

# STATE AND LOCAL TAX POLICY: EVIDENCE OF ITS EFFECT ON ENTREPRENEURSHIP\*

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## INTRODUCTION

OVER THE YEARS CONSIDERABLE ATTENTION HAS been devoted to the topic of entrepreneurship. As a result, it is now widely accepted that these, generally, small businesses are a major factor in the U.S. economy. They employ over one-half of the labor force and create between 60 and 80 percent of all new jobs in the economy. Thus, policy makers are constantly trying to adjust the policy mix to encourage entrepreneurial activity.

To date, the majority of the literature has focused on the effect of federal marginal tax rates on various measures of entrepreneurial activity.<sup>1</sup> However, less is known about the effect of state and local taxes. This is surprising since they represent nearly one-third of the total tax burden faced by business owners.

Theoretically the expected direction of effect of taxes on entrepreneurial activity is ambiguous, because of conflicting income and substitution effects. If the income effect dominates the substitution effect, high taxes will encourage entrepreneurial activity. However, high taxes also discourage entrepreneurial activity by reducing the after-tax rate of return to such activity. If this substitution effect dominates the income effect then taxes will reduce the level of entrepreneurial activity. Since the theoretical result is ambiguous, this is decidedly an empirical question.<sup>2</sup>

In this paper, I take an initial foray into identifying the effect of state and local tax policy on entrepreneurial activity. Anticipating the bottom line, the results suggest that entrepreneurial activity is higher in states with healthy economic climates. Further results provide some limited evidence to suggest that hostile state policy climates may reduce the level of state entrepreneurial activity. In the following section I will describe the data used

in the analysis, and in the third section I will present the empirical results. The paper will conclude with some final observations.

## DESCRIPTION OF THE DATA

The basic empirical strategy in this paper is straightforward and suggests a reduced-form empirical specification in which state entrepreneurial activity is a function of state tax variables. Departing from the traditional reliance on marginal tax rates, the state tax variables are constructed as relative measures using a Representative Revenue System framework. This framework, described more fully in Advisory Commission on Intergovernmental Relations (1993), Tannenwald (2002), and Marples (2004), estimates the per capita revenue yield that a hypothetical, uniform representative revenue system in each state. For each tax a uniform base is defined to exclude all tax incentives or “tax-breaks.”<sup>3</sup> The analysis then applies a standard tax rate to each tax base across all of the states. Each rate is set equal to the national average effective tax rate that states actually impose for a particular tax. The result of this computation is that each state’s revenue capacity for a particular tax is equal to the total national collections for that tax, multiplied by the state’s share of the national aggregate value of the tax base. As constructed, higher levels of tax capacity can be interpreted as indicating more favorable economic environments.

To proxy for the state tax policy environment, I construct a second relative state tax measure, tax effort. It represents the intensity by which the states choose to utilize their representative fiscal base in practice. Conceptually, fiscal effort is defined as the ratio of actual per capita state revenue collections to the hypothetical collections it could have raised under the representative revenue system multiplied by 100. As constructed, higher levels of tax effort can be interpreted as indicating more hostile policy environments. Table 1 provides an overview of the state revenue capacity and effort measures.

A key feature of the empirical strategy is the use of state level measures of entrepreneurial activity.

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*Table 1*  
**Representative Revenue System Indices of Fiscal Capacity and Effort, 2000**

(National Average = 100)

