

THE IMPACT OF SBA LENDING ACTIVITY ON MICROPOLITAN STATISTICAL AREAS IN THE U.S. SOUTHEAST

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ABSTRACT

This study examines the economic impact of Small Business Administration (SBA) guaranteed lending activity on the 12 states comprising the Southeast region (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia) for the 1990-2015 period. Past studies find that the effect of Small Business Administration loans on regional economic performance, particularly in low-income areas, is positive but negligible. The study adds to the literature by focusing on a government-defined geographic unit called the micropolitan statistical area (which consists of at least one county with an urban core population of 10,000-50,000). The objective is to measure and evaluate the effect of Small Business Administration loans on various indicators of micropolitan area economic activity (gross regional product, employment, and income growth), while also controlling for other determinants of local economic growth. The study applies fixed effects regression model on a cross-section of 153 micropolitan areas for three subperiods in 1990-2015. It finds that micropolitan area economic growth in the Southeast region is dependent on Small Business Administration-guaranteed lending, industrial composition, human capital, and demographic factors.

JEL: R11, O16

KEYWORDS: Micropolitan Statistical Area, SBA, Fixed Effects

INTRODUCTION

The Southeast region of the USA, as defined in this study, consists of twelve states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia, and West Virginia. It is a highly diverse group of economies, which has experienced rapid population growth over the past decades due to migration to the “Sunbelt” states and yet at the same time ranks at the bottom half of all states in terms of median household income and has the highest poverty rate compared to other regions (US Department of Commerce, 2016). The problems of low incomes and poverty are more acute when one considers the areas “outside the metropolitan statistical areas,” that is, the micropolitan statistical areas and rural counties. The Office of Management and Budget (OMB) defines a micropolitan statistical area as a geographical area composed of an urban core with a population of 10,000 to 49,999. There are 153 micropolitan areas in the Southeast region. In 2015, the largest micropolitan area in the region in terms of population is Tupelo, MS, with approximately 141,000. The smallest micropolitan area is Maysville, KY, with a little over 17,000 population. The average population in 2015 for the 153 micropolitan areas is nearly 55,000. The micropolitan population grew significantly in the 1990s especially for the states of Florida, Georgia, North Carolina, and Tennessee. However, population growth in the region has been declining since then (see Table 1).

Table 1: Average Population Growth Rates of Southeast Micropolitan Areas

| STATE | 1990-2000 | 2000-2010 | 2010-2015 |
|----------------|-----------|-----------|-----------|
| Alabama | 0.68 | 0.37 | 0.12 |
| Arkansas | 0.80 | 0.10 | -0.14 |
| Florida | 2.45 | 0.69 | 0.31 |
| Georgia | 1.60 | 1.00 | 0.28 |
| Kentucky | 0.99 | 0.58 | 0.46 |
| Louisiana | -0.01 | 0.14 | 0.16 |
| Mississippi | 0.58 | -0.09 | -0.04 |
| North Carolina | 1.48 | 0.97 | 0.55 |
| South Carolina | 1.09 | 0.47 | 0.14 |
| Tennessee | 1.71 | 0.91 | 0.54 |
| Virginia | -0.02 | -0.29 | -0.46 |
| West Virginia | -0.21 | 0.11 | -0.04 |

This table shows the population growth rates of the Southeast micropolitan areas for three time periods: 1990-2000, 2000-2010, and 2010-2015. Source: Woods & Poole Economics and authors' calculations.

In terms of real per capita income for 2015, the Southeast region's micropolitan areas exhibit wide variation. The micro area with the highest per capita income is Key West, FL, with \$65,229, while the area with the lowest income level is Arcadia, also located in Florida, with \$19,869. The mean income for all 153 micro areas in 2015 is \$30,623. As Table 2 shows, the average growth rates of real per capita income for three time periods for the Southeast micropolitan areas have been trending downward for half of the states.

