLoanSz	0.000							
AvgGtyAmt	0.000							
Minor	0.017		0.000		0.000			
MinorHis	0.020					0.064	0.007	
NonMetro								
Grossappr								
JobsSupported								0.054
StateUnem	0.000		0.001		0.002			
region1	0.000				0.008			
region2								
region3					0.020			
region4			0.005					
region5	0.012					0.095		
region6								0.055
region8			0.001		0.042			0.085
Red								
Blue								

CHAPTER 5: DISCUSSION, LIMITATIONS, & FUTURE RESEARCH

Contributions

The study aims to expand current literature and fill a gap by empirically examining the nuances of the relationship between the SBA and job creation outcomes at the state level. It also provides an opportunity to influence policymakers, government agencies, and other stakeholders when making decisions related to SBA programs. Despite the lack of statistically significant findings in support of the five hypotheses, study results do suggest that availability and access to CDCs is important in the relationship between SBA volume and job creation at the state level.

Even though they are independent non-governmental organizations, all CDCs require SBA approval in order to operate (US SBA, 2015). Results from this study can be used by policymakers in determining where to proactively encourage the addition of new CDCs. With some states having no internal CDC support and others enjoy extremely high small business to CDC ratios (Table 4), policymakers can demonstrate a commitment to community-based development efforts by leaning in and offering incentives in target markets to encourage the creation of additional CDCs. A rising number of CDCs would signal a growing interest and commitment to communities and the small businesses that serve them. Insights gleaned from the study are potentially important for those seeking to enhance the effectiveness of SBA programs.

Policymakers may also use results from the study to support consideration of expanding the acceptable geographic scope for each CDC. With a CDC only approved to support the state in which it is located as well as adjacent states, each CDC is limited by SBA policies in terms of the businesses they can assist (US SBA, 2015). The results from this study support possibly removing, or at least loosening, the geographic restrictions allowing increased SBA access to non-metro markets. The results of the study can be a tool for informed decision making

prompting policymakers to consider adjustments and innovations to existing SBA programs and policies.

Banks who choose to be active participants in SBA lending develop relationships with CDCs in key markets to help facilitate new client acquisition, community development, and goodwill with regulatory agencies. The leadership of these banks may benefit from the results of this study by identifying de novo markets where they can partner with a CDC to help meet their small business, corporate social responsibility, and community reinvestment initiatives and goals. Armed with this information, leadership can strategically allocate resources and support to CDCs that exhibit a strong performance in these de novo markets and establish meaningful partnerships that help meet the unique challenges and opportunities in each market.

Study Limitations

The most significant limitation to the current study is the number of years for which all necessary data was available. The SBA reports data for every loan since its inception in 1953, with all data from 1991 onward readily available. The SBA began collecting business age data during 2018 and modified the age criteria for reporting during 2019. As a result, all available data prior to 2020 were excluded from the study, leaving loans from the period of 2020 – 2022,. These sample year restrictions are necessary as business age is an important moderating variable as supported by prior research (Adelino et al., 2017; Brown et al., 2015; Gale and Brown, 2013) The data include over two million loans since 1991 but eliminating prior to 2020 brought the number of loans remaining in the study to almost 254,000, approximately 13% of the total.

In addition to the restrictions caused by the total number of years included in the study an additional limitation, arises due to the actual years. The fiscal year for the SBA runs from October 1st through September 30th. In the middle of the 2020 fiscal year, individual states began

shutting down businesses in response to the spread of COVID (CDC, n.d.). The degree of shutdown varied state-by-state, along with the total elapsed time in the shutdown. It is reported that the US had gained back its lost jobs by February 2022, but the pace of return to pre-COVID employment varied by-state (Friedersdorf, 2023). Based on this timeline of COVID events, almost the entire period included in this study was directly influenced by COVID. Additionally, the SBA created a new program, Paycheck Protection Program (CARES, 2021), that was designed to specifically address the negative COVID impacts on small businesses. This study did not incorporate the influence of the PPP on 7(a) and 504 volumes, which in turn means the PPP influence on job creation and retention was also not considered.

The current investigation focused on the two primary SBA programs, the 7(a) and 504, and excluded other programs such as Microloan, Contracting, Grants, and Small Business Investment Companies (SBIC) (US SBA, n.d.c.). Additionally, the analysis assesses the broad category of 7(a) loans and does not consider the classification of sub-programs that fall under the 7(a) umbrella; examples include SBA Express, Export Express, Export Working Capital, International Trade, and CAPLines (US SBA, n.d.c). As such, final results should be applied and interpreted carefully as the results are not representative of the SBA's economic influence as a whole and is not granular to determine which 7(a) sub-programs are most impactful.

It is important to acknowledge the limitations and potential risk associated with the study's reliance on self-reported data. The number are jobs created or retained that is reported in the SBA data files is provided by the business owner, the bank, and/or the CDC as appropriate. It is a self-reported number. There are no controls in place for the 7(a) program, at this time, to validate the accuracy of the reported number of jobs. The 504 has a limited control in that the CDC must confirm and report, within two years, the number of jobs actually created or retained

for each loan. As a result, the jobs created data may be subject to biases or inaccuracies and there is a possibility of discrepancies between the reported date and actual outcomes.

Resources and funding programs available to small businesses across the US vary state-by-state. Some states offer programs to small businesses within that state, through the support of the State Small Business Credit Initiative (SSBCI) (US Department of Treasury, n.d.), that are similar to the SBA. This study does not consider the role of these state programs individually nor in conjunction with the SBA programs on loan volume, economic growth, and job creation.

Control variables of Minor and MinorHis represented in the study, while supported in previous literature, did not reflect variation year-to-year by state as the information was gathered from the most recent US Census and not updated annually. Other data is static and not expected to change year-over-year, for example political party and number of CDCs, which prevented panel data analysis due to multi-collinearity concerns.

Future Research

To overcome the limitation associated with the number of years covered in the study and the COVID influence during those years, future research efforts should prioritize the collection of data from additional years as it becomes available. Expanding the scope would allow for a more comprehensive analysis of the relationship between SBA volume and job creation over an extended period, including a full economic cycle. Future researchers should also consider incorporating information from two consecutive census periods. Census data offers a valuable resource providing a view of demographic, socioeconomic and other relevant variables that may allow for identifying patterns and changes over time at the state level. By including additional years of SBA and Census data, the potential to draw meaningful conclusions is enhanced which

would contribute to the body of knowledge of relationship between the SBA and economic growth.

