State Regulatory Spending: Boon or Brake for New Enterprise Creation and Income?

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ABSTRACT

This paper addresses a simple public policy question: Does state government regulation foster or deter economic development? We estimate a system of simultaneous equations for income growth, regulation growth, and growth in the number of new enterprises. Overall our results point to state converging to a common level of regulation, and income growth and firm growth interdependently determining each other. Our evidence clearly supports the view of regulation as efficient conflict resolution, and fails to support either the rent-seeking or misguided-good-intentions view of regulation.

INTRODUCTION

Economic development has become a cornerstone of most states' public policy: within economic development policy space, states consistently emphasize new firm creation. However, research questions whether *all* new firm creation is consistent with economic development; perhaps only the creation of particular types of firms is consistent with economic development. Wong, Ho, and Autio (2005) and Friar and Meyer (2003), among others, demonstrate that new growth ventures stimulate economies, but new ventures in general do not. In addition, new growth ventures tend to form around an entrepreneurial *team* with significant industry experience (Friar and Meyer, 2003; Bygrave, 1997; Timmons and Spinelli, 2006). Other research suggests that some types of new firm creation—particularly small-scale, self-employment ventures—are more indicative of weak economic conditions and poor state institutions than they are of economic development (e.g., Hernando De Soto 1990, 2003).

Another cornerstone of states' public policy is the regulation of business enterprise and of economic activity in general. Research has developed several inconsistent views of regulation, which can be generalized as: (a) regulation may be good for firms and economies, but it is incorrectly applied (e.g., Bork 1993), (b) regulation is a conditionally efficient method of conflict

resolution, and is (implicitly) good for firms and economies (e.g., Mulligan and Shleifer 2005), or (c) regulation is the outcome of a rent-seeking political process, whose primary aim is wealth redistribution (e.g., the public choice tradition of scholarship).

In this paper we attempt to kill multiple birds with one set of estimates. Using the U.S. Census' data on states' protective inspection and regulation spending as well as Census data on states' new enterprise creation and income, we construct a panel of data covering the U.S. states from 1993 to 2004.[1] Because of the complicated inter-determination of enterprise creation, income, and regulation, we estimate a system of instrumental variables equations, using multiple specifications of the system. Each system includes an equation describing growth in the number of new enterprises, growth in income per capita, and growth in state regulatory expenditure per capita. With these estimates, we provide evidence relating to the following questions. (A) Is regulation primarily efficient conflict resolution (a la´ Mulligan and Shleifer 2005), or is it primarily either rent seeking (a la´ public choice scholars) or well-meaning but misapplied public policy (a la´ Bork 1993)? (B) How does regulatory spending impact new firm formation and income generation? (C) Does new firm formation—in general—indicate income growth?

Entrepreneurship researchers know enterprise creation and income are jointly determined. Income changes may motivate entrepreneurs to launch new ventures, either from salary-replacement, survivalist motives, or from growth-venture, high income motives. We know that new ventures affect incomes, by replacing wage/salary employment; by creating new employment opportunities that would otherwise not exist; or by filling a previously open (and, accordingly lucrative) market niche.

Consistent with Wagner's Law; i.e., government services are normal goods, and the demand for "government" increases as income increases, one expects regulation to increase with income. However, no matter whether one views regulation from the perspective of conditionally efficient conflict resolution, or from the rent-seeking perspective, regulation should help determine income. If regulation resolves economically significant conflict at lower cost than seeking redress through the courts, then the existence of regulations will lead to less expenditure on other methods of conflict resolution, and will foster economic activity, leading to increased incomes. If regulation is rent seeking, then it will suppress incomes by reducing the reward to entrepreneurial and productive activity, and by draining resources away from the productive economy.

Furthermore, we think that regulation will affect the growth rate of the number of enterprises. Compliance with regulation may raise the start-up costs of new enterprises, limiting the number of new businesses formed. Furthermore, on-going compliance with regulation may impose an additional cost on existing firms, and may push some struggling firms into closure. Both of these effects would reduce the growth rate in the number of enterprises. Similarly, regulation-as-rent-seeking would reduce the returns to market entrepreneurship and would draw some would-be entrepreneurs into rent-seeking activities instead of market production (Sobel, Clark, and Lee 2007), reducing the growth rate in the number of new enterprises. However, if regulation is a "bright line," walling off potential areas of conflict, then regulation allows entrepreneurs and the owners of existing enterprises to reduce their costs by avoiding expensive litigation. This effect would increase the growth rate of the number of enterprises.

