THE EXTENT OF THE MARKET AND THE SUPPLY OF REGULATION*

Casey B. Mulligan and Andrei Shleifer

We present a model in which setting up and running a regulatory institution takes a fixed cost. As a consequence, the supply of regulation is limited by the extent of the market. We test three implications of this model. First, jurisdictions with larger populations affected by a given regulation are more likely to have it. Second, jurisdictions with lower incremental fixed costs of introducing and administering new regulations should regulate more. This implies that regulation spreads from higher to lower population jurisdictions, and that jurisdictions that build up transferable regulatory capabilities should regulate more intensely. Consistent with the model, we find that higher population U. S. states have more pages of legislation and adopt particular laws earlier in their history than do smaller states. We also find that the regulation of entry, the regulation of labor, and the military draft are more extensive in countries with larger populations, as well as in civil law countries, where we argue that the incremental fixed costs are lower.

I. Introduction

In a classic paper Demsetz [1967] argues that the creation of institutions requires a fixed cost, and is therefore limited by the extent of the market. Introducing an institution only becomes efficient when the scale of an activity it supports becomes significant enough to cover the fixed costs of creating and running it. Using the example of Indians in the Quebec region circa 1700, Demsetz maintains that the aggregate value of fur trading explains the emergence of enforced land ownership rights. In this paper we show that Demsetz's logic concerning the role of fixed costs in creating and enforcing additional rules and regulations is quite general theoretically but also valid empirically. We present a model in which the supply of regulation is limited by the extent of the market, and test its predictions for whether and how particular activities are regulated across communities.

The two main traditions of regulatory economics do not focus

* We appreciate the comments of Lucian Bebchuk, Gary Becker, Dora Costa, Kevin Davis, Simeon Djankov, Claudia Goldin, Louis Kaplow, James Hines, Lawrence Katz, Matthew Kahn, Randall Kroszner, Sam Peltzman, seminar participants at Clemson and Harvard Universities, and the University of Chicago, and especially Edward Glaeser. We also thank Steve Tenn for data and Herbert Lian, Pakshun Ng, Walter Theseira, and Vasudev Vadlamudi for research assistance. Mulligan gratefully acknowledges the financial support of the University of Chicago's Stigler Center for the study of the Economy and the State, and computing support from the NBER.

The Quarterly Journal of Economics, November 2005

on the fixed costs of introducing and administering regulations. Neither the public interest theory (e.g., Pigou [1928]), nor the special interest theory (e.g., Tullock [1967], Stigler [1971], Peltzman [1976], Becker [1983], and McChesney [1987]) deal with this issue. Yet, at least in principle, fixed costs are important. It takes some political and administrative resources to organize a community to draft and adopt each new regulation, especially when the government enters a new area. In many cases, a new bureau must be set up and staffed to administer the new regulation, including finding violators. At least for some communities, these costs might be significant.

Consider military conscription. As an addition to the volunteer army,[1] conscription is a common form of reliance on regulation rather than contract to meet social needs. Conscription has significant fixed adoption, administration, and enforcement costs. The adoption costs include reaching a political consensus on not only how many people should serve in the armed forces, but the fraction of the force to be drafted, the length of service, the population subject to the draft, occupation-specific terms of service, exemptions, deferrals, and possibilities for commutation fees, substitutes, and conscientious objection. The political costs may be especially significant for conscription because some of the issues involved are so controversial. Administrative and enforcement costs include deriving algorithms for enumerating the population subject to the draft, setting up and staffing offices throughout the country to administer the draft, verifying qualifications for exemptions, including medical ones, establishing institutions specializing in catching draft dodgers, and policing the system itself to assure fairness and avoid corruption.

Conscription transforms some of the marginal costs of the volunteer army into fixed costs, especially for the less selective conscription systems. For example, a small volunteer army might maintain just a few recruiting stations (or even just one located near the military headquarters), and plan for the training of a particular type of enthusiastic and able recruits. As the volunteer force grows, it would open additional recruiting stations and learn to train a more heterogeneous group of recruits. These costs would be marginal. But a universal or random conscription system pays these costs regard-

1. To our knowledge, all militaries have some volunteers. Hence, the question is not a volunteer versus a draft system, but whether a draft system supplements the volunteer system.

less of the number of troops to be recruited, because the system recruits a cross section of the population.