Table 2: Per Capita Income Growth Rates in Southeast Micropolitan Areas

| Average Growth Rates of Per Capita Income (%) | Number of Micro Areas | 1990-2000 | 2000-2010 | 2010-2015 |
|---|-----------------------|-----------|-----------|-----------|
| Alabama | 9 | 2.22 | 1.50 | 1.04 |
| Arkansas | 14 | 2.16 | 1.52 | 1.72 |
| Florida | 7 | 1.02 | 1.09 | 0.73 |
| Georgia | 24 | 2.34 | 0.39 | 1.37 |
| Kentucky | 15 | 2.83 | 0.92 | 1.65 |
| Louisiana | 9 | 2.51 | 3.31 | 1.29 |
| Mississippi | 18 | 2.91 | 1.93 | 1.54 |
| North Carolina | 24 | 2.72 | 0.59 | 1.07 |
| South Carolina | 7 | 2.68 | 0.85 | 1.16 |
| Tennessee | 16 | 2.65 | 0.55 | 1.52 |
| Virginia | 4 | 1.40 | 1.73 | 0.59 |
| West Virginia | 6 | 2.55 | 2.05 | 1.15 |

This table shows the number of micropolitan areas in the Southeast region and their per capita income growth rates for three time periods: 1990-2000, 2000-2010, and 2010-2015. Source: Woods & Poole Economics and authors' calculations.

Similarly, Table 3 indicates that employment growth rates in the Southeast micropolitan areas also exhibited variability across states and time periods. Generally, employment was positive during the 1990s, turned negative during the 2000s, and slightly improved during the 2010-15 period.

Table 3: Employment Growth Rates in Southeast Micropolitan Areas

| Average Growth Rates of Employment (%) | 1990-2000 | 2000-2010 | 2010-2015 |
|--|-----------|-----------|-----------|
| Alabama | 0.96 | -0.29 | 0.68 |
| Arkansas | 1.60 | -0.30 | 0.28 |
| Florida | 2.69 | 0.37 | 1.30 |
| Georgia | 2.18 | -0.41 | 1.30 |
| Kentucky | 2.01 | -0.29 | 0.99 |
| Louisiana | 0.98 | 0.37 | 0.63 |
| Mississippi | 1.71 | -0.36 | 1.06 |
| North Carolina | 1.70 | -0.38 | 0.97 |
| South Carolina | 1.23 | -0.56 | 1.04 |
| Tennessee | 2.04 | -0.67 | 1.14 |
| Virginia | 0.01 | -0.72 | -0.30 |
| West Virginia | 1.09 | 0.06 | 0.22 |

This table shows the employment growth rates of the Southeast micropolitan areas for three time periods: 1990-2000, 2000-2010, and 2010-2015. Source: Woods & Poole Economics and authors' calculations.

The main objective of this study is to analyze the economic performance of micropolitan statistical areas in the Southeast region for the period 1990-2015. It identifies and empirically measures the impact of various growth determinants including industrial structure, demographics, and market factors. The key variable of interest, however, is credit availability or access, as represented by Small Business Administration (SBA) lending, specifically, the SBA 7(a) loan guarantee program for small businesses. In 2015, the Georgia micropolitan areas received the largest amount of SBA 7(a) loans (\$47 million) relative to other Southeastern states, while micropolitan areas in Louisiana only accounted for \$2.5 million in loans (Table 4).

Table 4: Real SBA Loans in Southeast Micropolitan Areas, 2015

| Micro Areas in SE Region | Total Real SBA |
|--------------------------|----------------|
| State | (in \$) |
| Alabama | 6,030,567 |
| Arkansas | 15,311,994 |
| Florida | 15,973,408 |
| Georgia | 46,965,690 |
| Kentucky | 10,392,187 |
| Louisiana | 2,467,526 |
| Mississippi | 17,868,240 |
| North Carolina | 27,683,834 |
| South Carolina | 9,730,764 |
| Tennessee | 10,410,422 |
| Virginia | 3,991,867 |
| West Virginia | 3,283,035 |

This table shows the SBA 2015 total loans for the micropolitan areas in the 12 states of the Southeast region. Source: SBA and authors' calculations.

The next section discusses the recent literature which forms the basis for this study, followed by the model specification, variables, and data. Analysis of the empirical tests and results, and then conclusions and recommendations will round off the discussion.