Taken together these considerations together, they imply a great deal of endogeneity among the variables that interest us the most, the new venture rate, income, and regulation. Therefore, we must estimate a system of equations. We use three-stage least squares. The three

equations in the system are growth in the number of firms, growth of income per capita, and growth in regulation spending.

Our general results are as follows. 1). Growth in number of firms occurs when income is growing and also at high levels of regulatory spending, *ceteris paribus*. 2). Income growth increases as the firm growth rate increases; it increases at high *levels* of regulation, but is *decreasing* in the growth rate of regulation, implying appositive but diminishing effect of regulation. 3). The growth rate of regulation slows down at higher levels of regulation and is powerfully reduced by a faster growth rate of new firms. Overall our results point to state converging to a common level of regulation, and income growth and firm growth interdependently determining each other. Our evidence clearly supports the view of regulation as efficient conflict resolution, and fails to support either the rent-seeking or misguided-good-intentions view of regulation.

MEASURING REGULATION

We assume that state and local regulation is directly and monotonically related to regulatory spending. Therefore, we use regulatory expenditure as a proxy for regulation. Our measure of state and local regulatory expenditure is the U.S. Census' expenditure category, "Protective Inspection and Regulation, NEC." Protective Inspection and Regulation expenditure, as measured by the Census, is a very broad and intuitively appealing measure of regulatory activity. Quoting extensively from the Census' *Classification Manual*:

> "DEFINITION: Regulation and inspection of private establishments for the protection of the public or to prevent hazardous conditions NOT classified under another major function.
>
> "EXAMPLES: Inspection of plans, permits, construction, or installations related to buildings, housing, plumbing, electrical systems, gas, air conditioning, boilers, elevators, electric power plant sites, nuclear facilities, weights and measures, etc.; regulation of financial institutions, taxicabs, public service corporations, insurance companies, private utilities (telephone, electric, etc.), and other corporations; licensing, examination, and regulation of professional occupations, including health-related ones like doctors, nurses, barbers, beauticians, etc.; inspection and regulation or working conditions and occupational hazards; motor vehicle inspection and weighing unless handled by a police agency; regulation and enforcement of liquor laws and sale of alcoholic beverages unless handled by a police department.
>
> "EXCLUSIONS: Distinctive license revenue collection activities…; regulatory or inspection activities related to food establishments or to environmental health…; motor vehicle inspection, liquor law enforcement, and other regulatory type activities of police agencies…; regulatory and inspection activities related to other major functions, such as fire inspections, health permits, water permits, and the like…." (http://www.census.gov/govs/www/classfunc66.html)

We further assume that state and local regulatory expenditure, in general, is positively correlated with the Census' Protective Inspection and Regulation expenditure. This assumption

allows us to proxy all state and local regulatory activity with the Census' Protective Inspection and Regulation data.

EMPRICIAL MODELS

We assemble a panel of data covering the U.S. states from 1993 to 2004. Unless otherwise noted, all variables are in growth rates. All level variables have been logged, and lagged by one year, allowing the previous year's levels to affect the current year's growth rates of the dependent variables. Focusing primarily on growth rates helps solve the econometric problems of serial correlation and multicollinearity for us. The growth rates of our variables are more independent from one another than are the levels (logged, lagged or otherwise). We draw all of the data from the U.S. Census. All equations in all specifications include a dummy variable for every year in the sample, excluding 1993.

