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ABSTRACT

Conventional wisdom suggests that small businesses are innovative engines of Schumpetarian growth. However, as small businesses, they are likely to face credit rationing in financial markets. If true then policies that promote lending to small businesses may yield substantial economy-wide returns. We examine the relationship between Small Business Administration (SBA) lending and local economic growth using a spatial econometric framework across a sample of 3,035 U.S. counties for the years 1980 to 2009. We find evidence that a county's SBA lending per capita is associated with direct negative effects on its income growth. We also find evidence of indirect negative effects on the growth rates of neighboring counties. Overall, a 10% increase in SBA loans per capita is associated with a cumulative decrease in income growth rates of about 2%.

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"I said I would cut taxes for small businesses [-]the drivers and engines of growth, and we've cut them 18 times. And I want to continue those tax cuts for middle-class families and for small businesses."

Democratic US President Barack Obama

"[C]hampioning small business. Our party has been focused on big business too long. I came through small business. I understand how hard it is to start a small business. That's why everything I'll do is designed to help small businesses grow and add jobs. I want to keep their taxes down on small business. I want regulators to see their job as encouraging small enterprise, not crushing it."

Republican US Presidential Nominee Mitt Romney
Second US Presidential Debate, October 16, 2012

1. Introduction

On October 16, 2012, during the second U.S. presidential debate, President Barack Obama and challenger Mitt Romney together used the phrases "small business" and "small businesses" a total of 21 times.[1] Politicians, policymakers, and pundits regularly extol the virtues of small businesses as engines of economic growth. This positive view towards small business is reflected by society more broadly. For example, a 2012 Gallup Poll found that more than 94% of Americans surveyed reported having a positive image of "small business".[2]

David Birch (1979, 1987) did much to popularize the perception that small businesses account for the bulk of job creation in the U.S. And many researchers – most prominently Zoltan Acs and David Audretsch along with their coauthors – have argued that small businesses are also important sources of Schumpetarian (1942) innovation (*e.g.*, Acs and Audretsch, 1993; Acs, 1999; Acs *et al*., 2009; Audretsch *et al*., 2006). If this innovation is associated with positive

[1] Based on the transcript produced by U.S. National Public Radio (NPR): http://www.npr.org/2012/10/16/163050988/transcript-obama-romney-2nd-presidential-debate; last accessed March 11, 2014. There were additional references to "small enterprise" and "small employers".

[2] Alternatively, only 75% of Republicans and 44% of Democrats reported having a positive image of "big business". "Small business" also garnered more positive reactions than general terms like "free enterprise" and "capitalism": http://www.gallup.com/poll/158978/democrats-republicans-diverge-capitalism-federal-gov.aspx; last accessed March 14, 2014.

spillovers but small businesses are financially constrained, then the gains from subsidizing them may be considerable (Evans and Jovanovic, 1989; Evans and Leighton, 1989).

Consistent with these popular and scholarly perceptions, small businesses in the U.S. are directly and indirectly subsidized by the federal government in numerous ways. For example they receive exemptions from regulations (*e.g.*, requirements for advanced notice of layoffs) and are given preferential tax treatment (*e.g*, tax credits for the expenses of new retirement plans). They also receive preferential treatment for government contracts. Additionally, small business innovative efforts are also subsidized through the Small Business Innovation Research Program (SBIR) and Small Business Technology Transfer Program (STTR).[3] And, of course, the Small Business Administration (SBA) is a federal government agency whose very mission is to "…aid, counsel, assist and protect the interests of small business…".[4]

The asymmetric information problems that exist between financial intermediaries and small businesses may be particularly severe. The systematic recording and communication of information relevant to creditors is subject to economies of scale. As such, small businesses may be particularly subject to credit rationing (Stiglitz and Weiss, 1981). An important component of the SBA is its loan programs. To help with these potential information asymmetries, the SBA facilitates exchange between small businesses and intermediaries, often guaranteeing 75% to 90% of the loan.

Despite popular pro-small business sentiment and scholarly support, not all researchers are convinced of the benefits of subsidizing small businesses. Hurst and Pugsley (2011) examine survey responses from a sample of entrepreneurs taken before they started their small businesses. They find that most of these entrepreneurs are not Schumpetarian innovators – they do not

[3] de Rungy (2005) provides a concise overview of these government programs.
[4] This is from the SBA mission statement: http://www.sba.gov/about-sba/what_we_do/mission; last accessed March 14, 2014.

attempt to introduce new ideas, nor do they seek to enter a new or underserved market. Instead, many of these individuals tend to be seeking non-pecuniary benefits such as those associated with being one's own boss. Many small businesses may also be started by "necessity entrepreneurs" who have opted for self-employment because of difficulties in finding wage or salaried positions.[5] Necessity entrepreneurs often tend to have lower levels of human and social capital than "opportunity entrepreneurs" (i.e., those seeking to exploit new ideas and markets) (Acs, 2006; Block and Wagner, 2007); and their small businesses are more likely to fail (Pfeffier and Reize, 2000; Block and Sandner, 2009; Caliendo and Kritikos, 2009). Small business subsidies may or may not successfully reach opportunity entrepreneurs rather than necessity entrepreneurs and individuals with *be my own boss* preferences.

Hurst and Pugsley also note that firms with less than 20 employees account for 90% of U.S. firms but actually only about 20% of total employment. Furthermore, Haltiwanger *et al*. (2013) and Neumark *et al*. (2011) both find that the perception of small businesses as engines of growth is at least in one sense incorrect. Once firm age is controlled for, there is no meaningful relationship between firm size and firm growth. Subsidizing small firms, then, may divert resources from larger firms that are just as or even more likely to innovate and to grow.[6]

In this paper we examine the relationship between SBA lending and real per capita income growth using a panel of 15,175 observations of 3,035 U.S. counties during the years 1980 to 2009. We employ spatial econometric techniques to estimate the direct effects of SBA lending on a county's growth rate, as well as the indirect effect on its neighbors' growth rates.

[5] For example see Audretsch and Vivarelli, 1995; Blau, 1987; Evans and Leighton, 1989; Fairlie and Krashinsky, 2006; Shane, 2009; Taylor, 1996; Thurik *et al.*, 2008

[6] In developing economies, La Porta and Shleifer (2008) and Banerjee and Duflo (2011) both report evidence that most small businesses are started due to a lack of jobs at larger firms. These small businesses most often neither innovate nor grow.

Our estimations include county-level SBA loans per capita. As an indicator of the implicit subsidy in favorable interest rates on SBA loans, in some specifications we control for a county's average loan rate relative to the prime rate. Furthermore, we check the robustness of our results controlling for SBA loan failure rates, as well as the share of loans that are covered by the SBA guarantee. In all specifications we also control for non-SBA variables that are likely correlates with the level of entrepreneurial activity (*e.g.*, per capita venture capital and citation-weighted patent counts (Samila and Sorenson, 2011)) as well as measures of educational attainment, demographics, and industry composition.[7] These latter controls are similar to those used in the county-level growth studies of Higgins *et al*. (2007) and Young *et al*. (2013).

Approaching a study of the relationship between SBA lending and growth, a cursory look at the data does not lend itself to strong priors. **Figure 1** contains a plot of county-level real per capita income growth against (log) SBA loans per capita.[8] No meaningful relationship is apparent in the plot and the slope of an OLS best-fit line is actually negative (though the estimate is not statistically different from zero). **Figure 2** contains another plot where now, in place of SBA lending, the horizontal axis marks the difference between the prime rate and the average rate charged on SBA loans in a county. This difference is increasing in the favorability of SBA rates relative to the prime benchmark. Again, there is no discernable relationship between this measure and growth.[9]

To our knowledge, there are only two other studies focusing on the effects of SBA loans on growth. First, Craig *et al*. (2007) provide OLS estimates based on an annual panel of

[7] We also include time period fixed effects and U.S. state fixed effects in the estimations.
[8] As described in detail in Section 2, we relate average SBA variable values over 5-year periods to average growth over subsequent 5-year periods.
[9] Though not statistically different than zero, the slope point estimate on an OLS best-fit line is negative.

metropolitan statistical areas (MSAs) and non-MSA counties from 1991 to 2001.[10] They report a small but positive and statistically significant relationship between guaranteed loans and income growth. However, their set of control variables is much smaller than the one we employ in the present study. We also include state-level fixed effects in our estimations while Craig *et al*. do not.[11] Furthermore, while Craig *et al*. focus on annual variation in their data, we construct a panel of 5-year averages. This is more conventional for a study of economic growth.

Focusing on 5-year averages acknowledges that the effects of SBA lending in a county – including the indirect effects on neighboring counties – are likely to only be realized over time. We also go beyond the Craig *et al*. (2007) study by employing spatial econometric techniques. If spatial dependence is present but uncontrolled for then it can lead to inconsistent or otherwise biased estimates (Corrado and Fingleton, 2012). Furthermore, there is good reason to think that spatial dependence will be present in regional data on SBA lending and economic activity. For example, if small businesses are financially constrained but also innovative then SBA loans may promote growth both in the county where the loans are made and also in neighboring counties via spillover effects. Alternatively, if small businesses are not particularly innovative then SBA loans to a given area may simply result in a relocation of firms and resources from neighboring areas. Estimating the indirect effects of SBA loans on neighboring counties, therefore, is likely to yield important information for evaluating the economy-wide desirability of the SBA loan programs.

Second, our work is also related to a recent paper by Lee (2013). He estimates the relationship between small business birth rates, employment and income growth at the MSA-level during 1993-2002. He reports positive, statistically significant, and sizable effects on both

[10] Craig *et al*. (2008) provide a similar study where local area employment rates are the dependent variable.
[11] Aside from SBA variables and time period dummies they only control for the per capita income level and a measure of concentration in the deposit market. (Our estimations also include period fixed effects.)

of these variables. Given this, he further finds that SBA loan activity is not positively related to employment or income growth. According to Lee's estimates, government-backed small business creation simply crowds out, one for one, the non-government-backed creation of small businesses. The present study differs from Lee (2013) in a number of important ways. First, we again exploit a substantially larger number of control variables.[12] Second, Lee focuses on the number of SBA loans made in an MSA, while we focus on the amount of SBA lending per capita and, therefore, account for the fact that average loan sizes may differ across counties. Third, Lee does not account for variation in SBA loan rates relative to a benchmark (the prime rate); nor for failure rates and guarantee shares. Lastly, our study includes all counties – metro and non-metro – and allows for spatial dependence. Doing so may yield a more comprehensive picture of the effects of SBA lending activity. As well, our paper complements Lee's (2013) by allowing for the possibility that SBA lending has crowding out effects not only in the county where the lending occurs, but also in neighboring counties.