Future research may also include exploring methods to validate self-reported data within the SBA dataset with external sources or conducting a validation check to enhance reliability of the information included in the analysis. Incorporating multiple data verification methods would strengthen the study and provide a more accurate representation of the relationship between the SBA and job creation. Acknowledging and addressing this limitation reinforces the transparency and integrity of the research and allows for a more reliable interpretation of the results.

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APPENDIX A: CONCEPT AND TERM DEFINITIONS

Term	Explanation	Source
Credit rationing	Lenders fail to allocate loans efficiently at current market interest rates	Craig, et al, 2008
Entrepreneurship	Individual who establishes and manages a business for the purpose of profit and growth; may or may not be an innovator	Yallapragada, 2011
Information asymmetry	Lender relies on specific information to underwrite a credit request, but neither firm nor its owner has access to ability to provide the information	Craig, et al, 2007a
Loss given default	The expected amount of money that the lender will lose if the firm defaults	Tuovila, 2023
Opportunity Zone	Economically distressed community that has been designated as eligible for preferential tax treatment	US SBA, n.d.a
Probability of default	Likelihood that a firm will not repay a business loan	Kenton, 2023
Simultaneity	One cause of endogeneity where the "explanatory variable is jointly determined with the dependent variable". Causality isn't completely from the right side variable to the left side variable. Instrumental variables regression is used to study this type of relationship.	Glen, n.d.

*Explanations and definitions are in context of this topic and writing. Definitions may vary when used for other purposes.

APPENDIX B: CDC 504 VOLUME BY YEAR AND STATE

State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
AL									2	4	6
	x	Florida Business Development Corp (FL)	18	17	6	6	5	11			
	x	Southern Development Council (AL)	25	41	30	26	18	19			
	x	Florida First Capital Finance Corp (FL)	19	16	12	9	1	0			
	x	Birmingham Citywide Local Development Co (AL)	13	23	16	11	20	28			
	x	Small Business Access Partners (GA)	1	0	0	0	0	1			
	x	Capital Partners Certified Development Co (GA)	0	0	1	0	0	1			
AK									0	1	1
	x	Evergreen Business Capital (WA)	28	18	9	8	19	14			
		Mortgage Capital Development Corp (CA)	1	1	0	0	0	0			
AZ									1	9	10
	x	Mortgage Capital Development Corp (CA)	94	51	0	0	0	0			
	x	CDC Small Business Finance Corp (CA)	76	89	61	55	37	30			
	x	Business Development Finance Corp (AZ)	59	84	85	69	46	57			
	x	California Statewide CDC (CA)	1	0	0	0	0	0			
	x	Preferred Lending Partners (CO)	3	0	0	0	0	0			
	x	AMPAC Tri-State CDC, Inc. (CA)	0	0	0	1	0	0			
	x	Mountain West Business Finance (UT)	3	1	0	0	3	2			
	x	Business Finance Capital (CA)	0	0	0	0	0	0			
		Central Minnesota Development Co (MN)	1	0	0	0	0	0			
		Small Business Growth Corp (IL)	1	1	0	0	0	0			
		SomerCor 504, Inc. (IL)	1	0	0	0	0	0			
	x	Nevada State Development Corp (NV)	1	0	2	0	0	2			
	x	Capital Access Group, Inc.	0	1	0	0	0	0			
		Florida Business Development Corp (FL)	0	0	0	1	0	0			
AR									1	2	3
	x	Rural Missouri, Inc. (MO)	22	26	14	6	5	4			
	x	Six Bridges Capital Corp (AR)	6	11	7	4	4	3			
	x	Capital Certified Development Corp (TX)	3	1	0	0	0	0			
		Independent Development Services Corp (FL)	0	1	0	0	0	0			
		CDC Small Business Finance Corp (CA)	0	0	0	0	1	0			

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State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
CA									21	2	23
	x	Cen Cal Business Finance Group (CA)	37	39	29	28	28	24			
	x	Success Capital Expansion & Development Corporation (CA)	37	30	20	15	19	15			
	x	Mortgage Capital Development Corporation (CA)	322	298	231	230	208	225			
	x	Mid State Development Corporation (CA)	17	14	21	21	22	25			
	x	Capital Access Group, Inc. (CA)	96	87	93	71	61	71			
	x	CDC Small Business Finance Corporation (CA)	322	305	213	229	218	261			
	x	Southland Economic Development Corporation (CA)	53	71	64	62	58	54			
	x	Bay Area Employment Development Company (CA)	100	110	78	66	71	57			
	x	California Statewide Certified Development Corporation (CA)	229	215	182	162	131	117			
	x	Business Finance Capital (CA)	325	335	213	177	121	134			
	x	Coastal Business Finance (CA)	6	12	6	12	15	9			
	x	California Coastal Certified Development Company (CA)	5	0	2	0	2	2			
	x	AMPAC Tri-State CDC, Inc. (CA)	52	78	53	42	27	39			
	x	Advantage Certified Development Corporation (CA)	23	37	22	25	11	10			
	x	So Cal CDC (CA)	38	31	30	29	21	22			
	x	Greater Sacramento CDC (CA)	43	39	28	28	29	35			
	x	San Fernando Valley Small Business Development Corp (CA)	5	1	1	3	3	0			
	x	Superior California Economic Development, Inc. (CA)	13	10	5	8	8	14			
	x	Pacific West CDC (CA)	0	0	0	5	56	61			
	x	Enterprise Funding Corp (CA)	4	5	7	11	12	15			
		Small Business Growth Corp (IL)	2	1	0	0	0	0			
	x	Business Development Finance Corp (AZ)	1	0	0	0	0	0			
		Empire State CDC (NY)	1	0	0	0	0	0			
		Trenton Business Assistance Corp (NJ)	0	1	0	0	0	0			
		Mountain West Business Finance (UT)	0	1	0	0	0	0			
	x	Nevada State Development Corp (NV)	2	2	2	0	1	0			
	x	Arcata Economic Development Corp (CA)	3	7	0	4	3	4			
		Capital Certified Development Corp (TX)	1	0	0	0	0	0			