The first dependent variable is the growth in the number of businesses. Scaling business activity to the geographic location is a common issue in the firm formation literature, e.g. Johnson and Parker (1994, 1996). Growth rates effectively control for the differences in scale of the various states' economies. Our dependent variable is the observed growth rate in the number of firms on net, accounting for both new venture launches and the closure of existing businesses, thereby addressing the Johnson and Parker concern. The second dependent variable is the growth in real personal income per capita. The third dependent variable is the growth in real regulatory expenditure per capita. Table 1 presents a key to the variables.

g Income	Growth of real personal income per capita
g Firms	Growth in the number of firms
Income	Log of real personal income per capita
Regulation	Real regulatory spending per capita
g Regulation	Growth of real regulatory spending per capita
g Pop	Growth in population
g Minority	Growth in non-Caucasian percentage
g Unemplymnt	Growth in the unemployment rate
g Pop Den	Growth in population density
g Eductn	Growth in percentage with Bachelor's degree or higher
g C & I	Growth of C &I lending per capita
g Emp/Firm	Growth in the average number of employees per firm
g Ag&Mfg Pct	Growth in agriculture's and manufacturing's percent of GSP

Table 1. Key to Variables

Growth Rate of Number of Firms Models

The explanatory variables in firm the firm growth rate models include the growth rate of personal income per capita, the growth rate of regulatory expenditure, the population growth rate, the growth rate of per capita commercial and industrial lending volume, and the growth rate of the unemployment rate. This is a somewhat generic model of new firm formation, similar to others in the literature (Campbell, Heriot and Roger 2008; Campbell and Rogers 2007a, 2007b; Campbell and Rogers 2006; Johnson and Parker 1994, 1996; Keeble, Walker, and Robson 1993). In some specifications, we also include the (logged, lagged) level of income and/or the (logged, lagged) level of regulation expenditure.

Income per capita may be related to firm formation and employment in a number of ways. For instance, rising incomes may indicate an expanding market. Incumbent firms will expand with their market and add additional employees in the process. An increasing market may spur new entrepreneurial entry. Conversely, it may reduce the number of firms in operation as the more competitive firms expand to an efficient size, or as larger opportunities attract entry from efficient regional or national firms, and squeeze out the less efficient local firms. Accordingly, growth in the number of firms may rise or fall as income growth rises.

Mulligan and Shliefer (2005) contend that regulation is a conditionally efficient method of conflict resolution. As such, regulatory activity would generally reduce transaction costs and provide valuable institutional stability. Reduced transaction costs and the existence of efficient conflict resolution mechanisms would reduce the burdens on entrepreneurs planning to launch new businesses. Therefore, *c.p.*, high regulation growth states should have relatively high growth rates of firm formation. Conversely, if regulation represents *either* inefficient rent-seeking *or* costly mistakes, a la Bork, then regulatory activity adds to entrepreneurs' burdens and would be associated with lower rates of firm formation.

We include the levels of regulation and income as regressors, as well. The spillover effects—increasing returns—found in many "new growth theory" models argue that future growth is conditioned by pre-existing conditions. Given the likely impact of income and regulation growth on growth in the number of firms, it is reasonable to include the lagged levels of these variables.

Income Growth Models

The explanatory variables in firm the firm growth rate models include growth rate of the number of firms, and the growth rate of real per capita regulatory expenditure. The models also include the population growth rate, the growth rate of the non-Caucasian population percentage, the growth rate of the population percentage a bachelor's degree or more advanced degrees, the population percentage aged 65 or more, and the growth rate of the unemployment rate, as is commonly done in estimating income models. It also includes the growth rate of the percentage of gross state product accounted for by agriculture and manufacturing, the growth rate of the average number of employees per firm. In some specifications, we also include the (logged, lagged) level of income and/or the (logged, lagged) level of regulation expenditure.

Politicians, policy experts, and academics alike laud the job creation and income potential of new ventures. Taken at face value, acceleration in the growth rate of the number of new firms should accelerate income growth. If, as Mulligan and Shleifer (2005) argue, the primary purpose of governmental regulation is to efficiently resolve conflicts, then presumably high regulation expenditure indicates mitigated transaction costs. Lower transaction costs would lead to businesses earning larger margins, *c.p.*, some of which earnings would flow to workers and in-state business owners. Thus, if Mulligan and Shliefer are correct, regulation should be associated with higher incomes. However, if regulation spending consists of rent-seeking derived income redistribution, or if, as Bork (1993) argues, regulatory action is well-meaning but misapplied, then no such benefits to workers and owners should flow to workers and owners. To the extent that redistribution and mistaken regulation reduce economic efficiency, incomes should be lower in high regulation states, *c.p.* If a major effect of regulation is to distort firm costs (and, therefore, supply curves), then one should include the level of regulation as an explanatory variable, too. In much the same way that increasing an excise tax exponentially

increases dead-weight losses, the marginal impact of regulation growth on income will be conditioned by the pre-existing level of regulation.