We find that SBA lending activity has a negative effect on per capita income growth. In most spatial Durbin model (SDM) specifications that we estimate, both the direct and indirect effects of SBA lending are negative, though the latter are larger in absolute value. (Even when statistically insignificant, the point estimates of the SBA lending effects are always negative, so in no case do find any evidence that SBA lending is associated with increased incomes.) Our estimates suggest that a 10% increase in SBA loans per capita (which is about $3.43 for the average county in our sample) is associated with a cumulative decrease in income growth rates of about 2 percentage points.

[12] Lee (2013) includes medium and large establishment births; the initial number of establishments, employment, annual payroll, population, and a housing price index; and 9 census division dummies as additional controls.

We organize this paper in the following way. In Section 2 we describe the U.S. county-level data set. Then in Section 3 we describe our empirical specifications; in particular the spatial Durbin models that allow us to estimate both the direct and indirect effects of SBA lending on county-level growth rates. The results of our analysis are presented and discussed in Section 4 and, finally, in Section 5 we provide some concluding remarks.

2. U.S. County-Level Data

We construct a panel of U.S. data that includes observations on 3,035 counties that cover the years 1980 to 2009. Our dependent and independent variables, discussed more fully below, are constructed as averages over 5-year periods. In the case of our dependent variable we consider the time frames: 1985-1989, 1990-1994, 1995-1999, 2000-2004, and, 2005-2009. For our independent variable we consider the preceding 5-year periods: 1980-1984, 1985-1989, 1990-1994, 1995-1999, and, 2000-2004. As a result of stacking these 5-year periods for our 3,035 counties the final dataset has 15,175 observations.

Personal income data (net of taxes) was obtained from the BEA and converted into constant 2005 U.S. dollars using the GDP deflator. We define our dependent variable as the average growth rate of real personal income per capita over a 5-year period. For each of these 5-year periods the initial year (log) real per capita income is always included as a control to account for possible conditional convergence effects.

Data on SBA loan activity and a number of related variables were obtained from the SBA via a Freedom of Information Act request. Our first task was to aggregate the loan data into yearly flows at the county-level. Next, we created yearly measures of SBA loans per-capita. We are interested in establishing whether SBA lending activity is associated with higher or lower rates of income growth, both directly within the county where loans are being made and indirectly via the spatial dependence of neighboring counties. As such, we define our primary independent variable of interest, *SBA loans per capita*, as the log of the average flow of SBA loans per-capita over each 5-year period.[13]

Controlling for the level of loan activity, we are also interested in the subsidy implicit in those loans and whether or not it is associated with greater county-level income growth. This subsidy is related to the rate paid on SBA loans relative to the cost of non-SBA funds. While we do not have data on loans that were never made, we argue that we can construct a reasonable proxy for the variation in the subsidy across counties and time periods. In particular, we assume that the subsidy will be proportional to the rate paid on an SBA loan relative to the prime rate. The prime rate provides a benchmark that, in principle, represents the rate that a very good credit risk would be offered anywhere in the country. Variation in SBA loan rates relative to this benchmark tells us something about how the subsidy is varying across both counties and time periods.

We have the interest rates associated with each of the individual SBA loans in our data. In our estimations we consider, at the country-level, the *prime rate minus the average SBA interest rate charged*.[14] We interpret an increase in this differential as an increase in the implicit subsidy. While controlling for the level of loan activity, we include this interest rate differential in some of our models. Additionally, we create a measure of the per capita level of the subsidy by multiplying the interest rate differential by (log) SBA loans per capita.[15]

[13] We always add 1 to the SBA loan amount before taking the log since there are observations of loans per capita that are equal to 0.
[14] Prime rate observations are taken from the St. Louis Federal Reserve.
[15] Strictly speaking, we should take the rate differential times the amount of loans and then take the log of that product. However, the differential is not bounded above 0.

SBA has two main loan programs. Their main effort is the 7(a) loan program that facilitates loans to existing small businesses and startups by guaranteeing a large part of the principal. In our sample over 90% of loans are 7(a) loans. With this data we create two variables (i) *share of SBA loans that are "7(a)"* loans in a county and the (ii) *share of SBA loans that are guaranteed*. The guarantee share represents the actual percentage of dollars loaned that are guaranteed (on average, about 58% in our sample) so it is related to the 7(a) share. In either case, these controls are included to gain insight into both the potential costs of moral hazard and the potential benefits of having the SBA alleviate credit rationing. In specifications where we introduce either of these controls, we do so by including, separately, the share times the SBA loan level and one minus the share times the SBA loan level. For example, in the case of the guarantee share, we control for the average guaranteed and unguaranteed SBA dollar loan amounts separately.

A contentious issue in both scholarly and popular discussions about the U.S. economy is the decline in the manufacturing sector. Manufacturing (relative to, say, services) can be particularly capital intensive; successfully entering the manufacturing sector may require financing to cover relatively large fixed costs. In some specifications we control for the *share of SBA loans that are made to manufacturing firms* (on average, about 16% in our sample). Similar to the 7(a) and guarantee shares, we scale SBA loan levels by, separately, the manufacturing share and one minus the manufacturing share. In this way we can estimate the different effects on income growth of SBA loans in the manufacturing sector versus those in non-manufacturing sectors.

Finally, we have data on SBA loan failures (charge offs) in each county. We define an *SBA loan failure rate* as the sum of SBA loan charge offs that occur during a given period divided by the sum of SBA loans made and SBA loan charge offs. The reason for including the latter in the denominator is to ensure that the ratio is bounded between 0 and 1. This allows us to estimate the different growth effects of the amount of, *ex post*, “successful” versus “unsuccessful” lending. On average, the failure rate in our sample is about 8%. Previous studies have reported that the likelihood of default on SBA loans is similar to that of a large percentage (40% or more) of large commercial bank loans (Treacy and Carey, 1998; Glennon and Nigro , 2005). That being said, we are interested in knowing whether the variation in SBA failure rates can help account for the effect of SBA lending on growth.

The arguments in favor of subsidizing small businesses typically revolve around their being particularly innovative and entrepreneurial. In all of our estimations, then, we control for a number of variables that are suggested by Samila and Sorenson (2011) in their study of entrepreneurial activity in U.S. metropolitan areas. In particular, we control for dollars of venture capital funds invested in a county and the number of citation-weighted patents per capita. (The latter is based on successful patent applications filed by inventors located in the county.)[16] Venture capital investments are a potentially important determinant of innovative activity, and patenting is a potentially meaningful indicator of innovative activity that is actually occurring. Furthermore, we control for a number of county-level indicators of entrepreneurial activity: the numbers of employees, establishments with less than 500 employees, and establishments with more than 500 employees.

The inclusion of venture capital and patent measures constitutes an additional contribution of this paper. Samila and Soreson find that both venture capital and patents are positively linked to firm starts, employment, and payroll (income) in U.S. metropolitan statistical

[16] Following Samila and Sorenson (2011) for patent applications listing a number (*n*) of inventors, 1/*n* patents is assigned to the county of each individual inventor. This is described more fully in the Samila and Sorenson (2009) working paper.

areas (MSA). We extend their perspective to explore the relationships between these variables and county-level income growth. Our analysis covers all counties; not only MSAs. Also, while Samila and Soreson examine a panel with annual frequency from 1993 to 2002, we consider a longer time period (1980 to 2009) and a frequency of 5-year averages. The 5-year frequency is more appropriate for the study of income *growth*, and we relate venture capital and patenting activity over 5-year periods to income growth in the subsequent 5-year periods. By allowing for spatial dependence we also consider the possibility that innovative activity in a given county creates spillover effects in neighboring counties.

Finally, we include a large number of additional controls that are suggested by the county-level growth studies of Higgins *et al*. (2006) and Young *et al*. (2013). These include land area and water area per capita; whether or not a county is in a metropolitan area; demographic controls for age, ethnic/racial, and educational composition of a county's population; the poverty rate; federal and state and local government employment; and the industry compositions of a county. Average income growth rates over 5-year periods (1985-1989; 1990-1994; 1995-1999; 2000-2004; and, 2005-2009) are related to the initial year values of each of these additional controls (1985; 1990; 1995; 2000; and, 2005). All of our estimations include U.S. state fixed effects and period fixed effects. Sources and summary statistics for all of the variables described above are reported in **Table 1**.

It should be noted that among our controls, the initial (log) per capita income level is of particular interest because of its link to conditional convergence effects (Baumol, 1986; Barro and Sala-i-Martin, 1992). Higgins *et al*. (2006) report a conditional income convergence rate of between 6% and 8% across U.S. counties. While Higgins *et al*. report standard errors that are robust to spatial correlation in growth equation error terms (Rappaport, 1999; Conley, 1999) they do not account for the bias that might arise from not explicitly allowing for spatial dependence of income growth rates.