	<i>Tax Capacity</i>		<i>Tax Effort</i>	
	<i>Index</i> (1)	<i>Rank</i> (2)	<i>Index</i> (3)	<i>Rank</i> (4)
Alabama	83	46	83	46
Alaska	136	1	136	1
Arizona	89	42	89	42
Arkansas	76	49	76	49
California	109	13	109	13
Colorado	105	18	105	18
Connecticut	133	2	133	2
Delaware	114	10	114	10
District of Columbia	129	3	129	3
Florida	98	25	98	25
Georgia	95	30	95	30
Hawaii	113	11	113	11
Idaho	90	38	90	38
Illinois	107	16	107	16
Indiana	94	31	94	31
Iowa	92	35	92	35
Kansas	90	37	90	37
Kentucky	82	47	82	47
Louisiana	83	45	83	45
Maine	97	27	97	27
Maryland	108	14	108	14
Massachusetts	128	4	128	4
Michigan	98	26	98	26
Minnesota	107	15	107	15
Mississippi	70	51	70	51
Missouri	92	34	92	34
Montana	89	41	89	41
Nebraska	99	22	99	22
Nevada	122	5	122	5
New Hampshire	116	9	116	9
New Jersey	120	7	120	7
New Mexico	86	43	86	43
New York	107	17	107	17
North Carolina	96	28	96	28
North Dakota	104	20	104	20
Ohio	93	33	93	33
Oklahoma	77	48	77	48
Oregon	98	24	98	24
Pennsylvania	94	32	94	32
Rhode Island	95	29	95	29
South Carolina	83	44	83	44
South Dakota	103	21	103	21
Tennessee	91	36	91	36
Texas	89	40	89	40
Utah	90	39	90	39
Vermont	105	19	105	19
Virginia	110	12	110	12
Washington	117	8	117	8
West Virginia	73	50	73	50
Wisconsin	99	23	99	23
Wyoming	121	6	121	6

Source: Marples (2004)

*Table 2*  
**Relative Measure of Entrepreneurial Activity, 2000**

(National Average = 100)

	<i>Employment</i>		<i>Annual Payroll</i>	
	<i>Index</i> (1)	<i>Rank</i> (2)	<i>Index</i> (3)	<i>Rank</i> (4)
Alabama	91	45	74	46
Alaska	115	13	130	6
Arizona	86	50	82	41
Arkansas	95	40	71	49
California	96	39	109	14
Colorado	122	9	128	7
Connecticut	113	14	145	2
Delaware	111	20	109	15
District of Columbia	128	6	216	1
Florida	99	29	96	24
Georgia	92	44	92	31
Hawaii	101	26	97	23
Idaho	119	11	92	30
Illinois	98	30	110	11
Indiana	98	33	84	39
Iowa	111	21	84	38
Kansas	110	23	91	32
Kentucky	90	47	71	48
Louisiana	93	41	77	45
Maine	125	8	104	18
Maryland	97	36	103	19
Massachusetts	112	16	135	5
Michigan	99	28	101	21
Minnesota	113	15	110	12
Mississippi	84	51	62	51
Missouri	103	24	91	33
Montana	145	3	101	20
Nebraska	117	12	90	34
Nevada	91	46	96	25
New Hampshire	126	7	136	4
New Jersey	112	19	137	3
New Mexico	93	42	74	47
New York	102	25	123	9
North Carolina	100	27	90	36
North Dakota	130	5	95	26
Ohio	97	34	90	35
Oklahoma	98	31	78	44
Oregon	119	10	106	17
Pennsylvania	98	32	92	28
Rhode Island	112	17	110	13
South Carolina	97	35	80	42
South Dakota	132	4	92	29
Tennessee	89	48	79	43
Texas	88	49	89	37
Utah	97	37	82	40
Vermont	150	2	125	8
Virginia	97	38	94	27
Washington	112	18	109	16
West Virginia	93	43	65	50
Wisconsin	110	22	99	22
Wyoming	152	1	114	10

Source: Author's calculations based on the County Business Patterns, U.S. Census Bureau.

In particular, I use County Business Patterns data from the U.S. Census Bureau to construct two alternative relative measures of entrepreneurial activity in businesses with less than 20 employees; employment and annual payroll. Table 2 provides an overview of distribution of these measures of entrepreneurial activity.