We study how the extent of the market and regulatory costs shape the adoption of regulations such as conscription. In our model, communities choose from a range of possible modes of solving social problems, including private orderings, judicial enforcement, and regulation [Djankov et al. 2003]. Regulation wins out—either from the efficiency perspective or in the political marketplace—when it is cheaper than the alternatives. We assume that regulation requires a fixed cost of adoption and administration and derive the equilibrium quantity of regulation in a community as a function of its population, and fixed and variable costs, as well as the benefits, of regulation.

Several predictions follow. First, the theory predicts that, other things equal, more populous communities should regulate more activities, and do so more intensively. This yields a novel prediction that population is a determinant of the quantity of regulation, which we test using data on U. S. states as well as a cross section of countries. Second, if we compare two communities with different levels of incremental fixed costs of introducing and administering new regulations, the community with lower fixed costs should have more extensive regulations. We test this prediction in two ways. We consider the diffusion of regulation across U. S. states, and argue that regulation should diffuse from higher to lower population states, since the latter as imitators face lower fixed costs of regulation. In addition, we argue that legal origin can serve as a proxy for regulatory costs. Following the historical analysis of Woloch [1994], we suggest that the pervasive administrative state introduced in France by its Revolution lowered the fixed costs of administering incremental regulations. Such a state was never created in England. As legal and regulatory frameworks have spread through conquest and colonization, so did the cost structures of incremental regulations. The model then implies that legal origin predicts the extent of regulation in a cross section of countries. This approach offers a test of the fixed cost theory quite separate from that using population.

II. A Simple Model of the Supply of, and Demand for, Regulation

Consider a jurisdiction, such as a U. S. state, where people interact with each other, and may have a dispute. These disputes are sometimes resolved informally or in courts using community standards of fairness. But when such strategies do not work, communities introduce legislation and regulation, which delineate the rights and obligations of various members. Some legislation just describes the rules of the game, and leaves the enforcement of these rules to private parties. Its main function is to reduce the cost of settling disputes in court. In other instances, enforcement is also taken over by the state, as in the case of regulatory agencies.[2]

Interactions, and hence the nature of disputes, are heterogeneous. For example, a day laborer's interaction, and potential disputes, with his employer are different from those between a salaried employee and his employer. We let $t \in [0,\infty)$ index the type of interaction that might occur in a community, or more literally the type of dispute that might occur. The index t is ordered so that the more frequent disputes have lower values of t. $f(\cdot)$ is a monotone decreasing density function, with $f(t)$ describing the likelihood that a randomly chosen dispute is of type t. When population is of size N, the total number of disputes of type t is $Nf(t)$. Let b denote the political-market value of having legislation or regulation in place in order to help resolve any one dispute, so that $bNf(t)$ is the total value of having legislation or regulation pertaining to interactions of type t.

The value per regulation can be graphed versus the index t, and slopes down. In this sense, $bNf(t)$ is the "demand" for regulation. As in any market, demand does not necessarily coincide with social value: $bNf(t)$ is a political-market value, and not necessarily a social value, because some groups' interests might not be adequately represented in the political marketplace—perhaps because they do not vote or are otherwise politically inaudible. Nevertheless, we expect the extent of the market to be an important determinant of both social and political-market values.

Creating and enforcing regulations pertaining to a dispute of type t costs $s(t) = \rho + cNf(t)$. $s(t)$ is a political-market cost function, and does not necessarily coincide with social cost due to inefficiencies in the political market. $s(t)$ has a fixed component ρ,

2. Glaeser, Johnson, and Shleifer [2001] argue that regulation reduces enforcement costs because regulators have stronger incentives to enforce rules than do the judges. Glaeser and Shleifer [2001] and LaPorta, Lopez-de-Silanes, and Shleifer [2006] give examples of why "bright line rules" provided by regulation are easier to enforce—both publicly and privately—than torts.

and a variable component $cNf(t)$, which is proportional to the total number of disputes of type t. For simplicity, we treat ρ, b, and c as constants even though in principle they can vary with GDP per capita, education, and other characteristics of the community being regulated.

This specification assumes the same function f across all communities, and that the ordering of activities on the t axis is the same everywhere, which is clearly not true. Some communities specialize in particular economic activities or social groups. In this case, what determines the adoption of regulation is not the total population, but the number of people who would benefit from the activity being regulated. Moreover, communities might endogenously specialize in regulation, hoping to attract more of a given activity—as is the case with Delaware's specialization in corporate law. In empirical applications, we recognize that sometimes it is not the total population of a community, but the total affected population, that limits the adoption of regulations.