Rey and Montouri (1999) are the first paper that employs a spatial econometric framework to estimate the conditional convergence rate. They do so using cross-sections of U.S. state-level data from 1929 to 1994 and report that the estimated rate is generally around 2% (what Barro (2012) refers to the "iron law of convergence"), similar to OLS estimates using the same data. However, aside from initial income Rey and Montouri do not include any additional control variables in their analysis. Also, to our knowledge only Rupasingha *et al*. (2005) employ county-level data within a spatial econometric framework to estimate a U.S. conditional convergence rate. However, these authors do not calculate the correct estimates of direct, indirect, and total effects as described by LeSage and Pace (2009). Rupasingha *et al*. (2005) also employ a much smaller set of controls than are employed in the present paper. An additional contribution of this paper, then, is to provide a correct analysis of how accounting for spatial dependence affects the conditional convergence rate estimate for the U.S. economy; one that incorporates a large number of additional economic and demographic controls

3. Empirical Framework: the Spatial Durbin Model

Consider the panel made up of data described in Section 2 above. Denote the number of counties in the panel by N (= 3,035) and the number of time periods as T (= 5). A spatial Durbin model can be expressed as follows:

(3.1) $$g_{it} = \alpha + \rho W g_{it} + X_{i,t-1}\beta_X + WX_{i,t-1}\theta_X + \varepsilon_{it}\,,$$

where g_{it} is an $(T \times N) \times 1$ vector of income per capita growth rates and $X_{i,t\text{-}1}$ is a $(T \times N) \times k$ matrix of k control variables. (For simplicity of exposition we will assume that $X_{i,t\text{-}1}$ includes period and U.S. state fixed effects.) Also, ε_{it} is a $(T \times N) \times 1$ vector of errors and β_X is a $k \times 1$ coefficient vector.[17]

Additionally, (3.1) differs from a standard OLS specification by allowing for two types of interesting spatial dependence. First, income growth in a given county can exhibit spatial dependence on the growth rates of neighboring counties. This is modeled with a *spatial autoregressive* (SAR) term: $\rho W g_{it}$. As an intuitive example of this sort of spatial dependence, when incomes grow faster in a county its residents may increase their demands for the goods sold in neighboring counties. Those increased demands can cause incomes in those neighboring counties to grow faster as well.

Second, income growth in a given county can exhibit spatial dependence in the values of control variables in neighboring counties. This is modeled with what is commonly referred to as a *spatial lag of X* (SLX) term: $WX_{i,t-1}\theta_X$. As an intuitive example of this second type of spatial dependence, SBA lending in one county may lead to the creation of job opportunities, including some that are filled by residents of neighboring counties. Those residents of neighboring counties will then experience income growth higher than otherwise would have been the case. As an alternative example, when SBA guarantees are offered on loans to applicants in a given county, the funds for those loans may come, in whole or in part, at the cost of loans that *would* have otherwise been made in neighboring counties. This may result in indirect, negative growth effects in those neighboring counties.

Both types of spatial dependence are a function of the definition of "neighbors" as embodied in a $(N \times N)$ weight matrix, W, along with a spatial autoregressive parameter, ρ, and a

[17] Importantly, β_X cannot be interpreted by itself as the direct effects of a county's X variables on its own income growth. As LeSage and Pace (2009) show, for the rth X variable, $\frac{\partial g}{\partial X_r} = (I_N - \rho W)^{-1}(\beta_{Xr} + W\theta_{Xr})$. Intuitively, the SAR and SLX parameters (see immediately below) matter because there are feedback effects.

$k \times 1$ vector of coefficients, θ. We define any county's neighbors by its k nearest neighbors and we choose to set $k = 5$. (*Nearest* here refers to, for a given county, the 5 counties that are closest to its geographic center.) For counties in our sample, 5 is the average number of contiguous counties. An entry in W takes a value of 1 when it corresponds to a pair of counties that are neighbors; it otherwise takes a value of 0.

While we believe our choice of k is reasonable, any particular value will be somewhat arbitrary. However, as LeSage and Pace (2010) explain, if the effects estimates are computed and interpreted correctly then the results will not be sensitive to the particular choice of k.[18] Along with the direct effects, we provide correct estimates of the indirect and total effects (LeSage and Pace, 2009). The indirect effects that are reported below are to be interpreted as cumulative effects that include not only the effect of a given county on its neighbors, but also the effect of those neighboring counties on their own neighbors. (Feedback effects on the original given county are included in the estimate of the direct effect.) The total effect of a change in a control variable in a given county is then the sum of the direct and indirect effects.

We estimate specifications along the lines of (3.1) using maximum likelihood. Maximum likelihood estimation is employed to avoid the simultaneity bias that would arise in OLS estimation when a spatially lagged dependent variable is included.

4. Results

[18] Intuitively, consider the example of 3 counties ("A", "B", and "C") that lay in succession along a line: A, then B, and then C; and consider that growth rates are spatially dependent on neighboring growth rates. We want to use an SAR model to estimate that spatial dependence. We could consider a 1-closest neighbor weighting scheme. In that case, A would affect B which would affect C; and then there would be feedback effects. Alternatively we could consider a 2-closest neighbor scheme where A affects both B and C; and then there are feedback effects. In either case, a particular spatial autoregressive root (ρ) that is less than 1 in absolute value will imply a finite cumulative effect. If there is a true cumulative effect, then there will be a root (ρ_1) such that a 1-closest neighbor SAR specification is consistent with it; and there will be another root (ρ_2) such that a 2-closest neighbor SAR specification is consistent with it. From either specification, then, we can in principle estimate that true cumulative effect.

Our most interesting results will be based on the spatial econometric framework. However, as a benchmark, we begin by reporting OLS results for the model with no spatial dependence. (The empirical model in this case is simply (3.1) where ρ and the elements of θ are all constrained to be equal to 0.)

4.1 OLS Results

OLS results are reported in **Table 2**. In these OLS regressions (as well as the SDM estimations that are reported on subsequently) we include the full set of control variables described in Section 2. However, to make reporting results manageable **Table 2** contains only the coefficient estimates associated with (a) SBA variables, (b) the innovative activity variables from Samila and Sorenson (2011), and (c) the initial (log) per capita income level.[19]

Across U.S. counties, (log) SBA loans per capita is negatively related to per capita income growth (columns 1, 2, and 3). The point estimates suggest that a 1 percent increase in SBA lending corresponds to a 0.1 percentage point decrease in the average annual growth rate that. All coefficient estimates on SBA loans are statistically significant at the 1% level.

The regression results reported in column 2 include the difference between the prime rate and the average SBA loan rate. We interpret variation in this differential as positively related to an implicit subsidy to small businesses. The differential enters negatively and significantly at the 1% level. The point estimate implies that a 100 basis point increase in the differential corresponds to about a growth rate that is lower by 0.15 percentage points.[20] Column 3 is based

[19] Full OLS results are provided in **Appendix A** and full SDM results are provided in **Appendix B**.

[20] The interpretation of the rate differential coefficient can be confusing given that the average value of the prime rate net of the SBA rate in our sample is negative (-0.009). A negative coefficient on the rate differential may suggest a positive growth effect at that average value. However, the marginal growth effect is negative. For example, starting from the average (-0.009) a decrease in the SBA rate lowers the rate differential in absolute value, implying that the marginal effect on growth is negative when the coefficient is negative.

on an alternative measure of the implicit subsidy where the rate differential is scaled by (log) SBA loans per capita. This alternative measure has some intuitive appeal because it takes the average rate differential per dollar and scales it by the total number of dollars lent. However, this alternative measure does not enter significantly.

Perhaps surprisingly, across columns 1, 2, and 3 of **Table 2** the coefficient estimates associated with (log) venture capital per capita are negative and all statistically significant at the 1% level. Samila and Sorenson (2011) report that venture capital is positively related to payroll levels across U.S. MSAs.[21] Though venture capital is not the primary focus of this paper, this discrepancy is difficult to ignore.[22] Likewise, the (log of) patents per capita also enters our OLS regressions negatively and significantly (5% level). This again contrasts with Samila and Sorenson (2011) who across U.S. MSAs generally report positive (though often statistically insignificant) correlations between patenting activity and payroll levels.

In **Table 3** we report on regressions exploring these discrepancies between our results and those of Samila and Sorenson. These regressions focus on two key differences between their study and our own: (i) Samila and Sorenson's data is comprised of MSAs while we examine U.S. counties (both metro and non-metro) and (ii) they examine payroll (income) levels while we examine income growth rates. **Table 3**, then, contains the results of regressions where the dependent variable is (a) growth rates from the subsample constituted by metro counties (columns 1 and 2), (b) income levels from the full sample (columns 3 and 4), and (c) income

[21] In an unpublished manuscript Hasan and Wang (2006) report that venture capital is positively related to GDP growth (as well as new firm establishment and patenting activity) in a sample of 394 US regional labor market areas (LMAs) during the relatively short period of 1993-1999. Over these 7 years, they rely on an empirical specification that contemporaneously links venture capital to GDP growth at an annual frequency.

[22] Firm-level evidence also links venture capital to positive economic outcomes. For examples, Jai and Kini (1995) and Engel and Keilbach (2007) find that venture capital-funded firms experience higher sales growth and employment; Kortum and Lerner (2000) find that manufacturing firms that receive venture capital have higher patenting rates. However, Gompers and Lerner (2003) also find that during boom periods venture capital tends to overfund particular sectors and it becomes less effective.

levels from the metro county subsample (columns 5 and 6).[23] For each case we report both a regression with only SBA loans per capita and a regression that includes both loans per capita and the prime-SBA rate differential.

Apparently the discrepancies in results are driven by our focus on income growth rates vis-à-vis Samila and Sorenson's focus on levels. In particular, when the income level is the dependent variable, venture capital and patents both enter positively and significantly at the 1 % level. Focusing on the growth rate, alternatively, venture capital and patents both enter negatively and significantly at the 10% level or better. Whether one focuses on the full sample or just the metro counties does not make a difference in the signs of those coefficients. As to why the choice of income levels versus growth rates is critical, we can offer little beyond conjectures. However, more relevant to the present paper is the fact that, across the **Table 3** regressions, SBA loans per capita always enters negatively. The coefficient estimates are all statistically significant except for the case of income levels in the metro-county subsample (column 6). Also in this particular regression, the SBA rate differential enters *positively* and significantly (1% level).[24] Aside from the income level metro subsample regression, across the OLS regressions in **Tables 2** and **3** we uniformly find evidence of a negative and significant relationship between SBA lending and growth.

Lastly, we note that the coefficient estimates on the initial (log) income level in **Table 2** are always negative and statistically significant at the 1% level. The point estimate is -0.015 in all of the regressions. This point estimate implies a convergence rate of about 1.5% annually.

[23] Initial income is, of course, dropped from the control variable set when we employ the income level as the dependent variable.

[24] As we shall see, this is also true for the analogous SDM estimation. (See **Table 5C**.) We will return to its discussion and interpretation below.

This is reasonably close to (though statistically different than) the 2% iron law of convergence (Barro, 2012).

4.2 SDM Results

Table 4 contains the results of estimating spatial Durbin models (SDMs). For each of the specifications (labeled 1 through 3) we report three columns of estimates: respectively for the direct, indirect, and total effects. The estimates of the ρ parameter in the SDM specifications are all positive and highly significant. This implies that if we ignore spatial dependence (i.e. focus only on the OLS) we will be incorrectly interpreting the estimated effects.