APPENDIX B: CDC 504 VOLUME BY YEAR AND STATE

State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
CO									4	1	5
	x	B:Side Capital (CO)	172	230	133	112	118	122			
	x	Preferred Lending Partners (CO)	37	52	26	20	26	21			
	x	Pikes Peak Regional Development Corporation (CO)	18	19	13	11	14	24			
	x	Mountain West Small Business Finance (UT)	5	1	2	0	0	0			
	x	Community Economic Development Company of Colorado (CO)	1	1	6	3	4	0			
		Minnesota Business Finance Corp (MN)	0	0	1	0	0	0			
		Amplio Economic Development Corp (MN)	0	0	0	0	0	1			
CT									2	3	5
	x	New England Certified Development Corporation (MA)	41	39	40	31	38	31			
	x	Community Investment Corporation (CT)	52	34	28	26	30	31			
	x	Bay Colony Development Corporation (MA)	2	9	2	2	1	2			
		Granite State Economic Development Corporation (NH)	1	0	0	3	0	0			
	x	Housatonic Industrial Development Corporation (CT)	6	4	2	2	3	2			
	x	Ocean State Business Development Authority (RI)	2	0	1	0	0	0			
DE									2	2	4
	x	Delaware Community Development Corp (DE)	3	2	7	3	6	1			
	x	True Access Capital Corp (DE)	1	2	0	1	2	1			
	x	South Eastern Economic Development Co. of Pennsylvania (PA)	0	1	0	0	0	0			
	x	Chesapeake Business Finance Corp (MD)	0	1	0	0	0	0			
		Empire State CDC (NY)	0	0	0	0	0	1			
DC									0	5	5
	x	Business Finance Group, Inc. (VA)	49	47	37	42	30	37			
	x	504 Capital Corporation (VA)	5	3	2	0	1	0			
	x	Rappahannock Economic Development Corporation (VA)	10	7	8	1	2	2			
	x	Chesapeake Business Finance Corporation (MD)	2	4	3	1	1	2			
	x	Prince George's County Financial Services Corporation (MD)	3	0	1	0	0	1			
		Florida First Capital Finance Corp (FL)	0	0	1	0	0	0			

APPENDIX B: CDC 504 VOLUME BY YEAR AND STATE

State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
FL									4	2	6
	x	Florida First Capital Finance Corporation, Inc. (FL)	359	399	347	266	213	260			
	x	Florida Business Development Corporation (FL)	339	364	275	172	167	155			
	x	Sunshine State Economic Development Corporation (FL)	60	61	51	37	36	32			
		Certified Development Corporation of South Carolina (SC)	2	0	0	0	0	0			
	x	Southern Development Council (AL)	3	1	1	0	0	0			
	x	Independent Development Services Corporation (FL)	15	11	12	3	7	11			
		Brightbridge, Inc. (TN)	0	0	2	0	0	0			
		Mortgage Capital Development Corp (CA)	0	0	0	0	1	0			
	x	Georgia Certified Development Corp (GA)	0	0	0	0	0	1			
GA									7	6	13
	x	Capital Partners Certified Development Company (GA)	62	57	47	48	38	43			
	x	Florida Business Development Corporation (FL)	67	56	61	30	31	37			
	x	Georgia Certified Development Corporation (GA)	21	15	10	16	7	9			
	x	Small Business Access Partners, Inc. (GA)	30	47	30	32	31	36			
	x	CSRA Local Development Corporation (GA)	22	33	17	21	14	23			
	x	Small Business Assistance Corporation (GA)	8	9	6	7	4	6			
	x	Coastal Area District Development Authority, Inc. (GA)	7	0	1	6	6	7			
	x	Florida First Capital Finance Corporation, Inc. (FL)	7	6	1	0	0	1			
	x	Southern Georgia Area Development Corporation (GA)	3	5	1	3	1	3			
	x	Sunshine State Economic Development Corporation (FL)	1	0	0	0	1	0			
	x	Brightbridge, Inc. (TN)	0	2	2	0	0	0			
		Racine County Business Development Corp (WI)	0	1	0	0	0	0			
	x	Southern Development Council (AL)	0	0	0	1	0	0			
	x	Certified Development Corporation of South Carolina (SC)	0	0	0	1	0	0			
		Business Development Finance Corp (AZ)	0	0	0	0	1	0			
		California Statewide Certified Development Corporation (CA)	0	0	0	0	1	0			
		SomerCor 504, Inc. (IL)	0	0	0	0	0	1			
HI	x	HEDCO Local Development Corp (HI)	22	28	27	28	31	38	1	0	1

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State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
ID									5	5	10
	x	Capital Matrix, Inc. (ID)	53	90	72	44	66	55			
	x	Region IV Development Corporation (ID)	27	22	12	13	5	11			
	x	East-Central Idaho Development Company (ID)	16	33	36	19	15	18			
	x	Panhandle Area Council, Inc. (ID)	8	9	4	3	0	0			
	x	Eastern Idaho Development Corporation (ID)	5	7	2	7	10	13			
	x	Mountain West Small Business Finance (UT)	4	3	4	2	1	2			
	x	Evergreen Business Capital (WA)	62	77	65	59	52	51			
	x	Utah Certified Development Company (UT)	0	0	0	1	0	0			
	x	Northwest Business Development Association (WA)	70	86	59	41	44	53			
	x	Ameritrust CDC (WA)	25	34	32	32	32	16			
		Florida First Capital Finance Corporation, Inc. (FL)	0	1	0	0	0	0			
		Bay Area Employment Development Company (CA)	0	0	1	0	0	0			
IL									5	7	12
	x	Small Business Growth Corporation (IL)	245	255	189	163	159	169			
	x	SomerCor 504, Inc. (IL)	181	131	105	70	84	104			
	x	Rockford Local Development Corporation (IL)	14	13	11	1	10	13			
	x	Wessex 504 Corporation (IL)	16	14	17	21	29	25			
	x	WBD, Inc. (WI)	2	0	0	1	0	2			
	x	Regional Development Company (IN)	5	8	1	6	6	3			
	x	Illinois Business Financial Services (IL)	3	2	2	3	9	14			
		Economic Development Foundation Certified (MI)	1	0	0	0	0	0			
	x	Rural Missouri, Inc. (MO)	1	0	0	0	0	0			
		Florida Business Development Corp (FL)	0	1	0	0	0	0			
	x	Corporation for Economic Development in Des Moines (IA)	0	1	0	0	0	0			
	x	Premier Capital Corp (IN)	0	1	0	0	0	0			
	x	St. Charles County Economic Development Council (MO)	0	0	2	0	0	1			
		Mortgage Capital Development Corporation (CA)	0	0	1	0	0	0			
	x	STL Partnership CDC (MO)	0	0	0	1	0	0			