LITERATURE REVIEW

The study of micropolitan areas, a government-defined geographic entity somewhere between a rural area and a metropolitan area, has received attention in the literature recently. Even before the official OMB designation, Glavac *et al.* (1998) and Vias *et al.* (2002) have examined these areas and their characteristics primarily because these places not only provided the peace and quiet of a rural setting but also the amenities associated with larger urban/metropolitan cities. In their 2015 study, Cortes, Davidsson, and McKinnis provide a detailed analysis of the regional distribution and diversity of the country's 536 micropolitan areas, their population and income growth rates, and the volatility of their economic growth. Following earlier studies by Davidsson and Rickman (2011) and Cortes *et al.* (2013), Cortes and colleagues find that the economic vitality of micropolitan areas is correlated with the industry structure, location, and government policy. In terms of the Southeast region, Nzaku and Bukenya (2005) determine that the economic growth (in terms of income, employment, and population) of non-metropolitan counties not only depends on sectoral composition and fiscal factors but also on the amenities available in these areas (natural and recreational amenities, low crime rates). The importance of quality of life factors associated with location, housing, and favorable regulatory environment in micropolitan areas is further examined and evidenced in Davidsson and Cortes (forthcoming).

The present study contributes to the micropolitan area growth literature by investigating the impact of credit to small businesses. Specifically, it looks at the role of government loan programs, in this case, Small Business Administration (SBA) lending activity, in promoting business and overall economic growth in micropolitan areas. Earlier studies by Craig and others (2006, 2007, 2008, 2009), Shaffer and Collender (2009), and Hancock and Wilcox (1998) show that SBA-guaranteed loans have a positive and significant effect on local economic activity especially in low-income areas or counties. This study extends the previous literature with some differences. First, it uses more recent data and focuses on the impact of SBA 7(a) lending activity during the 1990-2015 period. Second, it applies a fixed effects panel regression model with micropolitan area economic growth (i.e., as measured by real gross regional product, employment rate, and real personal income per capita) as the dependent variable. Third, the analysis only covers the micropolitan areas of the Southeast US region.

DATA AND METHODOLOGY

The theoretical framework of this study derives from Bruce *et al.* (2009) with some differences. First, this study applies the growth model to the micropolitan area level rather than the state-level. Second, SBA lending activity is the main key variable of interest; unlike Bruce *et al.* (2009) who include government loan guarantee program as a dummy non-tax variable, this study uses real SBA data. Third, this study employs more industry variables to account for differentiated sectoral effects. Lastly, unlike Bruce and others, more demographic variables are considered in the estimating equation. Following Bruce *et al.* (2009), the general model estimated here takes the following form:

$$\begin{aligned}
 GR = & \beta_0 + \beta_1 INITIAL + \beta_2 SBA + \beta_3 DEP + \beta_4 FARM + \beta_5 MFTG + \beta_6 RETAIL + \beta_7 CONST \\
 & + \beta_8 GOVT + \beta_9 SERV + \beta_{10} WAGE + \beta_{11} UR + \beta_{12} HOUSING + \beta_{13} POPDENSITY \\
 & + \beta_{14} AGE + \beta_{15} EDUC + \beta_{16} WHITE + \beta_{17} BLACK + \beta_{18} HISP + \beta_{19} Time1990 \\
 & + \beta_{20} Time2000 + \varepsilon
 \end{aligned}
 \tag{1}$$

where GR is the micropolitan area economic growth rate (as measured by real gross regional product, employment rate, or per capita personal income); INITIAL is the beginning of the period real value of gross regional product, income, or employment; SBA is real per capita SBA 7(a) loans; DEP is bank deposits per capita; FARM, MFTG, RETAIL, CONST, GOVT, and SERV are the shares of total micropolitan area employment accounted by the farm, manufacturing, retail trade, construction, local government, and

professional services sectors, respectively; WAGE is real wage per capita; UR is unemployment rate; HOUSING is housing units per square mile; POPDENSITY is population per square mile; AGE is the median age of population; EDUC is the percent of area population with a college degree; WHITE, BLACK, and HISP are the percent of population that is Caucasian, African-American, and Hispanic, respectively; Time1990 and Time2000 account for time fixed effects; and ϵ is the error term.