Specification 1 includes only loans per capita as an SBA control variable. Both the direct and indirect effects of SBA lending are estimated to be negative, but neither is by itself statistically significant. However, the total effect – the sum of the direct and indirect effects – is negative and statistically significant at the 10% level. When the SBA rate differential is included as an additional control (specification 2, **Table 4**) the direct, indirect, and total estimated effects of SBA lending per capita are each negative and statistically significant at the 5% level or better. In specification 2 the direct effect of the rate differential (which we interpret as proportional to an implicit subsidy) is itself estimated to be negative and significant at the 1% level. The indirect effect is also estimated to be negative but is not statistically significant. When the rate differential is scaled by SBA loans per capita (specification 3) only its direct effect is statistically significant. Regarding SBA loans per capita, the direct, indirect, and total effects are all negative and statistically significant at the 10% level.

We consider specification 2 to be our preferred specification. Based on both the OLS and SDM estimation results, controlling for the implicit subsidy in preferential interest rates appears to be important. Also, the rate differential enters the estimations with statistically greater significance than the differential scaled by SBA loans. Based on specification 2, the total effect of a 1% increase in SBA loans per capita is a cumulative decrease in growth rates of 2 tenths of a percentage point. Most of that decrease is actually realized in growth rates outside of the county in which the increase in SBA loans occurs. To put this estimated effect in perspective, 2 tenths of a percentage point is close to 10% of the mean growth rate in our sample (2.4% annually). Starting from the mean SBA loans per capita level ($34.27) an increase of about $3.43 per capita is associated with a cumulative decrease in annual growth rates of about 2 percentage points. The sample standard deviation of SBA loans per capita ($38.67) is an order of magnitude larger than $3.43. Relative to the observed variation in SBA lending, then, the estimated total effects are quite large. Also note that if we use, instead, the point estimates from either of specifications 1 or 3, then an increase in $3.43 in per capita SBA loans is still associated with a cumulative decrease in annual growth rates of about 1 percentage point, which is itself quite large.

In **Tables 5A** and **5B** we report on SDM estimations that check the robustness of our results to controlling for a county's (i) SBA guarantee share, (ii) 7(a) loan share, (iii) manufacturing loan share, and (iv) failure rate on SBA loans. We first control for each of these variables separately (specifications 1, 2, 3, and 4) and report the results of an estimation including all of them together (specification 5). In all estimations we include SBA loans per capita and the SBA-prime interest rate differential. As in **Table 4** we report three columns of results (direct, indirect, and total effects) for each specification.

In each and every specification, the direct, indirect, and total effects of SBA lending on growth are negative and statistically significant at the 5% level or better. The point estimates for the indirect effects are always at least as large as those for the direct effects. Each of the total effect point estimates is -0.002 or -0.003; as large as or larger than the total effects reported in **Table 4**. While SBA lending appears to be robustly, negatively related to county-level growth, we report positive effects associated with the share of the loans that the SBA guarantees and the share of loans made to manufacturing firms. The 7(a) share appears to have no independent and significant relationship with county-level growth. Alternatively, the SBA loan failure rate is associated with highly significant and large negative direct, indirect, and total effects.

Considering the SBA guarantee share, the indirect effects (**Tables 5A** and **5B**; specifications 1 and 5) are each an order of magnitude larger than the estimated total effects. Broadly speaking, SBA lending in a given county may have effects on neighboring counties by (a) crowding their firms out of loanable funds markets and/or (b) having negative effects on the given county's growth that, in turn, spillover to neighboring counties (e.g., lower incomes in the given county lead to decreased demands for goods sold in the neighbors). Controlling for the amount of SBA lending, a positive indirect effect of the guarantee share is difficult to account for based on (a). However, in the case of (b) SBA guarantees serve to absorb losses associated with SBA lending in a given county, and therefore may, on the margin, dampen the negative spillovers into the economies of neighboring counties.

The manufacturing share (**Tables 5A** and **5B**; specifications 3 and 5) is also associated with direct, indirect, and total effects on growth that are positive and statistically significant. Similar to the case of the guarantee share, the indirect effects are estimated to be an order of magnitude larger than the direct effects. Note that, though its coefficient estimates are not reported in the tables, a county's manufacturing employment share is one of the control variables (**Table 1**). These manufacturing loan share effects, then, cannot be interpreted as simply implying that counties with a larger manufacturing sector grow faster. Rather, though overall

SBA lending is negatively related to growth, having more of those loans made to manufacturing firms is, on the margin, positively related to growth.

Perhaps least surprising, the SBA loan failure rate (**Tables 5A** and **5B**; specifications 4 and 5) is associated with negative direct, indirect, and total growth effects that are always statistically significant at the 1% level. These effects are large. The total effect reported for specification 5 implies that a standard deviation increase in the failure rate (0.126) is associated with a cumulative decrease in county-level income per capita growth rates of more than 1.4 percentage points. The indirect effects estimates are larger than the direct effects estimates by nearly an order of magnitude. Again, we interpret this result as being consistent with SBA loans in a county as having negative effects on growth that, in turn, spillover to neighboring counties. The actual failure of SBA loans would straightforwardly feed into these effects.

In all of the SDM results reported thus far, the venture capital and patenting variables are always associated with negative effects that are often statistically significant. (Estimates for venture capital and patenting are explicitly reported in **table 4**.) In **Tables 6A**, **6B**, and **6C** we report on robustness checks that are similar to those reported based on OLS in **Table 3**. Once again, whether the focus is on income levels or growth rates is important for the signs of the venture capital and patenting effects. In the case of the latter, the point estimates turn positive and are most often statistically significant.

Based on the subsample of metro county growth rates (**Table 6A**; specifications 1 and 2) the direct, indirect, and total SBA lending effects are always estimated to be negative. When the SBA rate differential is included (specification 2) the SBA lending effects are statistically significant (10% level or better). In particular, the total effect (significant at the 5% level) implies that a 1% increase in loans per capita is associated with a cumulative decrease in growth rates of about 3 tenths of a percentage point. Once again, whether one looks at income growth rates or levels appears to make a difference. Turning to income levels in the full sample of counties (**Table 6B**; specifications 3 and 4) the SBA lending effects estimates are all negative but the direct and indirect effects are not statistically significant. The total effect is statistically significant only when the SBA rate differential is excluded from the estimation.

The results are broadly similar for income levels when in the subsample of metro counties only (**Table 6C**; specifications 5 and 6). An interesting difference, however, is that when the rate differential is included (specification 6) its direct, indirect, and total estimated effects are all positive and statistically significant. There is some evidence, then, that across metro counties the variation in the implicit SBA subsidy is positively related to income levels. However, that same subsidy is *negatively* related to metro county growth rates (specification 2; the direct effect). One interpretation of these two results is that the implicit subsidy has short-run positive effects on income levels that are transitory; while the longer-run (i.e., over five years on average) growth effects that are negative. Turning our attention back to the SBA lending effects, we note that the results reported in **Tables 6A**, **6B**, and **6C** generally support the conclusion that SBA lending has both direct and indirect negative effects. Importantly, in no case do we find evidence that SBA lending is positively related to income growth rates or levels.

Returning to the results of **Tables 4A** through **4B**, we conclude our reporting of results by noting that the direct effect estimates on initial income are always negative and statistically significant. This is also true for all of the subsequent estimations (though the initial income effects are not reported in **Tables 5A**, **5B**, **6A**, **6B**, and **6C**). The indirect effects associated with initial income are never statistically significant. Based on the direct effects (for which the point estimates are uniformly -0.017) the implied conditional convergence rate is about 1.7% annually.

This is higher than the implied rate based on the OLS estimates in **Table 2**, but not in a particularly meaningful way. Based on either OLS or spatial econometric estimation, our results imply a considerably lower rate of conditional convergence than Higgins *et al*. (2006) report using U.S. county-level data and a similar control variable set.[25]

5. Conclusions

The conventional wisdom regarding small businesses is that they are engines of economic growth. They are particularly innovative and an important source of job creation in the U.S. economy. However, small businesses are also more likely than their larger counterparts to face credit rationing in financial markets. The Small Business Administration is a federal government agency charged with promoting the interests of small businesses; in large part by encouraging financial intermediaries to extend loans to them. An important part of that encouragement is the provision of government-backed guarantees on the loans, often for up to 75%-90% of the principal.

Despite the political popularity of pro-small business policy, many economists remain unconvinced that subsidizing small businesses specifically is desirable. Hurst and Pugsley (2011) argue that surveys of small business owners belie the perception of them as particularly innovative. Also, Haltiwanger *et al*. (2013) and Neumark *et al*. (2011) report that once firm age is controlled for there is no meaningful relationship between firm size and firm growth. The result of subsidizing small firms may then be to simply divert resources away from larger firms.

[25] While trying to explain the difference in convergence rate estimates is beyond the scope of the present paper, we note that Higgins *et al*. (2006) is a cross-sectional analysis of average income growth rates from 1970 to 1998. The present analysis, alternatively, is based on panel of 5-year periods with growth rates covering the 1985 to 2009 time period. The difference in results might stem from either the different time frame or the fact that we are exploiting time as well as cross-sectional variation in the data.

If these larger firms are actually more likely to be engines of growth then the preferential subsidization of small businesses may impose meaningful costs on the economy.

In this paper we examine the relationship between SBA lending and income growth at the U.S. county-level. Based on a sample of 3,035 counties that covers the years 1980 to 2009, we find little evidence to support the desirability of the SBA loan programs. A spatial econometric analysis suggests that an increase in SBA loans per capita in a county is associated with negative effects on its own rate of income growth; also the growth rates of neighboring counties. For the average county in our sample an increase in a per capita SBA loans of $3.43 is associated with a cumulative decrease in annual growth rates of about 2 percentage points. (The average county in our sample has $34.27 in SBA loans per capita.) The largest part of this decrease is in the form of indirect effects on neighboring counties.

In addition to including period and state-level fixed effects and a large number of other controls, we also check the sensitivity of the results to (a) examining income levels rather than growth rates and (b) examining a subsample of only metropolitan area counties. The results are largely robust and, perhaps more importantly, we never find any evidence of positive growth effects associated with SBA lending. Even when the estimated effects are statistically insignificant, the point estimates are always negative.