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State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
IN									5	7	12
	x	Premier Capital Corporation (IN)	56	46	43	42	49	57			
	x	Indiana Statewide Certified Development Corporation (IN)	58	51	43	40	50	35			
	x	Regional Development Company (IN)	35	36	35	33	30	30			
	x	Business Development Corporation (BDC) (IN)	28	32	17	12	14	30			
	x	Community Development Corporation of Fort Wayne (IN)	18	17	10	9	13	14			
	x	Small Business Growth Corporation (IL)	6	8	4	2	2	0			
	x	Capital Access Corporation - Kentucky (KY)	6	1	2	1	1	0			
	x	West Central Partnership, Inc. (OH)	1	0	0	0	0	0			
	x	Michigan Certified Development Corporation (MI)	2	0	1	1	0	0			
	x	Alloy Development Co., Inc. (OH)	2	2	1	0	0	2			
	x	Community Ventures Corp (KY)	0	1	0	0	0	0			
		AMPAC Tri-State CDC, Inc. (CA)	0	0	0	1	0	0			
	x	Economic Development Foundation Certified (MI)	0	0	0	0	1	0			
IA									5	5	10
	x	Iowa Business Growth Company (IA)	47	46	33	12	24	25			
	x	Siouxland Economic Development Corporation (IA)	20	15	13	17	14	12			
	x	Black Hawk Economic Development, Inc. (IA)	11	9	12	6	9	12			
	x	Dakota Business Finance (SD)	9	5	4	0	2	0			
	x	Corporation for Economic Development in Des Moines (IA)	7	4	3	1	2	4			
	x	Small Business Growth Corporation (IL)	7	4	0	2	2	3			
	x	E.C.I.A. Business Growth, Inc. (IA)	6	8	6	4	3	5			
		Mortgage Capital Development Corporation (CA)	1	0	0	0	0	0			
	x	Nebraska Economic Development Corporation (NE)	1	0	0	1	0	0			
	x	Minnesota Business Finance Corp (MN)	0	1	0	0	0	3			
	x	South Dakota Development Corp (SD)	0	0	1	3	0	0			

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State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
LA									5	0	5
	x	Louisiana Capital Certified Development Company, Inc. (LA)	12	21	16	8	13	12			
	x	Community Certified Development Corporation (LA)	6	8	9	8	4	7			
	x	JEDCO Development Corporation (LA)	5	6	1	5	4	2			
	x	New Orleans Regional Business Development Loan Corp (LA)	1	3	4	2	2	1			
		Independent Development Services Corporation (FL)	1	0	0	0	0	0			
	x	Louisiana Business Loans, Inc. (LA)	1	1	2	3	1	2			
		Florida Business Development Corporation (FL)	1	2	0	0	0	0			
		Southern Development Council (AL)	0	1	0	0	1	0			
		Georgia Certified Development Corporation (GA)	0	0	0	0	0	1			
ME									2	2	4
	x	Granite State Economic Development Corporation (NH)	83	86	62	48	44	64			
	x	New England Certified Development Corporation (MA)	3	7	7	0	0	0			
	x	Eastern Maine Development Corporation (ME)	2	0	1	1	3	5			
	x	Southern Maine Finance Agency (ME)	1	0	0	10	12	5			
MD									2	4	6
	x	Business Finance Group, Inc. (VA)	74	76	53	58	42	45			
	x	Chesapeake Business Finance Corporation (MD)	8	11	6	3	4	10			
	x	504 Capital Corporation (VA)	9	6	2	0	1	0			
	x	Prince George's County Financial Services Corporation (MD)	6	0	1	2	0	1			
		Georgia Certified Development Corporation (GA)	0	1	0	0	0	0			
	x	Rappahannock Economic Development Corporation (VA)	10	7	9	1	2	2			
	x	Delaware Community Development Corp (DE)	0	0	0	0	1	0			
		Florida First Capital Finance Corporation, Inc. (FL)	0	0	1	0	0	0			

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State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
MN									5	5	10
	x	Minnesota Business Finance Corporation (MN)	160	156	123	104	108	118			
	x	Twin Cities-Metro Certified Development Company (MN)	74	83	58	66	59	73			
	x	Amplio Economic Development Corporation (MN)	71	66	45	44	45	39			
	x	Central Minnesota Development Company (MN)	31	34	13	12	26	16			
	x	WBD, Inc. (WI)	16	18	15	13	5	7			
	x	Southeastern Minnesota 504 Development Corp (MN)	14	37	19	18	24	20			
	x	Dakota Business Lending (ND)	6	5	2	4	3	2			
	x	Dakota Business Finance (SD)	2	2	1	2	0	1			
	x	Lake Agassiz Certified Development Company (ND)	1	2	1	2	2	0			
	x	South Dakota Development Corp (SD)	0	1	0	0	0	0			
MS									2	2	4
	x	Three Rivers Local Development Company, Inc. (MS)	4	1	3	3	4	1			
		Georgia Certified Development Corporation (GA)	0	2	0	0	0	0			
	x	Central Mississippi Development Company, Inc. (MS)	0	5	4	2	1	3			
		Florida Business Development Corporation (FL)	0	1	0	0	0	0			
	x	South Central Tennessee Business Development Corp (TN)	0	1	0	0	0	0			
	x	Six Bridges Capital Corporation (AR)	0	1	0	0	0	0			
		Mortgage Capital Development Corporation (CA)	0	0	0	1	0	0			

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State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
NE									2	5	7
	x	Nebraska Economic Development Corporation (NE)	80	77	53	46	27	39			
	x	South Dakota Development Corporation (SD)	1	0	0	0	0	0			
	x	Frontier Financial Partners, Inc. (KS)	1	0	0	0	0	0			
	x	Community Development Resources (NE)	1	0	0	3	0	0			
	x	Dakota Business Finance (SD)	1	0	0	0	0	0			
	x	Siouxland Economic Development Corporation (IA)	1	0	1	2	2	0			
	x	Iowa Business Growth Company (IA)	0	0	1	0	0	0			
NV									1	7	8
	x	Nevada State Development Corporation (NV)	70	88	61	49	57	62			
	x	Mortgage Capital Development Corporation (CA)	57	52	31	44	23	24			
	x	California Statewide Certified Development Corp (CA)	17	21	9	11	1	0			
	x	AMPAC Tri-State CDC, Inc. (CA)	2	1	0	0	0	0			
	x	CDC Small Business Finance Corporation (CA)	8	5	7	8	8	8			
	x	Mountain West Small Business Finance (UT)	6	6	1	3	4	5			
		Trenton Business Assistance Corporation (NJ)	1	0	0	0	0	0			
		Small Business Growth Corp (IL)	0	1	0	0	0	0			
	x	Business Finance Capital (CA)	0	1	0	0	0	0			
	x	Utah Certified Development Company (UT)	0	0	0	0	1	0			
NH									2	2	4
	x	Granite State Economic Development Corporation (NH)	87	86	84	73	69	95			
	x	Capital Regional Development Council (NH)	19	21	13	7	12	11			
	x	Bay Colony Development Corporation (MA)	17	10	4	9	2	5			
	x	New England Certified Development Corporation (MA)	10	20	17	18	7	6			
NJ									3	2	5
	x	Trenton Business Assistance Corporation (NJ)	79	81	53	49	40	43			
	x	Empire State Certified Development Corporation (NY)	40	42	38	26	26	37			
	x	Eastern American Certified Development Company, Inc (NJ)	11	5	2	6	6	8			
	x	Union County Economic Development Corporation (NJ)	6	11	2	2	5	9			
	x	South Eastern Economic Development of Pennsylvania (PA)	0	1	0	0	0	0			
		Nebraska Economic Development Corporation (NE)	0	0	0	1	0	0			