Many "new growth theory" models feature increasing returns to economic activity, and multiple equilibria. Thus, wealth leads to more wealth, while poverty leads to more poverty. Therefore, we include the (lagged) level of income as an explanatory factor for income growth.

Regulation Models

The explanatory variables in firm the regulation growth models include the income growth rate, the unemployment rate growth rate, the population growth rate, the population density growth rate, and the growth rate of the average number of employees per firm. In some specifications, we also include the (logged, lagged) level of income and/or the (logged, lagged) level of regulation expenditure.

Suppose that regulation is primarily the outcome of a rent-seeking process. If so, then faster income growth indicates more wealth that may be subjected to regulatory redistribution. Therefore, the growth of regulation should also increase. We also include the level of income as an explanatory factor.

Regulation may raise business' operating costs, on net. An accelerating unemployment rate indicates difficult conditions for firms. Under these conditions, firms may lobby for a regulation rollback in order to lower costs. Because lowering firms' costs may help preserve jobs, many voters would also support a decrease in regulation. Accelerating unemployment rate growth should lead to decelerating regulation growth.

If regulation is primarily rent seeking behavior, much of the resulting regulation is likely to offer protectionist benefits to a few specific firms or to a specific industry, and will result from corporate lobbying. Larger firms will have budget resources and expertise to devote to rent seeking. Therefore, as the growth rate of the average number of employees per firm accelerate, so should the growth rate of regulation.

We include the level of regulation. If there is a rational process behind regulation, then those regulations offering the greatest gains to society will be the first ones enacted. States with a high level of regulation should, therefore, experience lower regulatory growth, as fewer opportunities for regulation remain.

RESULTS

Table2 shows a typical set of estimates for our system. Different specifications produced similar results, and are available from the authors upon request. In every equation all variables are jointly significant. The F-statistics for the system's equations range from around four to over 32. Because we estimate three equations with three unknowns, we cannot reduce the system of equations into an expression of only exogenous variables. However, we can simplify the system of equations three times, once each for new firm growth, income growth, and regulation growth, resulting in three expressions.

Doing so for only the statistically significant regressors yields some interesting observations. The income growth rate is directly influenced by growth in the unemployment rate; we believe this is due to the fact that unemployment lags the business cycle. Both the income growth rate and the new firm growth rate are directly influenced by growth in population density, which supports the Adam Smith view regarding the division of labor and the extent of the market.

Equation g Firms	F-Stat 27.49	P>F-Stat 0.00	Equation g Income	F-Stat 32.29	P>F-Stat 0.00	Equation g Regulation	F-Stat 3.84	P>F-Stat 0.00
Dep.Var.: g Firms			Dep. Var.: g Income			Dep. Var.: g Regulation		
g Income	-0.193	*	g Firms	-0.479		g Income	-3.070	*
	-1.75			*-1.16*			*-1.63*	
Income	-0.006		Income	0.001		Income	0.012	
	-1.58			*0.18*			*0.29*	
g Regulation	-0.065	***	g Regulation	-0.086		Regulation	-0.048	***
	-3.23			*-1.17*			*-3.63*	
Regulation	-0.002		Regulation	-0.005	*	g Unemplymnt	-0.120	*
	-1.1			*-1.7*			*-1.95*	
g Pop	0.790	***	g Pop	0.428		g Emp/Firm	1.898	***
	14.51			*1.12*			*3.13*	
g C & I	0.0002		g Ag&Mfg Pct	0.010	***	g Pop	4.001	***
	0.15			*2.84*			*4.41*	
g Unemplymnt	-0.020	***	g Minority	0.037		g Pop Den	-4.080	***
	-3.48			*0.82*			*-4.68*	
Constant	0.080	**	g Eductn	0.005		Constant	0.085	
	2.24			*0.44*			*0.2*	
			g Emp/Firm	0.256	***			
				2.79				
			g Unemplymnt	-0.015				
				-1.1				
			Constant	0.034				
				0.46				

Year effects are included. T-statistics are in italics. *, **, *** denote the customary levels of significance

Table 2. Three-Stage Least-Squares Estimates Firm, Income, & Regulation Growth

Larger thicker markets allow for economies of scale and scope, provide more informational flows regarding entrepreneurial opportunities, and increase the likelihood of beneficial technological and organizational spill-overs. Growth in number of firms occurs when income is growing and when unemployment is shrinking, and when the population and population density are growing. Even if the new ventures are intended to be salary-replacement self-employment, entrepreneurs launch ventures in growing economies, rather than in weak economies.