Our findings suggest that SBA lending to small businesses comes at the cost of loans that would have otherwise been made to more profitable and/or innovative firms. Furthermore, SBA lending in a given county results in negative spillover effects on income growth in neighboring counties. Given the popularity of pro-small business policies, our findings should give reason for policymakers and their constituents to reevaluate their priors.

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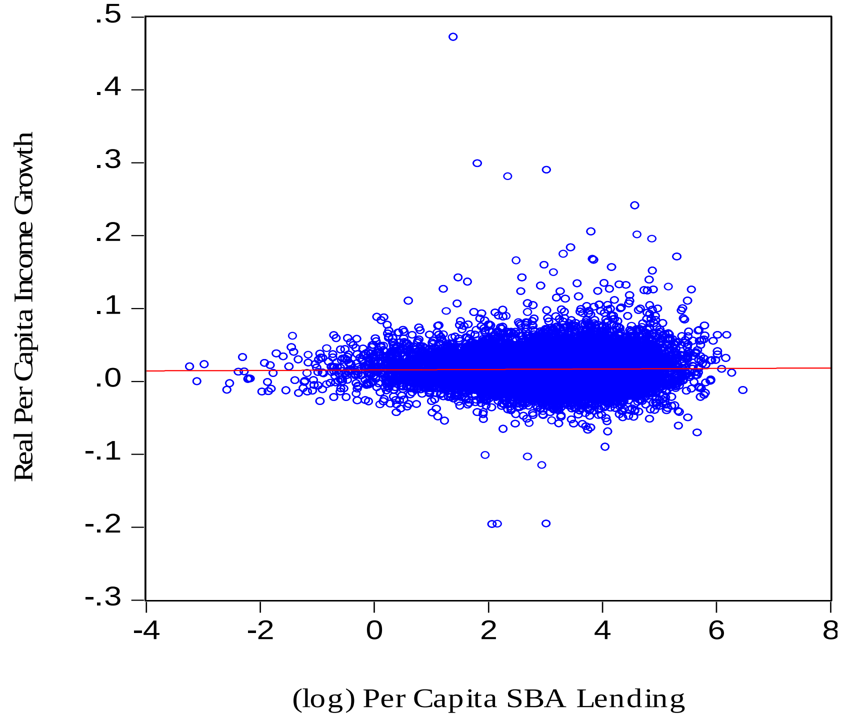
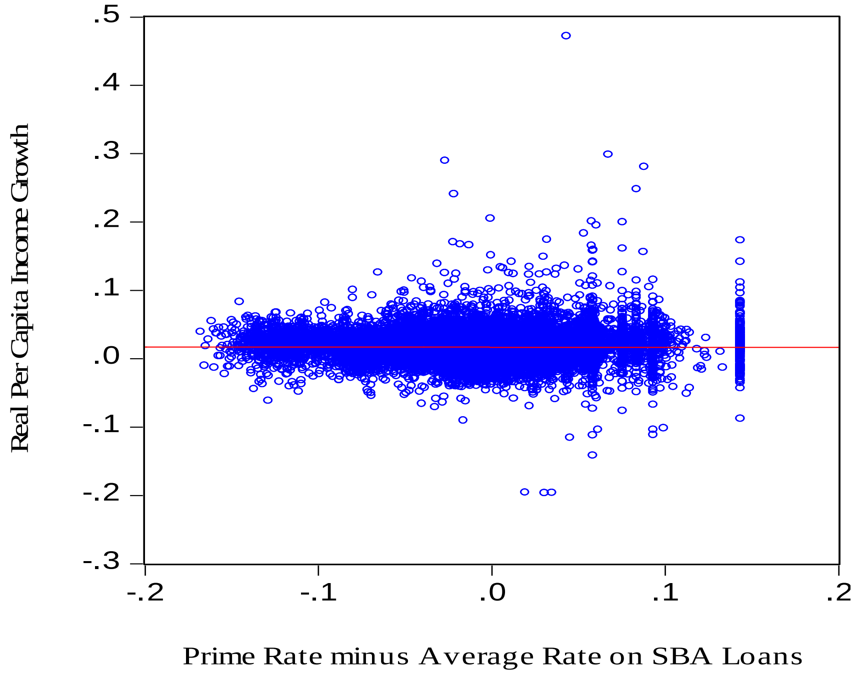
Figure 1. SBA lending and income growth at the U.S. county-level.



Note: dollar values are converted into 2005 constant dollars using the GDP deflator. For 3,038 counties average SBA lending over 5-year periods (1980-1984; 1985-1989; 1990-1994; 1995-1999; 2000-2004) is related to average income growth over subsequent 5-year periods (1985-1989; 1990-1994; 1995-1999; 2000-2004; 2005-2009). Personal income net of transfer payments is from the BEA. SBA lending per capita is from the SBA. Slope coefficient for OLS fit line is -0.000 and the estimate is not statistically significant.

Figure 2. Difference between prime and SBA rates in relation to income growth at the U.S. county-level



Note: dollar values are converted into 2005 constant dollars using the GDP deflator. For 3,038 counties the difference over 5-year periods (1980-1984; 1985-1989; 1990-1994; 1995-1999; 2000-2004) between prime and SBA rates are related to average income growth over subsequent 5-year periods (1985-1989; 1990-1994; 1995-1999; 2000-2004; 2005-2009). Personal income net of transfer payments is from the BEA. Prime rate is from the St. Louis Federal Reserve. SBA rates are from the SBA. Slope coefficient estimate for the OLS fit line is -0.001 and it is not statistically significant.

Table 1. Variable definitions, sources and summary statistics.

Variable	Note	Source	Mean	Std. Dev.
(Log of) personal income	real per cap.; net transfers	BEA	9.832	0.402
Income Growth	average growth rate	BEA	0.017	0.024
SBA loans per capita	dollars per capita	SBA	34.265	38.665
SBA loan failure rate	share of total dollars lent	SBA	0.081	0.126
SBA 7(a) share	share of total dollars lent	SBA	0.906	0.461
SBA guarantee share	share of total dollars lent	SBA	0.577	0.266
SBA manufacturing share	share of total dollars lent	SBA	0.163	0.193
SBA rate	rate average over all loans	SBA	0.099	0.065
Prime rate	same for all counties		0.091	0.029
Venture capital loans	dollars per capita	VentureExpert	0.057	0.568
Patents	per cap. citation-weighted	USPTO; Delphion	0.136×10^{-3}	0.295×10^{-3}
Establishments (<500 employees)	number of	Census	1,881.646	6,298.814
Establishments (>500 employees)	number of	Census	276.934	972.861
Employees	number of	Census	47,739.153	171,173.343
Land area per capita	km^2 per capita	Census	0.011	0.147
Water area per capita	km^2 per capita	Census	0.243	0.654
Age: 5-13 years	share of the population	Census	0.137	0.021
Age: 14-17 years	share of the population	Census	0.064	0.011
Age: 18-64 years	share of the population	Census	0.587	0.042
Age: 65+	share of the population	Census	0.145	0.042
Blacks	share of the population	Census	0.086	0.144
Hispanic	share of the population	Census	0.149	0.073
Education: 9-11 years	share of the population	Census	0.139	0.052
Education: H.S. diploma	share of the population	Census	0.258	0.069
Education: Some college	share of the population	Census	0.173	0.052
Education: Bachelor +	share of the population	Census	0.109	0.054
Poverty rate	share of the population	Census	0.149	0.073
Federal govt. employment	share of the population	BEA	0.008	0.015
State & local govt. employment	share of the population	BEA	0.067	0.032
Self-employment	share of the population	BEA	0.103	0.062
Farm employment	share of the population	BEA	0.048	0.049
Agri., fishing, & forestry employ.	share of the population	BEA	0.006	0.010
Construction employment	share of the population	BEA	0.027	0.018
Finance, insurance & real estate	share of the population	BEA	0.026	0.018
Services employment	share of the population	BEA	0.110	0.074
Manufacturing employment	share of the population	BEA	0.064	0.054
Mining employment	share of the population	BEA	0.008	0.043
Retail employment	share of the population	BEA	0.071	0.028
Transportation & utilities employ.	share of the population	BEA	0.018	0.015
Wholesale trade	share of the population	BEA	0.015	0.012
Metro Area	1 if metro area; 0 otherwise	Census	0.284	0.451

Note: summary statistics are taken over all panel observations: 3,035 counties and 5 time periods.

Table 2. OLS U.S. county-level growth regressions including SBA lending variables and other controls.

Variable	(1)	(2)	(3)
(log) SBA loans per capita	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)
Prime rate – SBA rate		-0.015***	
		(0.005)	
(log) SBA loans per capita × Prime rate – SBA rate			-0.002
			(0.001)
log(Venture capital loans)	-0.004***	-0.004***	-0.004***
	(0.001)	(0.001)	(0.001)
log(Patents)	-1.529**	-1.490**	-1.515**
	(0.689)	(0.689)	(0.689)
log(Establishments) (<500 employees)	0.003***	0.003***	0.003***
	(0.000)	(0.000)	(0.000)
log(Establishments) (>500 employees)	-0.021	-0.018	-0.020
	(0.187)	(0.187)	(0.187)
log(Employees)	0.001	0.001	0.001
	(0.002)	(0.002)	(0.002)
(log) personal income (initial)	-0.015***	-0.015***	-0.015***
	(0.000)	(0.002)	(0.002)
R^2	0.207	0.208	0.207
Observations	15,175	15,175	15,175

Notes: standard errors in parentheses. Though not reported, regressions include period and state fixed effects. Dependent variable is the average annual growth rate of real per capita personal income net of transfers. 1 is always added to SBA loan amounts to avoid logging zero values. Each regression also includes 27 additional control variables that are not reported for the sake of space. (See **Table 1** and section 2 for a description of these control variables.) Full results are provided in **Appendix A**.

Table 3. OLS robustness checks.