The model is applied to a balanced panel data consisting of 153 Southeast micropolitan areas for three time periods: 1990-2000, 2000-2010, and 2010-2015. The dependent variable is defined as the average annual percentage rate (of real gross regional product, employment rate, or real per capita income) for each of the three sub-periods. To avoid the issue of endogeneity, all explanatory variables are initial values for each of the three time periods. The key variable of interest, SBA-approved loan data, is provided by the Small Business Administration. Demand deposit data are gathered from the FDIC's Summary of Deposits. Housing data are from the U.S. Census Bureau. All other variables are taken from the Woods & Poole (2016) database. Descriptive statistics of the variables of the model are available upon request from the authors. Following standard growth models, the beginning value (INITIAL) for gross regional product, employment, or total personal income per capita is added to account for the "convergence hypothesis," which states that richer areas will grow more slowly than poorer areas (Bruce *et al.*, 2009: 244). Thus, the *a priori* or expected sign of the estimated coefficient for INITIAL is negative. SBA 7(a) guaranteed loans and bank deposits in the micropolitan area represent credit access as well as the degree of financial market competition, following Craig and others; a positive sign is hypothesized for both financial variables. To proxy for the area's market size or demand conditions, population density is employed. Housing density is a proxy variable for amenities. Real wage per capita indicates input price effect while the unemployment rate reflects the general economic health of the area. The last variables are control factors representing local economic conditions including industrial composition and demographics. The six industry employment shares measure the effect of industrial composition on micropolitan area growth; the *a priori* expectation is ambiguous. Finally, AGE, EDUC, WHITE, BLACK, and HISP variables represent demographic characteristics.

EMPIRICAL RESULTS

The panel data set consists of 153 micropolitan areas and three time periods, amounting to 459 observations. Preliminary tests indicate that the panel estimating equation has significant fixed effects for both cross-sections and time periods. The model is estimated using a feasible Generalized Least Squares regression with fixed cross-section effects; time dummy variables for 1990-2000 period and 2000-2010 period are also included in the model. The EViews statistical package is used in the study. The results of estimating the model using three different dependent variables are shown in Table 5 below.

Confirming earlier studies by Craig *et al.* (2006, 2007, 2008, 2009) and Cortes (2010), the findings in Table 5 show that the key variable of interest, SBA-guaranteed lending, has a positive and significant impact on GRP/output and employment growth in the micropolitan areas of the Southeastern states, but no differential effect on per capita personal income. The level of bank deposits has similar effects, although the absolute sizes of the estimated coefficients are very small. The convergence hypothesis is supported for GRP and income, but not employment. The main contributing determinant of micropolitan area growth is industry structure, consistent with earlier studies of micropolitan areas by Cortes *et al.* (2013, 2015) and Davidsson and Rickman (2011).