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State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
NM									1	7	8
	x	Capital Certified Development Corporation (TX)	23	30	28	15	22	10			
	x	Enchantment Land Certified Development Company (NM)	16	16	11	12	14	9			
		Mortgage Capital Development Corporation (CA)	2	0	0	1	0	0			
	x	Business Development Finance Corporation (AZ)	1	0	0	1	0	0			
	x	B:Side Capital (CO)	1	0	0	0	0	0			
	x	Caprock Business Finance Corporation, Inc. (TX)	1	0	0	0	0	0			
	x	Alliance Lending Corporation (TX)	1	0	0	0	0	0			
		Small Business Growth Corporation (IL)	0	1	0	0	0	0			
	x	Liftfund, Inc. (TX)	0	0	0	2	0	1			
	x	Mountain West Small Business Finance (UT)	0	0	0	1	0	0			
NY									5	3	8
	x	Empire State Certified Development Corporation (NY)	274	252	167	135	158	156			
	x	Monroe County Industrial Development Corporation (NY)	12	2	10	1	7	7			
		CDC Small Business Finance Corp (CA)	0	1	0	0	0	0			
	x	Greater Syracuse Business Development Corp (NY)	8	10	3	7	5	6			
	x	Rochester Economic Development Corp (NY)	0	0	0	1	2	1			
	x	Trenton Business Assistance Corp (NJ)	38	37	13	19	10	17			
	x	Business Initiative Corporation of New York (NY)	15	5	5	4	3	5			
	x	Housatonic Industrial Development Corporation (CT)	0	0	0	0	0	1			
	x	Worcester Business Development Corporation (MA)	1	0	0	0	0	0			

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State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
NC									3	6	9
	x	Business Expansion Funding Corporation (NC)	76	84	63	50	45	77			
	x	504 Capital Corporation (VA)	23	8	8	3	1	0			
	x	Carolina Business Capital (NC)	13	14	13	11	10	8			
		Florida Business Development Corporation (FL)	2	1	1	0	0	0			
	x	Provident Business Financial Services, Inc. (SC)	1	1	0	0	0	0			
		Florida First Capital Finance Corporation, Inc. (FL)	2	0	0	0	0	1			
		Trenton Business Assistance Corporation (NJ)	1	0	0	0	0	0			
	x	Self-Help Ventures Fund (NC)	1	4	4	6	7	6			
	x	Certified Development Corporation of South Carolina (SC)	1	1	1	0	0	0			
	x	Business Finance Group, Inc. (VA)	0	2	0	0	0	0			
	x	Capital Partners Certified Development Company (GA)	0	0	1	0	0	0			
	x	CSRA Local Development Corporation (GA)	0	0	1	0	0	0			
	x	Appalachian Development Corp (SC)	0	0	0	1	0	0			
		Liftfund, Inc. (TX)	0	0	0	0	0	1			
ND									3	3	6
	x	Dakota Business Lending (ND)	41	48	40	34	31	24			
	x	Lewis & Clark Certified Development Company (ND)	14	12	15	11	12	5			
	x	Lake Agassiz Certified Development Company (ND)	11	32	22	8	7	7			
	x	Minnesota Business Finance Corporation (MN)	8	3	1	5	5	2			
	x	Dakota Business Finance (SD)	1	0	0	1	0	0			
	x	Central Minnesota Development Company (MN)	0	1	0	0	0	0			

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State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
OH									11	1	12
	x	Ohio Statewide Development Corporation (OH)	50	47	23	25	29	20			
	x	Alloy Development Co., Inc. (OH)	33	35	33	35	45	26			
	x	Community Capital Development Corporation (OH)	37	45	27	25	24	18			
	x	West Central Partnership, Inc. (OH)	7	7	0	4	4	1			
		Central Minnesota Development Company (MN)	1	0	0	0	0	0			
	x	Citywide Small Business Development Corporation (OH)	2	0	6	7	6	7			
	x	Cascade Capital Corporation (OH)	2	1	0	1	0	0			
	x	Growth Capital Corp. (OH)	1	1	2	6	2	1			
	x	Valley Economic Development Partners, Inc. (OH)	0	0	1	0	0	0			
		Brightbridge, Inc. (TN)	0	0	0	0	1	0			
	x	Northwest Ohio Development Assistance Corporation (OH)	0	0	0	0	2	0			
	x	Mentor Economic Assistance Corp (OH)	0	0	0	0	0	0			
	x	Michigan Certified Development Corporation (MI)	0	0	0	0	0	0			
	x	Oakland County Business Finance Corporation (MI)	0	0	0	0	0	0			
		WBD, Inc. (WI)	0	0	0	0	0	0			
	x	Small Business Capital Corp of Ohio (OH)	0	0	0	0	0	0			
OK									4	1	5
	x	State	29	35	19	15	20	9			
	x	Metro Area Development Corporation (OK)	4	0	1	4	3	3			
	x	Tulsa Economic Development Corporation (OK)	9	9	5	7	2	4			
	x	Small Business Capital Corporation (OK)	10	18	5	10	4	8			
		WBD, Inc. (WI)	0	1	0	0	0	0			
	x	Rural Missouri, Inc. (MO)	0	0	0	0	1	0			