Variable	(1) Growth Rate; Metro Counties	(2)	(3) Income Level; All Counties	(4)	(5) Income Level; Metro Counties	(6)
(log) SBA loans per capita	-0.001**	-0.001***	-0.002**	-0.003**	-0.005**	-0.002
	(0.000)	(0.000)	(0.001)	(0.001)	(0.002)	(0.002)
Prime rate – SBA rate		-0.022***		-0.015		0.127***
		(0.007)		(0.025)		(0.044)
log(Venture capital loans)	-0.003**	-0.003**	0.037***	0.037***	0.028***	0.028***
	(0.001)	(0.001)	(0.007)	(0.007)	(0.008)	(0.008)
log(Patents)	-1.922*	-1.843*	46.780***	46.814***	43.699***	43.156***
	(0.985)	(0.985)	(3.691)	(3.692)	(5.866)	(5.865)
R^2	0.326	0.327	0.859	0.859	0.905	0.905
Observations	4,315	4,315	15,175	15,175	4,315	4,315

Notes: standard errors in parentheses. Though not reported, regressions include period and state fixed effects. Dependent variable is the average annual growth rate of real per capita personal income net of transfers ("Growth Rate") or the initial year level of net real per capita income ("Income Level"). 1 is always added to SBA loan amounts to avoid logging zero values. Regressions based on metro counties exclude the metro county dummy variable from the control variable set; regressions where the dependent variable is the income level exclude the initial income control variable.

Table 4. SDM US county-level growth estimations including SBA lending variables and other controls.

Variable	(1)			(2)			(3)		
	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
(log) SBA loans per capita	-0.000	-0.001	-0.001*	-0.001***	-0.002**	-0.002***	-0.000*	-0.001*	-0.001**
	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
Prime rate – SBA rate				-0.012***	-0.024	-0.036**			
				(0.004)	(0.016)	(0.017)			
(log) SBA loans per capita × Prime rate – SBA rate							-0.003**	-0.006	-0.008
							(0.001)	(0.005)	(0.005)
log(Venture capital loans)	-0.002*	-0.006	-0.008*	-0.002*	-0.005	-0.007*	-0.002*	-0.006	-0.008*
	(0.001)	(0.004)	(0.004)	(0.079)	(0.004)	(0.004)	(0.001)	(0.004)	(0.004)
log(Patents)	-0.669	-5.383**	-6.051**	-0.629	-5.156**	-5.785**	-0.653	-5.223**	-5.876**
	(0.627)	(2.569)	(2.825)	(0.639)	(2.560)	(2.835)	(0.641)	(2.537)	(2.791)
log(Establishments) (<500 employees)	0.002***	0.005***	0.007***	0.002***	0.005***	0.007***	0.002***	0.005***	0.007***
	(0.000)	(0.002)	(0.002)	(0.000)	(0.002)	(0.002)	(0.000)	(0.001)	(0.002)
log(Establishments) (>500 employees)	0.036	1.922***	1.959**	0.037	1.956***	1.993***	0.031	1.903***	1.934**
	(0.175)	(0.688)	(0.777)	(0.172)	(0.687)	(0.765)	(0.176)	(0.683)	(0.774)
log(Employees)	0.000	0.018**	0.018**	0.000	0.016**	0.016**	-0.000	0.017**	0.017**
	(0.002)	(0.007)	(0.008)	(0.002)	(0.007)	(0.008)	(0.002)	(0.007)	(0.008)
(log) personal income (initial)	-0.017***	-0.001	-0.018***	-0.017***	0.000	-0.017***	-0.017***	-0.000	-0.017***
	(0.002)	(0.005)	(0.005)	(0.001)	(0.005)	(0.005)	(0.001)	(0.004)	(0.005)
ρ	0.550***			0.551***			0.545***		
	(0.009)			(0.009)			(0.009)		
Observations	15,175			15,175			15,175		

Notes: standard errors in parentheses. Though not reported, estimations include period and state fixed effects. Dependent variable is the average annual growth rate of real per capita personal income net of transfers. 1 is always added to SBA loan amounts to avoid logging zero values. Each regression also includes 27 additional control variables that are not reported for the sake of space. (See **Table 1** and section 2 for a description of these control variables.) Full results are provided in **Appendix B**.

Table 5A. SDM US county-level growth estimations including SBA lending variables and other controls.

Variable	(1)			(2)			(3)		
	Direct	Indirect	Total	Direct	Indirect	Total	Direct	Indirect	Total
(log) SBA loans per capita	-0.001***	-0.002***	-0.003***	-0.000**	-0.001**	-0.002**	-0.001***	-0.002**	-0.002***
	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
Prime rate – SBA rate	-0.007	0.005	-0.002	-0.016*	-0.021	-0.038	-0.010**	-0.018	-0.028
	(0.006)	(0.021)	(0.024)	(0.009)	(0.032)	(0.035)	(0.004)	(0.016)	(0.017)
SBA guarantee share	0.002	0.010*	0.012**						
	(0.001)	(0.005)	(0.006)						
SBA 7(a) share				-0.001	0.000	-0.000			
				(0.011)	(0.004)	(0.005)			
SBA manufacturing share							0.003**	0.012**	0.016**
							(0.001)	(0.006)	(0.007)
SBA failure rate									
ρ	0.548***			0.561***			0.545***		
	(0.009)			(0.009)			(0.009)		
Observations	15,175			15,175			15,175		

Notes: standard errors in parentheses. Though not reported, estimations include period and state fixed effects. Dependent variable is the average annual growth rate of real per capita personal income net of transfers. 1 is always added to SBA loan amounts to avoid logging zero values. Each estimation also includes 33 additional control variables that are not reported for the sake of space. (See **Table 1** and section 2 for a description of these control variables.)

Table 5B. SDM U.S. county-level growth estimations including SBA lending variables and other controls.

Variable	(4)			(5)		
	Direct	Indirect	Total	Direct	Indirect	Total
(log) SBA loans per capita	-0.000**	-0.001**	-0.002**	-0.001***	-0.002***	-0.003***
	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
Prime rate – SBA rate	-0.016***	-0.057***	-0.073***	-0.016*	-0.022	-0.038
	(0.005)	(0.017)	(0.018)	(0.009)	(0.030)	(0.033)
SBA guarantee share				0.003*	0.016**	0.019***
				(0.002)	(0.006)	(0.007)
SBA 7(a) share				-0.001	-0.002	-0.004
				(0.001)	(0.005)	(0.006)
SBA manufacturing share				0.003**	0.010*	0.013**
				(0.001)	(0.006)	(0.006)
SBA failure rate	-0.013***	-0.095***	-0.109***	-0.014***	-0.099***	-0.113***
	(0.004)	(0.015)	(0.017)	(0.004)	(0.016)	(0.018)
ρ	0.546***			0.536***		
	(0.009)			(0.009)		
Observations	15,175			15,175		

Notes: standard errors in parentheses. Though not reported, estimations include period and state fixed effects. Dependent variable is the average annual growth rate of real per capita personal income net of transfers. 1 is always added to SBA loan amounts to avoid logging zero values. Each estimation also includes 33 additional control variables that are not reported for the sake of space. (See **Table 1** and section 2 for a description of these control variables.)

Table 6A. SDM robustness checks.

Variable	(1) Growth Rate; Metro Counties			(2)		
	Direct	Indirect	Total	Direct	Indirect	Total
(log) SBA loans per capita	-0.000	-0.002	-0.002	-0.001**	-0.002*	-0.003**
	(0.000)	(0.001)	(0.001)	(0.000)	(0.001)	(0.001)
Prime rate – SBA rate				-0.016**	-0.030	-0.046
				(0.007)	(0.028)	(0.032)
log(Venture capital loans)	-0.003**	-0.001	-0.003	-0.003**	-0.001	-0.003
	(0.001)	(0.004)	(0.005)	(0.001)	(0.004)	(0.005)
log(Patents)	-0.968	-3.777	-4.745	-0.889	-3.076	-3.965
	(0.927)	(-3.884)	(4.341)	(0.925)	(3.853)	(4.290)
R^2	0.544			0.545		
Observations	4,315			4,315		

Notes: standard errors in parentheses. Though not reported, regressions include period and state fixed effects. Dependent variable is the average annual growth rate of real per capita personal income net of transfers ("Growth Rate") or the initial year level of net real per capita income ("Income Level"). 1 is always added to SBA loan amounts to avoid logging zero values. Estimations based on metro counties exclude the metro county dummy variable from the control variable set; estimations where the dependent variable is the income level exclude the initial income control variable.

Table 6B. SDM robustness checks.

Variable	(3) Income Level; All Counties			(4)		
	Direct	Indirect	Total	Direct	Indirect	Total
(log) SBA loans per capita	-0.001	-0.004	-0.006*	-0.002	-0.002	-0.004
	(0.001)	(0.003)	(0.003)	(0.001)	(0.003)	(0.004)
Prime rate – SBA rate				-0.011	0.103	0.091
				(0.024)	(0.072)	(0.079)
log(Venture capital loans)	0.022***	0.030*	0.052***	0.021***	0.029	0.050**
	(0.006)	(0.018)	(0.020)	(0.006)	(0.019)	(0.020)
log(Patents)	37.171***	47.414***	84.584***	37.122***	47.623	84.745***
	(3.435)	(11.825)	(13.124)	(3.362)	(11.562)	(12.796)
R^2	0.894			0.894		
Observations	15,175			15,175		

Notes: standard errors in parentheses. Though not reported, regressions include period and state fixed effects. Dependent variable is the average annual growth rate of real per capita personal income net of transfers (“Growth Rate”) or the initial year level of net real per capita income (“Income Level”). 1 is always added to SBA loan amounts to avoid logging zero values. Estimations based on metro counties exclude the metro county dummy variable from the control variable set; estimations where the dependent variable is the income level exclude the initial income control variable.

Table 6C. SDM robustness checks.

Variable	(5) Income Level; Metro Counties			(6)		
	Direct	Indirect	Total	Direct	Indirect	Total
(log) SBA loans per capita	-0.003	-0.014**	-0.017***	-0.001	-0.006	-0.007
	(0.002)	(0.006)	(0.006)	(0.002)	(0.006)	(0.006)
Prime rate – SBA rate				0.077*	0.389***	0.465***
				(0.040)	(0.129)	(0.142)
log(Venture capital loans)	0.021***	0.025	0.047**	0.022***	0.026	0.047**
	(0.007)	(0.021)	(0.023)	(0.007)	(0.020)	(0.022)
log(Patents)	35.903***	38.966**	74.870***	34.201***	29.401*	63.602***
	(5.628)	(17.871)	(19.381)	(5.503)	(17.297)	(18.729)
R^2	0.924			0.924		
Observations	4,315			4,315		

Notes: standard errors in parentheses. Though not reported, regressions include period and state fixed effects. Dependent variable is the average annual growth rate of real per capita personal income net of transfers ("Growth Rate") or the initial year level of net real per capita income ("Income Level"). 1 is always added to SBA loan amounts to avoid logging zero values. Estimations based on metro counties exclude the metro county dummy variable from the control variable set; estimations where the dependent variable is the income level exclude the initial income control variable.