Legislation pertaining to disputes of type t is created *if and only if* demand exceeds supply:

$$Nf(t)b \geq s(t) = \rho + cNf(t). \tag{1}$$

If $b \leq c$, there will be no regulation regardless of the dispute frequency or the population size. In particular, if $b < 0$, there is no political-market value of regulating rather than relying on private orderings or common law, and regulation will not be adopted. Accordingly, we focus on the activities for which $b > c$.[3]

With $b > c$, we graph in Figure I the supply of regulation in the same plane as the demand described above, with the supply sloping down less steeply than does demand. There is a critical value T such that regulation covers all disputes $t \leq T$, and no regulation pertains to disputes $t > T$. Hence, T is the total range of regulation, and is determined by the formula:[4]

3. Some forces might lead to reductions in c. Becker and Mulligan [2003] and Peltzman [1989] conclude that regulation increases in response to its own enhanced efficiency.

4. In Mulligan and Shleifer [2004], equation (2) links "Zipf's law" for activities to the population-regulation gradient. When f is the Pareto distribution with shape parameter one, the range of regulation T is a square root function of population:

$$f(t) = (t+1)^{-2} \Rightarrow T = \sqrt{\frac{(c-\beta)N}{\rho}} - 1.$$

One reason to expect the distribution of disputes to be Pareto with shape

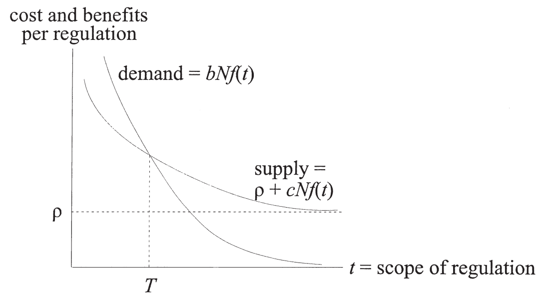

FIGURE I
Supply of, and Demand for, Regulation

This figure shows the model's relationship between the scope of regulation t and either costs and benefits per regulation. The steeply sloped line graphs marginal benefit, while the flatter line graphs marginal cost. N denotes population. b (c) denotes marginal benefit (cost) per person affected by regulation. ρ is the fixed cost of supplying regulation. T is the critical scope of regulation at which marginal benefit equals marginal cost.

$$T = f^{-1}\left(\frac{\rho}{(b-c)N}\right). \tag{2}$$

The fraction of disputes that are subject to regulation is simply $F(T)$. Equation (2) yields comparative statics results that motivate our empirical work.

PROPOSITION 1. An increase in population N increases the range of regulation T.

In the presence of fixed costs, jurisdictions with larger populations tend to regulate more activities. In addition, if we fix a particular activity, such as mining, jurisdictions may vary according to exactly where mining fits in their distribution f or what is the net value $(b - c)$ of regulating. For example, mining may be a common activity in West Virginia, but uncommon in Georgia, so a larger fraction f of West Virginia's population may stand to benefit from mining regulation. In this example, *total affected population* $Nf(t)$ determines regulatory adoption, so that some states like West Virginia may regulate mining even though their overall population N is small. More generally, some states with

parameter near one derives from a simple "Gibrat's Law" model of the growth and decline of various forms of human interaction. Examples include cities [Gabaix 1999], occupations [Mulligan and Shleifer 2004], homeowners insurance claims [Stuart 1983], and firm sizes [Axtel 2001].

small overall populations will regulate a particular activity because of their large desired intensity (as measured by f, $(b - c)$, or some combination).

In addition, equation (2) yields a prediction for the consequences of regulatory costs:

PROPOSITION 2. A decrease in the fixed cost (ρ) or the variable cost (c) of regulation raises T.

Propositions 1 and 2 are readily proved by totally differentiating equation (2): $dT = \{d\rho + dc/(b - c) - dN/N\}/[(b - c)Nf']$.

To test Proposition 2 empirically, we use two approaches to measuring regulatory costs. First, creating and enforcing a new regulation in one jurisdiction is likely to be cheaper when there are precedents in similar jurisdictions. Given Proposition 1, this means that new regulations first appear in larger jurisdictions—where the aggregate value of regulation exceeds the cost of creating and enforcing them—and then diffuse to smaller jurisdictions. Because the smaller jurisdictions benefit from the experience of the larger jurisdictions, they adopt the new regulation without having to wait to grow to the size of the larger jurisdictions that began the process.