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State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
OR									3	10	13
	x	Evergreen Business Capital (WA)	48	80	50	39	48	46			
	x	Northwest Business Development Association (WA)	38	25	19	16	15	11			
	x	Cascade Capital Funding (OR)	26	20	12	7	1	4			
	x	Ameritrust CDC (WA)	3	2	1	1	1	0			
	x	C.C.D. Business Development Corporation (OR)	6	6	4	8	6	6			
	x	Mortgage Capital Development Corporation (CA)	3	0	1	0	1	0			
	x	Superior California Economic Development, Inc. (CA)	0	1	0	0	0	0			
	x	Greater Eastern Oregon Development Corp (OR)	0	1	0	0	1	1			
	x	Capital Matrix, Inc. (ID)	46	78	63	39	59	48			
	x	Region IV Development Corporation (ID)	27	22	12	13	5	11			
	x	East-Central Idaho Development Company (ID)	16	32	36	19	15	18			
	x	Panhandle Area Council, Inc. (ID)	5	4	2	1	0	0			
	x	Eastern Idaho Development Corporation (ID)	5	7	2	7	9	13			
		Mountain West Small Business Finance (UT)	3	3	4	2	1	2			
		Utah Certified Development Company (UT)	0	0	0	1	0	0			
PA									8	4	12
	x	South Eastern Economic Dev. Company of Pennsylvania (PA)	46	44	28	19	13	13			
	x	NEPA Alliance Business Finance Corporation (PA)	24	18	12	4	5	8			
	x	Empire State Certified Development Corporation (NY)	61	53	40	52	29	28			
	x	SEDA-COG Local Development Corporation (PA)	14	10	4	5	6	6			
	x	Trenton Business Assistance Corporation (NJ)	5	0	0	0	2	0			
	x	EDC Finance Corporation (PA)	8	19	6	6	6	16			
	x	Northeastern Economic Dev. Company of PA-CDC, Inc. (PA)	9	4	6	2	4	3			
	x	The Pennsylvania Community Dev. and Finance Corp (PA)	1	0	0	2	8	8			
	x	Regional Development Funding Corporation (PA)	30	3	21	15	14	26			
	x	Trenton Business Assistance Corp (NJ)	0	8	5	2	0	1			
	x	Altoona-Blair County Development Corp (PA)	2	2	2	0	2	1			
		CDC Small Business Finance Corp (CA)	0	0	1	0	0	0			
		SBA Enforcement Action - DelVal (CO)	0	0	0	0	0	1			
		Liftfund, Inc. (TX)	0	0	0	0	0	1			
	x	Valley Economic Development Partners, Inc. (OH)	0	1	2	0	0	0			

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State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
RI									1	6	7
	x	Ocean State Business Development Authority (RI)	31	27	28	30	28	20			
	x	Bay Colony Development Corporation (MA)	17	18	13	14	20	15			
	x	New England Certified Development Corporation (MA)	19	14	12	14	9	10			
	x	South Eastern Economic Development Corporation (MA)	4	9	5	3	2	6			
	x	Community Investment Corporation (CT)	7	0	1	0	3	0			
	x	Granite State Economic Development Corporation (NH)	0	1	0	1	0	0			
SC									4	4	8
	x	Provident Business Financial Services, Inc. (SC)	23	30	13	23	11	15			
	x	Certified Development Corporation of South Carolina (SC)	13	16	13	7	4	7			
	x	Appalachian Development Corporation (SC)	16	16	7	11	8	4			
	x	CSRA Local Development Corporation (GA)	4	6	4	4	1	4			
	x	Business Expansion Funding Corporation (NC)	2	4	2	0	3	1			
	x	Catawba Regional Development Corporation (SC)	2	2	1	4	0	1			
		Florida Business Development Corp (FL)	0	1	1	2	0	0			
		Florida First Capital Finance Corp (FL)	0	1	0	0	0	0			
	x	Small Business Assistance Corporation (GA)	0	1	1	0	0	0			
	x	Carolina Business Capital (NC)	0	0	0	0	1	0			
		Independent Development Services Corp (FL)	0	0	0	0	0	1			
SD									4	4	8
	x	Dakota Business Finance (SD)	52	95	54	22	29	36			
	x	South Dakota Development Corporation (SD)	17	13	8	2	1	3			
	x	Black Hills Community Economic Development, Inc. (SD)	16	27	21	8	13	14			
	x	First District Development Company (SD)	14	29	11	11	23	10			
	x	Minnesota Business Finance Corporation (MN)	2	2	2	3	5	1			
	x	Siouxland Economic Development Corporation (IA)	1	1	0	0	0	1			
	x	Lake Agassiz Certified Development Company (ND)	0	2	1	0	0	0			
	x	Dakota Business Lending (ND)	0	0	1	0	0	1			

APPENDIX B: CDC 504 VOLUME BY YEAR AND STATE

State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
TN									5	5	10
	x	Brightbridge, Inc. (TN)	11	20	9	8	6	6			
	x	Areawide Development Corporation (TN)	5	5	3	4	4	6			
	x	South Central Tennessee Business Development Corp (TN)	3	6	4	4	8	3			
	x	Mid-Cumberland Area Development Corporation (TN)	2	4	2	4	4	1			
	x	Georgia Certified Development Corporation (GA)	0	2	0	0	0	0			
	x	Capital Access Corporation - Kentucky (KY)	0	1	0	0	0	0			
	x	Tennessee Business Development Corp (TN)	0	3	2	0	0	0			
	x	Capital Partners Certified Development Company (GA)	0	1	1	0	0	0			
		Provident Business Financial Services, Inc. (SC)	0	1	0	0	0	0			
	x	Southern Development Council (AL)	0	0	1	0	1	0			
		Florida First Capital Finance Corporation, Inc (FL)	0	0	1	0	0	0			
		Florida Business Development Corp (FL)	0	0	0	1	0	0			
	x	Six Bridges Capital Corp (AR)	0	0	0	0	0	1			