Appendix A: OLS Results

Table A1. OLS results from column 1 **Table 2** regression.

Variable	Coefficient	Std. Error	P-value
(log) SBA loans per capita	-0.001	0.000	0.002
log(Venture capital loans)	-0.004	0.001	0.003
log(Patents)	-1.529	0.689	0.026
log(Establishments) (<500 employees)	0.003	0.000	0.000
log(Establishments) (>500 employees)	-0.021	0.187	0.912
log(Employees)	0.001	0.002	0.445
Metro area	0.001	0.000	0.007
(log) personal income (initial)	-0.015	0.002	0.000
Education: 9-11 years	0.014	0.007	0.036
Education: H.S. diploma	-0.024	0.006	0.000
Education: Some college	-0.004	0.008	0.590
Education: Bachelor +	0.082	0.008	0.000
Hispanic	0.001	0.003	0.711
Blacks	0.003	0.002	0.196
Poverty	-0.037	0.006	0.000
Age: 5-13 years	0.151	0.047	0.001
Age: 14-17 years	0.268	0.039	0.000
Age: 18-64 years	0.093	0.032	0.004
Age: 65+	0.108	0.030	0.000
Land area per capita	0.002	0.000	0.000
Water area per capita	0.002	0.001	0.118
Federal govt. employment	0.012	0.014	0.384
State & local govt. employment	-0.016	0.008	0.041
Self-employment	-0.020	0.006	0.001
Farm employment	0.061	0.008	0.000
Agri., fishing, & forestry employ.	-0.102	0.024	0.000
Mining employment	-0.059	0.011	0.000
Construction employment	-0.038	0.013	0.003
Manufacturing employment	-0.014	0.005	0.009
Transportation & utilities employ.	-0.046	0.015	0.002
Wholesale trade	0.031	0.020	0.121
Retail employment	0.000	0.012	0.972
Finance, insurance & real estate	0.033	0.017	0.049
Services employment	-0.013	0.005	0.016
R^2	0.207		

Notes: though not reported, the regression includes period and state fixed effects. Dependent variable is the average annual growth rate of real per capita personal income net of transfers. 1 is always added to SBA loan amounts to avoid logging zero values.

Table A2. OLS results from column 2 **Table 2** regression.

Variable	Coefficient	Std. Error	P-value
(log) SBA loans per capita	-0.001	0.000	0.000
Prime rate – SBA rate	-0.015	0.005	0.001
log(Venture capital loans)	-0.004	0.001	0.004
log(Patents)	-1.490	0.689	0.031
log(Establishments) (<500 employees)	0.003	0.000	0.000
log(Establishments) (>500 employees)	-0.018	0.187	0.923
log(Employees)	0.001	0.002	0.543
Metro area	0.001	0.000	0.013
(log) personal income (initial)	-0.015	0.002	0.000
Education: 9-11 years	0.012	0.007	0.070
Education: H.S. diploma	-0.026	0.006	0.000
Education: Some college	-0.006	0.008	0.423
Education: Bachelor +	0.080	0.008	0.000
Hispanic	0.001	0.003	0.741
Blacks	0.003	0.002	0.180
Poverty	-0.037	0.006	0.000
Age: 5-13 years	0.157	0.047	0.001
Age: 14-17 years	0.278	0.039	0.000
Age: 18-64 years	0.098	0.032	0.002
Age: 65+	0.114	0.031	0.000
Land area per capita	0.002	0.000	0.000
Water area per capita	0.002	0.001	0.100
Federal govt. employment	0.013	0.014	0.348
State & local govt. employment	-0.016	0.008	0.042
Self-employment	-0.019	0.006	0.001
Farm employment	0.064	0.008	0.000
Agri., fishing, & forestry employ.	-0.102	0.024	0.000
Mining employment	-0.057	0.011	0.000
Construction employment	-0.035	0.013	0.005
Manufacturing employment	-0.014	0.005	0.011
Transportation & utilities employ.	-0.047	0.015	0.002
Wholesale trade	0.028	0.020	0.164
Retail employment	-0.002	0.012	0.844
Finance, insurance & real estate	0.033	0.017	0.046
Services employment	-0.011	0.005	0.027
R^2	0.208		

Notes: though not reported, the regression includes period and state fixed effects. Dependent variable is the average annual growth rate of real per capita personal income net of transfers. 1 is always added to SBA loan amounts to avoid logging zero values.

Table A3. OLS results from column 3 **Table 2** regression.

Variable	Coefficient	Std. Error	P-value
(log) SBA loans per capita	-0.001	0.000	0.001
(log) SBA loans per capita × Prime rate – SBA rate	-0.002	0.001	0.172
log(Venture capital loans)	-0.004	0.001	0.003
log(Patents)	-1.515	0.689	0.028
log(Establishments) (<500 employees)	0.003	0.000	0.000
log(Establishments) (>500 employees)	-0.020	0.187	0.915
log(Employees)	0.001	0.002	0.482
Metro area	0.001	0.000	0.008
(log) personal income (initial)	-0.015	0.002	0.000
Education: 9-11 years	0.014	0.007	0.044
Education: H.S. diploma	-0.025	0.006	0.000
Education: Some college	-0.005	0.008	0.543
Education: Bachelor +	0.081	0.008	0.000
Hispanic	0.001	0.003	0.712
Blacks	0.003	0.002	0.192
Poverty	-0.037	0.006	0.000
Age: 5-13 years	0.152	0.047	0.001
Age: 14-17 years	0.271	0.039	0.000
Age: 18-64 years	0.094	0.032	0.004
Age: 65+	0.109	0.030	0.000
Land area per capita	0.002	0.000	0.000
Water area per capita	0.002	0.001	0.115
Federal govt. employment	0.013	0.014	0.355
State & local govt. employment	-0.016	0.008	0.043
Self-employment	-0.020	0.006	0.001
Farm employment	0.062	0.008	0.000
Agri., fishing, & forestry employ.	-0.102	0.024	0.000
Mining employment	-0.058	0.011	0.000
Construction employment	-0.037	0.013	0.004
Manufacturing employment	-0.014	0.005	0.010
Transportation & utilities employ.	-0.046	0.015	0.002
Wholesale trade	0.030	0.020	0.137
Retail employment	-0.001	0.012	0.916
Finance, insurance & real estate	0.032	0.017	0.050
Services employment	-0.012	0.005	0.018
R^2	0.207		

Notes: though not reported, the regression includes period and state fixed effects. Dependent variable is the average annual growth rate of real per capita personal income net of transfers. 1 is always added to SBA loan amounts to avoid logging zero values.

Appendix B: SDM Estimation Results

Table B1. SDM estimation results from column 1 **Table 4**.

Variable	Direct			Indirect			Total		
	Coeff.	St. Err.	P-val.	Coeff.	St. Err.	P-val.	Coeff.	St. Err.	P-val.
(log) SBA loans per capita	-0.000	0.000	0.163	-0.001	0.001	0.116	-0.001	0.001	0.075
log(Venture capital loans)	-0.002	0.001	0.067	-0.006	0.004	0.136	-0.008	0.004	0.067
log(Patents)	-0.669	0.627	0.287	-5.383	2.569	0.036	-6.051	2.825	0.032
log(Establishments) (<500)	0.002	0.000	0.000	0.005	0.002	0.002	0.007	0.002	0.000
log(Establishments) (>500)	0.036	0.175	0.835	1.922	0.688	0.005	1.959	0.777	0.012
log(Employees)	0.000	0.002	0.984	0.018	0.007	0.011	0.018	0.008	0.024
Metro area	0.001	0.000	0.115	0.002	0.001	0.162	0.003	0.001	0.054
(log) personal income (initial)	-0.017	0.002	0.000	-0.001	0.005	0.887	-0.018	0.005	0.000
Education: 9-11 years	-0.003	0.008	0.688	0.033	0.017	0.053	0.030	0.017	0.079
Education: H.S. diploma	0.001	0.007	0.886	-0.053	0.016	0.001	-0.052	0.017	0.003
Education: Some college	0.025	0.008	0.003	-0.085	0.021	0.000	-0.060	0.022	0.005
Education: Bachelor +	0.077	0.008	0.000	0.058	0.024	0.016	0.135	0.026	0.000
Hispanic	0.008	0.004	0.020	-0.022	0.007	0.002	-0.013	0.006	0.034
Blacks	0.003	0.003	0.255	-0.017	0.006	0.004	-0.014	0.006	0.017
Poverty	-0.028	0.006	0.000	-0.020	0.016	0.221	-0.048	0.018	0.006
Age: 5-13 years	0.106	0.045	0.018	0.527	0.155	0.001	0.633	0.173	0.000
Age: 14-17 years	0.166	0.037	0.000	0.564	0.117	0.000	0.730	0.128	0.000
Age: 18-64 years	0.066	0.031	0.035	0.287	0.106	0.007	0.354	0.118	0.003
Age: 65+	0.054	0.030	0.069	0.389	0.099	0.000	0.443	0.110	0.000
Land area per capita	0.002	0.000	0.000	0.002	0.001	0.078	0.004	0.001	0.007
Water area per capita	0.002	0.001	0.151	0.001	0.008	0.854	0.003	0.009	0.707
Federal govt. employment	0.000	0.013	0.999	0.010	0.056	0.856	0.010	0.063	0.872
State & local govt. employment	-0.019	0.007	0.007	0.003	0.029	0.912	-0.016	0.033	0.629
Self-employment	0.008	0.005	0.130	-0.107	0.017	0.000	-0.099	0.019	0.000
Farm employment	0.071	0.008	0.000	-0.079	0.028	0.004	-0.008	0.030	0.779
Agri., fishing, & forestry emp.	-0.065	0.022	0.003	-0.039	0.077	0.614	-0.104	0.084	0.217
Mining employment	-0.017	0.011	0.111	-0.215	0.033	0.000	-0.232	0.036	0.000
Construction employment	-0.023	0.012	0.051	-0.109	0.048	0.022	-0.133	0.054	0.013
Manufacturing employment	-0.015	0.005	0.004	-0.039	0.019	0.045	-0.054	0.022	0.013
Transportation & utilities emp.	-0.035	0.014	0.013	-0.170	0.055	0.002	-0.205	0.062	0.001
Wholesale trade	0.027	0.019	0.153	0.029	0.071	0.689	0.055	0.079	0.486
Retail employment	0.001	0.011	0.941	-0.029	0.042	0.485	-0.028	0.047	0.549
Finance, insurance & real estate	0.040	0.016	0.012	-0.049	0.064	0.451	-0.009	0.073	0.905
Services employment	-0.001	0.005	0.839	-0.053	0.019	0.005	-0.054	0.021	0.012
ρ	0.550	0.009	0.000						

Notes: though not reported, the regression includes period and state fixed effects. Dependent variable is the average annual growth rate of real per capita personal income net of transfers. 1 is always added to SBA loan amounts to avoid logging zero values. The ρ is the spatial autocorrelation parameter.