Faster population growth leads to faster regulation growth and has a rather large coefficient. Thus, our results strongly support the hypothesis that an increasing population permits further growth of regulation (Mulligan & Shliefer, 2006). However, one could easily

argue that larger populations create more wealth that is liable to rent-seeking redistribution. However, the growth of regulation is negatively affected by growth in the population density. Apparently, it is more expensive to regulate a far-flung population than to serve a geographically compact constituency, *ceteris paribus*. Although this result makes sense from the conflict resolution perspective, it is hard to see how denser populations lead to a reduction in rent-seeking.

Abstracting the three expressions to focus on the theoretically interesting variables yields the following:

$$(1) \quad gI = 0.011R + 5.181gF - 0.011gR$$
$$(2) \quad gF = 0.004R + 0.12gI$$
$$(3) \quad gR = (-)1.098R - 15.906gF,$$

where *gI*, *gF*, and *gR* are the growth rates of income, firm formation, and regulation, respectively. *R* is the level of regulation.

Several interesting results emerge. The level of regulation spending increases the growth rate of income, although at a decreasing rate, a result which certainly supports the conflict resolution view of regulation instead of the rent-seeking or "misguided" views. The positive but diminishing influence of regulation implies that the "most important" regulations—those with the greatest net benefit to the economy—are the first regulations put into place. This interpretation is consistent with the rational application of regulation and is inconsistent with Bork's view of misguided regulation and, indeed, with the rent-seeking view of regulation.

Regulation, though perhaps a costly and tedious exercise for business owners, does not present a barrier to entry: the level of regulation is positively associated with growth rate of firms. Furthermore, the rate of firm growth and the rate of income growth mutually reinforce each other, lending support to policy-maker's support of pro-entrepreneurial policies. Interestingly, the growth rate of regulation declines at higher levels of regulation. We interpret this as further evidence supporting the conflict mediation view. Ceteris paribus, the growth of regulation decreases as more areas of potential conflict are "walled off" by the bright lines of regulation. The firm formation growth rate exerts a powerful influence on the growth rate of regulation. A faster firm growth rate reduces the growth rate of regulation. Considering the three expressions together, they indicate a convergence toward an equilibrium level of regulation (and accompanying decline in its growth rate) across the states, *ceteris paribus*. This result is reminiscent of the Mulligan and Shliefer (2006) result showing the diffusion of regulation across polities. At that point, the growth rates of income and firm formation are mutually interdependent, and depend also upon non-regulation factors.

CONCLUSION

In this paper we estimate a system of instrumental variables equations using three-stage least squares, with an equation describing growth in the number of new enterprises, growth in income per capita, and growth in state regulatory expenditure per capita. We provide evidence relating to the following questions. (A) Is regulation primarily efficient conflict resolution, or is it primarily either rent seeking or well-meaning but misapplied public policy? (B) How does regulatory spending impact new firm formation and income generation? (C) Does new firm formation—in general—indicate income growth?

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The level of regulation spending increases the growth rate of income, although at a decreasing rate, a result which certainly supports the conflict resolution view of regulation instead of the rent-seeking or "misguided" views. The positive but diminishing influence of regulation implies that the "most important" regulations—those with the greatest net benefit to the economy—are the first regulations put into place. Our evidence clearly supports the view of regulation as efficient conflict resolution, and fails to support either the rent-seeking or misguided-good-intentions view of regulation. Overall our results point to state converging to a common level of regulation, and income growth and firm growth interdependently determining each other. The positive, mutual interdependence of income growth rate and firm growth rates supports the commonly-held opinion that a route to economic growth lies in fostering the creation of new firms.

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[1] Data availability and comparability determined this data range, although it serendipitously includes a macroeconomic crisis and decline, as well as two periods of recovery and one extended expansion.