APPENDIX B: CDC 504 VOLUME BY YEAR AND STATE

State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
TX									15	2	17
	x	LiftFund, Inc. (TX)	32	45	57	38	29	15			
	x	Capital Certified Development Corporation (TX)	127	92	77	62	54	53			
	x	Enchantment Land Certified Development Company (NM)	2	5	0	3	4	2			
	x	PeopleFund (TX)	3	4	2	3	3	1			
	x	Community Certified Development Corp (LA)	17	8	7	7	8	2			
	x	North Texas Certified Development Corporation (TX)	23	38	20	19	15	2			
	x	Greater East Texas Certified Development Company (TX)	9	6	3	5	6	2			
	x	Caprock Business Finance Corporation, Inc. (TX)	16	14	11	6	1	0			
	x	Southeast Texas Economic Development Foundation (TX)	3	0	3	4	0	0			
	x	Texas Certified Development Company, Inc. (TX)	17	21	29	12	20	32			
	x	East Texas Regional Development Company, Inc. (TX)	1	0	1	0	0	0			
		Southland Economic Development Corporation (CA)	2	0	1	0	0	0			
	x	Lone Star State Capital Corporation (TX)	2	0	2	2	4	0			
	x	Alliance Lending Corporation (TX)	6	8	0	0	2	0			
	x	Houston-Galveston Area Local Development Corp (TX)	1	1	2	0	1	0			
		Mortgage Capital Development Corp (CA)	1	1	2	0	0	0			
		Growth Capital (OH)	0	1	0	0	0	0			
		Advantage Certified Development Corp (CA)	1	0	0	0	0	0			
	x	Brownsville Local Development Company, Inc. (TX)	1	0	1	1	0	0			
	x	Texas Panhandle Regional Development Corp (TX)	15	1	2	3	8	1			
	x	Cen-Tex Certified Development Corp (TX)	1	0	0	1	1	1			

APPENDIX B: CDC 504 VOLUME BY YEAR AND STATE

State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
UT									2	4	6
	x	Mountain West Small Business Finance (UT)	275	295	222	180	183	169			
	x	Utah Certified Development Company (UT)	75	67	62	72	50	44			
	x	B:Side Capital (CO)	14	0	0	0	0	0			
		Mortgage Capital Development Corporation (CA)	3	0	1	1	0	0			
		Evergreen Business Capital (WA)	1	0	0	0	0	0			
	x	Region IV Development Corporation (ID)	1	1	0	0	0	1			
	x	Capital Matrix, Inc. (ID)	1	0	0	0	0	0			
	x	Business Development Finance Corp (AZ)	0	0	1	0	0	0			
VT									1	3	4
	x	Granite State Economic Development Corporation (NH)	22	38	25	16	17	12			
	x	Bay Colony Development Corporation (MA)	1	1	0	0	0	1			
	x	New England Certified Development Corporation (MA)	2	4	0	1	0	0			
	x	Vermont 504 Corporation (VT)	1	1	1	0	2	2			
VA									3	3	6
	x	504 Capital Corporation (VA)	65	64	55	45	45	44			
	x	Business Finance Group, Inc. (VA)	80	132	85	84	73	73			
	x	Rappahannock Economic Development Corporation (VA)	25	29	22	15	12	12			
	x	Business Expansion Funding Corporation (NC)	0	1	0	1	0	1			
	x	Chesapeake Business Finance Corporation (MD)	2	4	3	2	1	5			
		Florida Business Development Corp (FL)	0	0	1	1	0	0			
	x	Prince George's County Financial Services Corporation (MD)	3	0	1	0	0	1			

APPENDIX B: CDC 504 VOLUME BY YEAR AND STATE

State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
WA									3	7	10
	x	Northwest Business Development Association (WA)	110	155	115	98	100	97			
	x	Evergreen Business Capital (WA)	28	36	35	33	33	16			
	x	Ameritrust CDC (WA)	7	12	9	5	7	7			
	x	Capital Matrix, Inc. (ID)	3	5	2	2	0	0			
	x	Panhandle Area Council, Inc. (ID)	1	0	0	0	0	0			
		Mountain West Small Business Finance (UT)	0	1	0	0	0	0			
	x	East-Central Idaho Development Company (ID)	0	1	0	0	0	0			
		Florida First Capital Finance Corporation, Inc. (FL)	0	0	1	0	0	0			
		Bay Area Employment Development Company (CA)	0	0	0	0	1	0			
	x	Eastern Idaho Development Corporation (ID)	26	20	12	7	1	4			
	x	Cascade Capital Funding (OR)	6	6	4	8	6	6			
	x	C.C.D. Business Development Corporation (OR)	3	0	1	0	1	0			
		Mortgage Capital Development Corporation (CA)	0	1	0	0	0	0			
		Superior California Economic Development, Inc. (CA)	0	1	0	0	1	1			
	x	Greater Eastern Oregon Development Corp (OR)	0	0	0	0	0	0			
WV									0	3	3
	x	Business Finance Group, Inc. (VA)	3	2	2	0	0	0			
	x	Regional Development Funding Corporation (PA)	3	1	2	1	2	2			
	x	504 Capital Corporation (VA)	0	1	0	0	0	0			
WI									2	8	10
	x	WBD, Inc. (WI)	297	294	220	155	138	167			
	x	Racine County Business Development Corporation (WI)	24	36	21	10	7	14			
	x	Twin Cities-Metro Certified Development Company (MN)	5	4	1	5	1	3			
	x	Small Business Growth Corporation (IL)	3	1	3	0	0	1			
	x	SomerCor 504, Inc. (IL)	3	1	0	0	1	1			
	x	Amplio Economic Development Corporation (MN)	2	0	2	1	1	1			
	x	Minnesota Business Finance Corporation (MN)	1	4	3	3	1	1			
	x	Michigan Certified Development Corporation (MI)	0	1	0	0	0	0			
		South Dakota Development Corp (SD)	0	0	1	0	0	0			
	x	Southeastern Minnesota 504 Development Corporation (MN)	0	0	0	1	1	0			
	x	Central Minnesota Development Company (MN)	0	0	0	0	0	2			

APPENDIX B: CDC 504 VOLUME BY YEAR AND STATE

State	Include in Count	Certified Development Company	2022	2021	2020	2019	2018	2017	# In State	# Border Support	# For Analysis
WY									1	6	7
	x	Mountain West Small Business Finance (UT)	13	19	4	3	0	4			
	x	Wyoming Capital Access (WY)	14	12	10	9	10	6			
	x	Big Sky Economic Development Corporation (MT)	0	0	1	0	0	0			
	x	Black Hills Community Economic Development, Inc. (SD)	0	0	0	2	0	1			
	x	East-Central Idaho Development Company (ID)	0	0	0	1	0	0			
	x	Eastern Idaho Development Corporation (ID)	0	0	0	1	0	0			
		Mortgage Capital Development Corp (CA)	0	0	0	1	0	0			
	x	B:Side Capital (CO)	0	0	0	0	0	1			