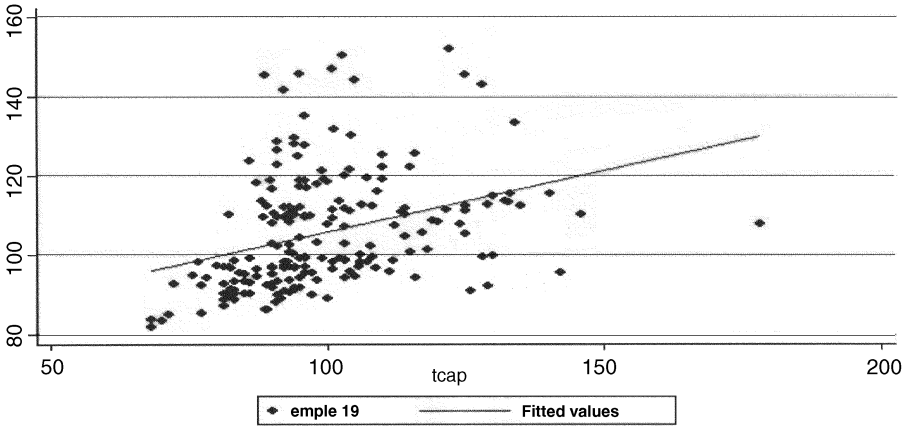
**EMPIRICAL RESULTS**

Figure 1 provides an introductory look at the link between the state-level tax variables and

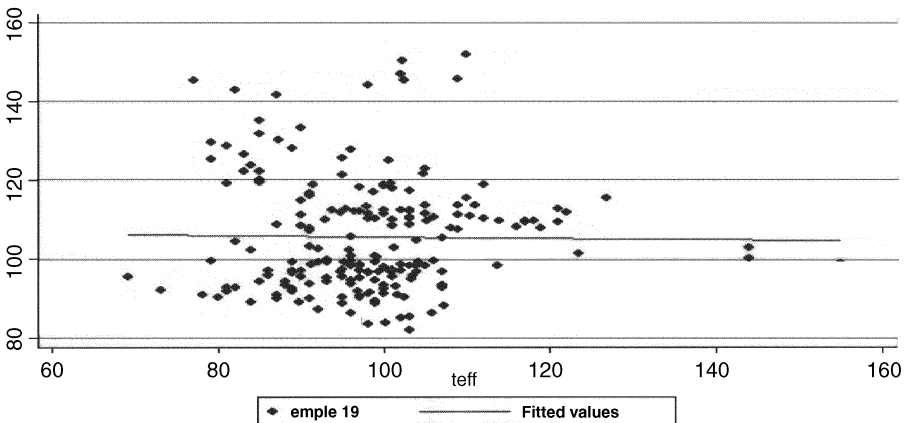
entrepreneurial activity. The approach in both panels is to show the relationship between the tax variable and entrepreneurial employment graphically. Panel A shows clearly that high relative levels of tax capacity, or healthier economic climates, are associated with high levels of entrepreneurial employment by firms with less than 20 employees. Given the well-documented effect of liquidity constraints on entrepreneurial activity, this result is not surprising. This result is exploited in what follows to control for differences in state economic climates in the multivariate analysis.

Figure 1: **The Relationship Between Tax Capacity and Effort and Entrepreneurial Employment**

Panel A: Tax Capacity and Entrepreneurial Employment



Panel B: Tax Effort and Entrepreneurial Employment



Panel B presents evidence that high relative tax rates are associated with decreased levels of entrepreneurial activity. While this is consistent with recent evidence on the effect of federal marginal tax rates on entrepreneurial activity, the weakness of the evidence clearly suggests further analysis.

In addition to the tax variables, prior studies have found that entrepreneurial activity may be influenced by a number of other factors, suggesting a multivariate analysis is appropriate. To control for some of the more commonly cited factors, I include the percentage of the state population that has a high school education, a college education, is white, and over the age of 65. In addition, I attempt to control for non-tax desirability of each state by including the percentage of state residents born in the state.

Table 3 presents the results of these analyses. Columns 1 and 3 present OLS parameter estimates of the effect of the tax variables on entrepreneurial

employment and annual payroll, respectively, and suggest that both measures of entrepreneurial activity are positively correlated with tax capacity. In addition, the parameter estimates of the tax policy variable suggest that a hostile tax policy environment reduces both measures of entrepreneurial activity, though these estimates are imprecisely estimated. This exercise is repeated, with additional control variables in columns 2 and 4.