Table B2. SDM estimation results from column 2 **Table 4**.

Variable	Direct			Indirect			Total		
	Coeff.	St. Err.	P-val.	Coeff.	St. Err.	P-val.	Coeff.	St. Err.	P-val.
(log) SBA loans per capita	-0.001	0.000	0.009	-0.002	0.001	0.031	-0.002	0.001	0.009
Prime rate – SBA rate	-0.012	0.004	0.005	-0.024	0.016	0.122	-0.036	0.017	0.037
log(Venture capital loans)	-0.002	0.001	0.079	-0.005	0.004	0.180	-0.007	0.004	0.093
log(Patents)	-0.629	0.639	0.325	-5.156	2.560	0.044	-5.785	2.835	0.041
log(Establishments) (<500)	0.002	0.000	0.000	0.005	0.002	0.001	0.007	0.002	0.000
log(Establishments) (>500)	0.037	0.172	0.828	1.956	0.687	0.004	1.993	0.765	0.009
log(Employees)	-0.000	0.002	0.891	0.016	0.007	0.018	0.016	0.008	0.041
Metro area	0.001	0.000	0.135	0.002	0.001	0.254	0.002	0.001	0.108
(log) personal income (initial)	-0.017	0.001	0.000	0.000	0.005	0.995	-0.017	0.005	0.001
Education: 9-11 years	-0.004	0.008	0.572	0.031	0.017	0.077	0.026	0.017	0.131
Education: H.S. diploma	-0.000	0.007	0.959	-0.056	0.017	0.001	-0.056	0.018	0.001
Education: Some college	0.023	0.008	0.005	-0.086	0.022	0.000	-0.063	0.023	0.007
Education: Bachelor +	0.076	0.008	0.000	0.056	0.025	0.023	0.133	0.027	0.000
Hispanic	0.008	0.004	0.026	-0.021	0.007	0.002	-0.013	0.006	0.041
Blacks	0.003	0.003	0.262	-0.017	0.006	0.004	-0.014	0.006	0.020
Poverty	-0.028	0.006	0.000	-0.017	0.017	0.323	-0.044	0.017	0.011
Age: 5-13 years	0.109	0.044	0.012	0.542	0.156	0.001	0.651	0.172	0.000
Age: 14-17 years	0.175	0.037	0.000	0.603	0.117	0.000	0.779	0.129	0.000
Age: 18-64 years	0.070	0.031	0.025	0.303	0.108	0.005	0.373	0.120	0.002
Age: 65+	0.058	0.029	0.049	0.404	0.101	0.000	0.462	0.111	0.000
Land area per capita	0.002	0.000	0.000	0.002	0.001	0.081	0.004	0.002	0.008
Water area per capita	0.002	0.001	0.112	0.002	0.008	0.802	0.004	0.009	0.654
Federal govt. employment	0.001	0.013	0.910	0.014	0.055	0.794	0.016	0.062	0.797
State & local govt. employment	-0.019	0.008	0.014	0.004	0.029	0.899	-0.015	0.033	0.645
Self-employment	0.009	0.005	0.086	-0.109	0.018	0.000	-0.100	0.020	0.000
Farm employment	0.074	0.008	0.000	-0.070	0.027	0.009	0.003	0.030	0.908
Agri., fishing, & forestry emp.	-0.065	0.022	0.004	-0.038	0.077	0.616	-0.103	0.083	0.215
Mining employment	-0.015	0.010	0.148	-0.213	0.032	0.000	-0.228	0.034	0.000
Construction employment	-0.020	0.012	0.106	-0.093	0.051	0.065	-0.114	0.057	0.047
Manufacturing employment	-0.014	0.005	0.006	-0.036	0.020	0.070	-0.050	0.022	0.024
Transportation & utilities emp.	-0.036	0.014	0.009	-0.176	0.058	0.002	-0.212	0.064	0.001
Wholesale trade	0.024	0.019	0.210	0.016	0.074	0.826	0.040	0.082	0.627
Retail employment	0.000	0.011	0.980	-0.030	0.043	0.492	-0.029	0.049	0.545
Finance, insurance & real estate	0.039	0.015	0.009	-0.056	0.063	0.373	-0.017	0.071	0.814
Services employment	0.000	0.005	0.993	-0.049	0.019	0.009	-0.049	0.021	0.021
ρ	0.551	0.009	0.000						

Notes: though not reported, the regression includes period and state fixed effects. Dependent variable is the average annual growth rate of real per capita personal income net of transfers. 1 is always added to SBA loan amounts to avoid logging zero values. The ρ is the spatial autocorrelation parameter.

Table B3. SDM estimation results from column 3 **Table 4**.

Variable	Direct			Indirect			Total		
	Coeff.	St. Err.	P-val.	Coeff.	St. Err.	P-val.	Coeff.	St. Err.	P-val.
(log) SBA loans per capita	-0.000	0.000	0.065	-0.001	0.001	0.059	-0.001	0.001	0.030
(log) SBA loans per capita × Prime rate – SBA rate	-0.003	0.001	0.024	-0.006	0.005	0.252	-0.008	0.005	0.115
log(Venture capital loans)	-0.002	0.001	0.078	-0.006	0.004	0.146	-0.008	0.004	0.073
log(Patents)	-0.653	0.641	0.308	-5.223	2.537	0.040	-5.876	2.791	0.035
log(Establishments) (<500)	0.002	0.000	0.000	0.005	0.001	0.001	0.007	0.002	0.000
log(Establishments) (>500)	0.031	0.176	0.859	1.903	0.683	0.005	1.934	0.774	0.013
log(Employees)	-0.000	0.002	0.908	0.017	0.007	0.010	0.017	0.008	0.026
Metro area	0.001	0.000	0.135	0.002	0.001	0.204	0.003	0.001	0.072
(log) personal income (initial)	-0.017	0.001	0.000	-0.000	0.004	0.974	-0.017	0.005	0.001
Education: 9-11 years	-0.004	0.008	0.573	0.033	0.018	0.066	0.028	0.018	0.105
Education: H.S. diploma	-0.000	0.007	0.973	-0.054	0.017	0.001	-0.055	0.018	0.002
Education: Some college	0.024	0.008	0.003	-0.084	0.022	0.000	-0.060	0.022	0.007
Education: Bachelor +	0.076	0.008	0.000	0.057	0.024	0.019	0.133	0.027	0.000
Hispanic	0.009	0.004	0.023	-0.022	0.007	0.002	-0.013	0.006	0.036
Blacks	0.003	0.003	0.282	-0.017	0.006	0.003	-0.014	0.006	0.015
Poverty	-0.028	0.006	0.000	-0.018	0.017	0.291	-0.046	0.018	0.011
Age: 5-13 years	0.105	0.042	0.011	0.518	0.153	0.001	0.623	0.169	0.000
Age: 14-17 years	0.174	0.036	0.000	0.575	0.116	0.000	0.748	0.129	0.000
Age: 18-64 years	0.068	0.029	0.019	0.284	0.104	0.006	0.352	0.115	0.002
Age: 65+	0.056	0.028	0.044	0.386	0.098	0.000	0.442	0.108	0.000
Land area per capita	0.002	0.000	0.000	0.002	0.001	0.086	0.004	0.001	0.008
Water area per capita	0.002	0.001	0.155	0.002	0.008	0.844	0.003	0.009	0.700
Federal govt. employment	0.003	0.013	0.819	0.017	0.054	0.749	0.020	0.060	0.739
State & local govt. employment	-0.019	0.007	0.011	0.004	0.030	0.903	-0.015	0.033	0.649
Self-employment	0.009	0.005	0.102	-0.108	0.018	0.000	-0.099	0.020	0.000
Farm employment	0.073	0.008	0.000	-0.073	0.028	0.008	-0.000	0.030	0.991
Agri., fishing, & forestry emp.	-0.066	0.022	0.003	-0.046	0.079	0.556	-0.113	0.086	0.191
Mining employment	-0.016	0.010	0.121	-0.216	0.033	0.000	-0.232	0.035	0.000
Construction employment	-0.022	0.012	0.061	-0.102	0.047	0.032	-0.124	0.053	0.020
Manufacturing employment	-0.014	0.005	0.004	-0.037	0.019	0.050	-0.052	0.021	0.015
Transportation & utilities emp.	-0.035	0.014	0.009	-0.173	0.054	0.001	-0.209	0.061	0.001
Wholesale trade	0.025	0.019	0.191	0.021	0.075	0.776	0.046	0.084	0.584
Retail employment	0.000	0.011	0.979	-0.030	0.042	0.473	-0.030	0.047	0.519
Finance, insurance & real estate	0.040	0.016	0.010	-0.051	0.064	0.423	-0.011	0.071	0.878
Services employment	0.000	0.005	0.923	-0.051	0.018	0.005	-0.052	0.021	0.012
ρ	0.545	0.009	0.000						

Notes: though not reported, the regression includes period and state fixed effects. Dependent variable is the average annual growth rate of real per capita personal income net of transfers. 1 is always added to SBA loan amounts to avoid logging zero values. The ρ is the spatial autocorrelation parameter.