Source: Workbook: US SBA, n.d.g; US SBA, n.d.i

APPENDIX C: 7(A) DATA DICTIONARY

Field Name	Definition
AsOfDate	Date when the data was recorded
Program	Indicator of whether loan was approved under SBA's 7(a) or 504 loan program
BorrName	Borrower name
BorrStreet	Borrower street address
BorrCity	Borrower city
BorrState	Borrower state
BorrZip	Borrower zip code
BankName	Name of the bank that the loan is currently assigned to
BankFDICNumber	The Federal Depository Insurance Corporation certificate ID of the lender
BankNCUANumber	The National Credit Union Association charter number of the lender
BankStreet	Bank street address
BankCity	Bank city
BankState	Bank state
BankZip	Bank zip code
GrossApproval	Total loan amount
SBAGuaranteedApproval	Amount of SBA's loan guaranty
ApprovalDate	Date the loan was approved
ApprovalFiscalYear	Fiscal year the loan was approved
FirstDisbursementDate	Date of first loan disbursement (if available)
DeliveryMethod	Specific delivery method loan was approved under. See SOP 50 10 5 for definitions and rules for each delivery method. 7(a) Delivery Methods: • CA = Community Advantage • CLP = Certified Lenders Program • COMM EXPRS = Community Express (inactive) • DFP = Dealer Floor Plan (inactive) • DIRECT = Direct Loan (inactive) • EWCP = Export Working Capital Program • EXP CO GTY = Co-guaranty with Export-Import Bank (inactive) • EXPRES EXP = Export Express • GO LOANS = Gulf Opportunity Loan (inactive) • INTER TRDE = International Trade • OTH 7A = Other 7(a) Loan • PATRIOT EX = Patriot Express (inactive) • PLP = Preferred Lender Program • RLA = Rural Lender Advantage (inactive) • SBA EXPRES = SBA Express • SLA = Small Loan Advantage • USCAIP = US Community Adjustment and Investment Program • Y2K = Y2K Loan (inactive)
subpgmdesc	Subprogram description - specific subprogram loan was approved under. See SOP 50 10 5 for definitions and rules for each subprogram.
InitialInterestRate	Initial interest rate - total interest rate (base rate plus spread) at time loan was approved
TermInMonths	Length of loan term
NaicsCode	North American Industry Classification System (NAICS) code

APPENDIX C: 7(A) DATA DICTIONARY

Field Name	Definition
NaicsDescription	North American Industry Classification System (NAICS) description
FranchiseCode	Franchise Code
FranchiseName	Franchise Name (if applicable)
ProjectCounty	County where project occurs
ProjectState	State where project occurs
SBADistrictOffice	SBA district office
CongressionalDistrict	Congressional district where project occurs
BusinessType	Borrower Business Type - Individual, Partnership, or Corporation
BusinessAge	SBA began collecting the following business age information in fiscal year 2018: • Change of Ownership • Existing or more than 2 years old • New Business or 2 years or less • Startup, Loan Funds will Open Business
LoanStatus	Current status of loan: • COMMIT = Undisbursed • PIF = Paid In Full • CHGOFF = Charged Off • CANCLD = Cancelled • EXEMPT = The status of loans that have been disbursed but have not been cancelled, paid in full, or charged off are exempt from disclosure under FOIA Exemption 4
PaidInFullDate	Date loan was paid in full (if applicable)
ChargeOffDate	Date SBA charged off loan (if applicable)
GrossChargeOffAmount	Total loan balance charged off (includes guaranteed and non-guaranteed portion of loan)
RevolverStatus	Indicator of whether a loan is a term loan or revolving line of credit (0=Term, 1=Revolver)
JobsSupported	Total Jobs Created + Jobs Retained as reported by lender on SBA Loan Application. SBA does not review, audit, or validate these numbers - they are simply self-reported, good faith estimates by the lender.
Soldsecmrtind	An indicator if the loan was sold on the secondary market. This is a static field once it is sold on the secondary market.it equals 'Y', if sold on the secondary market. Once it is 'Y' it will stay 'Y' for its entirety.

Source: US SBA, n.d.h

APPENDIX D: 504 DATA DICTIONARY

Field Name	Definition
AsOfDate	Date when the data was recorded
Program	Indicator of whether loan was approved under SBA's 7(a) or 504 loan program
BorrName	Borrower name
BorrStreet	Borrower street address
BorrCity	Borrower city
BorrState	Borrower state
BorrZip	Borrower zip code
CDC_Name	Name of CDC that the loan is currently assigned to
CDC_Street	CDC street address
CDC_City	CDC city
CDC_State	CDC state
CDC_Zip	CDC zip code
ThirdPartyLender_Name	Name of third party lender
ThirdPartyLender_City	Third party lender city
ThirdPartyLender_State	Third party lender state
ThirdPartyDollars	Third party loan amount
GrossApproval	SBA/CDC loan amount
ApprovalDate	Date the loan was approved
ApprovalFiscalYear	Fiscal year the loan was approved
FirstDisbursementDate	Date of first loan disbursement (if available)
DeliveryMethod	Specific delivery method loan was approved under. See SOP 50 10 5 for definitions and rules for each delivery method. 504 Delivery Methods: • 504 = Regular 504 • 504REFI = 504 Refinance (inactive) • ALP = Accredited Lenders Program • PCLP = Premier Certified Lenders
subpgmdesc	Subprogram description - specific subprogram loan was aproved under. See SOP 50 10 5 for definitions and rules for each subprogram.
TermInMonths	Length of loan term
NaicsCode	North American Industry Classification System (NAICS) code
NaicsDescription	North American Industry Classification System (NAICS) description
FranchiseCode	Franchise Code
FranchiseName	Franchise Name (if applicable)
ProjectCounty	County where project occurs
ProjectState	State where project occurs
SBADistrictOffice	SBA district office
CongressionalDistrict	Congressional district where project occurs
BusinessType	Borrower Business Type - Individual, Partnership, or Corporation
BusinessAge	SBA began collecting the following business age information in fiscal year 2018: • Change of Ownership • Existing or more than 2 years old • New Business or 2 years or less • Startup, Loan Funds will Open Business

APPENDIX D: 504 DATA DICTIONARY

Field Name	Definition
LoanStatus	Current status of loan: • NOT FUNDED = Undisbursed • PIF = Paid In Full • CHGOFF = Charged Off • CANCLD = Cancelled • EXEMPT = The status of loans that have been disbursed but have not been cancelled , paid in full, or charged off are exempt from disclosure under FOIA Exemption 4
PaidInFullDate	Date loan was paid in full (if applicable)
ChargeOffDate	Date SBA charged off loan (if applicable)
GrossChargeOffAmount	Total SBA/CDC loan balance charged off
Jobs Supported	Total Jobs Created + Jobs Retained as reported by lender on SBA Loan Application. SBA does not review, audit, or validate these numbers - they are simply self-reported, good faith estimates by the lender.

Source: US SBA, n.d.h