However, before placing too much emphasis on the numerical values, note that these parameter estimates suffer from a potential endogeneity problem, because the tax variables and the error term for entrepreneurial activity are potentially correlated (i.e.,  $cov(\mu, \epsilon) \neq 0$ ). For example, states with a greater taste for entrepreneurial activity may also have higher tax capacity, as a result of their hard work or higher tax effort as a result of a taste for greater public service provision. To remedy this, I instrument for the tax variables. The instrumental

*Table 3*  
**Estimates of the Effects of Tax Capacity and Effort on Entrepreneurial Activity, 2000**

	<i>Employment</i>		<i>Annual Payroll</i>	
	<i>(1)</i>	<i>(2)</i>	<i>(3)</i>	<i>(4)</i>
Tax Capacity	0.3966**	0.1620	1.0599***	0.8047**
Tax Effort	-0.2384	0.1080	-0.2750	0.2591*
% White		0.5103*		0.5510**
% Age > 65		1.1010		0.3604
% H.S. Education		1.5692*		-0.9744*
% College Education		0.2771		2.6449**
% Born in State		-0.0229		0.1013

\* and \*\* signify p-values of 0.1 and 0.01, respectively.

*Table 4*  
**Instrumental Variables Estimates of the Effects of Tax Capacity and Effort on Entrepreneurial Activity, 2000**

	<i>Employment</i>		<i>Annual Payroll</i>	
	<i>(1)</i>	<i>(2)</i>	<i>(3)</i>	<i>(4)</i>
Tax Capacity	0.6083**	0.1928	1.3497**	1.1542**
Tax Effort	-1.044*	-0.0560	-1.1221*	-0.1929
% White		0.4633		0.4837*
% Age > 65		1.0555		0.2665
% H.S. Education		1.6518*		-1.0718
% College Education		0.1101		1.8533**
% Born in State		-0.0365		0.1524
1st stage R-squared	0.48	0.64	0.48	0.64
F-value for the instrument	25.58	13.18	25.58	13.18
p-value	0.00	0.00	0.00	0.00

\* and \*\* signify p-values of 0.1 and 0.01, respectively.

variable must be correlated with the tax variables, yet orthogonal to the level of entrepreneurial activity. I use the regional average tax capacity and effort as an instrument, because these measures are less likely to be correlated with the level of entrepreneurial activity.<sup>4</sup>

Table 4 presents the two-stage least squares parameter estimates. As with Table 3, parameter estimates in columns 1 and 3 suggest that both measures of entrepreneurial activity are positively correlated with tax capacity and negatively correlated with tax effort. However, unlike the preceding analysis, both sets of estimates are statistically significant, after controlling for potential endogeneity. Columns 2 and 4 repeat the analysis with the inclusion of additional control variables. The sign of the parameter estimates on the tax variables is consistent with those in columns 1 and 2, but they are imprecisely estimated. Other parameter estimates suggest that entrepreneurial employment increases and annual payroll of entrepreneurial firms decreases as the percentage of the state population with a high school education increases and that the percentage of the state population with a college education is positively correlated with annual payroll in entrepreneurial businesses.

### CONCLUDING OBSERVATIONS

In this paper I have taken an initial step to identify the effect of state and local tax policy on entrepreneurial activity using state-level relative tax measures and data on state entrepreneurial activity from the U.S. Census Bureau. The results suggest that entrepreneurial activity is higher in states with healthy economic climates. Further results provide some limited evidence to suggest that hostile policy climates may reduce the level of state entrepreneurial activity. These results complement other recent findings on the effect of taxes on entrepreneurial activity.

### Notes

- <sup>1</sup> See Bruce (2000) for a review of the literature on the effect of federal taxation on entrepreneurial activity.
- <sup>2</sup> More recent empirical research examining the effect of federal taxation, starting with a series of papers by Carroll, Holtz-Eakin, Rider, and Rosen (2000, 2001), supports the latter theory.
- <sup>3</sup> The RRS is comprised of a number of tax and non-tax revenue sources. In the interest of brevity, the description of the model uses taxes to illustrate the conceptual framework, but the estimates of the non-tax revenue sources are constructed similarly.
- <sup>4</sup> The regions are: New England, Mid-Atlantic, Great Lakes, Plains, Southeast, Rocky Mountains, and the Far West.

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