Table 5: Pooled Regression of the General Model with Fixed Effects

| Variable | Model 1 Gross Regional Product Is Dependent | Model 2 Employment Rate Is Dependent | Model 3 Personal Income Is Dependent |
|-----------------------|---|--|--|
| Constant | 4.33 (1.68)* | -1.45 (-0.68) | 1.77 (2.60)*** |
| Initial Level | -0.00045 (-5.24)*** | 0.009 (1.68)* | -0.0002 (-9.86)*** |
| SBA per capita | 0.009 (1.96)** | 0.014 (4.19)*** | 0.003 (1.13) |
| Bank deposits | 0.0000007 (2.92)*** | 0.0000006 (3.05)*** | 0.0000004 (3.38)*** |
| Farm share | -0.09 (-3.80)*** | 0.08 (4.96)*** | 0.08 (8.63)*** |
| Manufacturing share | -0.02 (-2.51)** | -0.03 (-4.03)*** | -0.004 (-0.97) |
| Retail trade | -0.03 (-0.88) | 0.09 (3.21)*** | 0.02 (1.30) |
| Construction | -0.004 (-0.12) | 0.145 (5.67)*** | 0.02 (1.17) |
| Local government | -0.02 (-1.01) | 0.02 (2.42)** | 0.003 (0.49) |
| Professional services | 0.242 (3.88)*** | 0.02 (0.42) | 0.08 (2.91)*** |
| Wages | -0.00008 (-3.33)*** | -0.00002 (-1.27) | 0.00004 (3.34)*** |
| Unemployment rate | -0.06 (-2.40)** | -0.01 (-0.70) | -0.04 (-2.70)*** |
| Housing density | -0.009 (-0.95) | -0.03 (-4.26)*** | 0.01 (1.86)* |
| Population density | 0.002 (0.52) | 0.01 (3.30)*** | -0.01 (-2.23)** |
| Age | -0.04 (-1.72)* | -0.01 (-0.48) | 0.06 (4.05)*** |
| Education | 0.04 (2.10)** | 0.04 (2.82)*** | 0.03 (3.25)*** |
| White population | 0.01 (0.29) | -0.0001 (-0.01) | 0.002 (0.70) |
| Black population | -0.01 (-0.44) | -0.015 (-0.75) | 0.01 (3.96)*** |
| Hispanic population | -0.001 (-0.03) | -0.001 (-0.06) | -0.04 (-6.50)*** |
| Time1990 | 2.85 (11.30)*** | 1.00 (4.57)** | 0.02 (0.11) |
| Time2000 | 0.22 (0.95) | -1.17 (-6.27)*** | -0.91 (-6.17)*** |
| Adjusted R-squared | 0.70 | 0.76 | 0.78 |
| F-statistic | 55.17 (Prob<0.00) | 73.48 (Prob<0.00) | 80.85 (Prob<0.00) |

*This table shows the regression estimates for three versions of the general model (1) above. Model version 1 has GRP as the dependent variable; Model version 2 has employment rate as dependent; Model version 3 has personal income as dependent. The first figure in each cell is the estimated regression coefficient. t-statistics are in parentheses. ***, **, and * indicate significance at the 1, 5, and 10 percent level, respectively.*

The magnitudes and overall statistical significance of the coefficients of industry share variables indicate the role and importance of existing and dominant sectors such as agriculture, retail trade, construction, and professional services. Also reflecting current national trends, the manufacturing share of total employment has a consistently negative impact on micropolitan economic performance during the period under study. Unemployment rate has the expected negative effect, but is only significant in explaining output and income growth. As an indicator of input cost, wage has the expected and significant indirect relationship with GRP; as a component of personal income, wage is significantly and positively correlated with income growth. Human capital has the expected positive effect on growth. An aging population has a negative influence on output and employment growth; however, older or more mature workers are associated with higher incomes. Racial composition, i.e., black and Hispanic population, is important only in the income equation.

Population density and housing density affect both employment and income growth, but in opposite directions. Finally, the statistically significant time dummy variables reflect the importance of period effects, i.e., employment and income growth conditions in the recent 2010-15 period are more improved compared to those of the previous 2000-2010 period.

SUMMARY AND CONCLUSIONS

The main objective of this study is to identify and empirically measure the differential effect of Small Business Administration 7(a) guaranteed loans on the economic growth of micropolitan statistical areas in the U.S. Southeast region. It gathers data on small business loans from the SBA for the period 1990-2015 as well as statistics on various economic variables from the Woods & Poole database, U.S. Census Bureau, and the FDIC. The study applies fixed effects regression technique on a balanced panel data set comprised of 153 Southeast micropolitan areas and three time periods, amounting to 459 observations. The regression results confirm the positive, albeit small, impact of SBA loans on output and employment growth. Thus, it is important for local government and the banking sector to continue to provide credit access and financial intermediation particularly to small area businesses. The findings also indicate the critical role of a diversified and changing industrial base (from farming and manufacturing to services) in promoting economic growth and development. Finally, the economic survival of non-metropolitan/micropolitan areas is dependent on its attributes and competitive advantages such as human capital and entrepreneurship, and attractive amenities such as housing, climate, outdoor recreation, and quality of life (Nzaku and Bukenya, 2005). In terms of shortcomings, the study does not account for geospatial effects and is limited by data availability due to the relatively recent government-determined definition of “micropolitan statistical areas.” Directions for future research include the impact of SBA loans on all 536 micropolitan statistical areas in the country and a comparative study of other government loan programs such as the Community Reinvestment Act.

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