Second, the fixed and variable costs of regulation (ρ and c, respectively) may not only spill across jurisdictions, but also across regulations. Legal origin is one proxy for the costs of regulation as inherited from long histories of state intervention, with civil law indicating lower costs than common law. Following the work of Djankov et al. [2002, 2003], we use legal origin as a measure of the cost of regulation in a cross section of countries.

III. REGULATION ACROSS STATES MEASURED IN KBS

III.A. Population and the Amount of Law

One aggregate measure of regulation is the number of pages of law, made famous by Ronald Reagan when he recalled the reduction during his administration in the number of *Federal Register* pages. To compute this indicator of regulation for states, we measure the number of kilobytes (KBs) of unannotated *state* law in 37 states in 2001, 2002, or 2003. A kilobyte (KB) is 1024 bytes, and each byte represents a character. For example "Thou shalt not kill." is 20 bytes (including spaces and the period), or 0.0195 KB. We found that one page of law is roughly one kilobyte

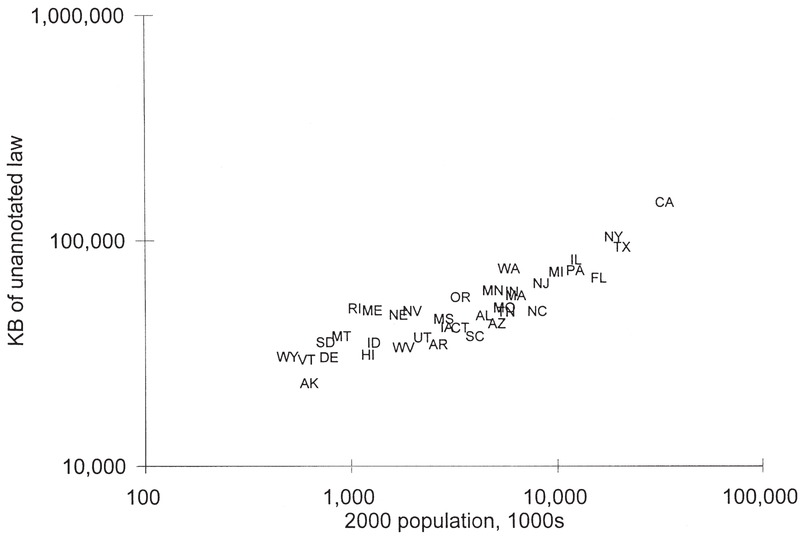

FIGURE II
Statutes and Population across States

of law, and the typical state has tens of thousands of kilobytes.[5] Appendix 1 describes our algorithm for counting KBs of law for the states, and explains why thirteen states were excluded from the counting.

The empirical relation between statute KBs and population is shown in Figure II. The correlation (of the logs) is 0.88, and the overall regression elasticity is 0.31. The comparison of Delaware and Wyoming, and of Texas and New York, illustrates the basic fact. Delaware and Wyoming have similar total populations, but different population densities (Wyoming is the second least densely populated state, while Delaware is seventh most). Since both states have a similar number of statute KBs, and both fit near the regression line, population seems more important than density in determining regulation. Texas and New York offer a similar comparison, since they have the same population, similar

5. There are three reasons to measure KB rather than pages. First, not all states have their statutes published by the same publisher (or, within publisher, in the same format), so cross-state comparisons of pages would require adjustments for each publisher's font size, formatting style, etc. Second, some states have their total statutes published irregularly, and publish only additions and retractions in the meantime. Third, bytes can be calculated (as described below) by computer and potentially be disaggregated by statute type.

numbers of statute KBs, but New York is about six times more dense than Texas. Indeed, Delaware and New York have similar population densities (almost 400 persons per square mile), but pages of statutes that differ by almost an order of magnitude, as predicted by our model.

Table I examines the validity and the robustness of the relationship between population and regulation illustrated in Figure II. We include a southern state dummy, lawyers per capita, land area, income per capita, and several additional state characteristics as controls. The relationship between population and regulation remains strong, and the coefficient stays near .3. Southern states have fewer KBs of law. More law and more lawyers go together.[6] The regressions in Table I do not show any significant effect of income per capita on KBs of law. This is a surprising result, especially in light of the fact that Demsetz [1967] and North [1981] generally think of the aggregate level of economic activity as a determinant of adoption of institutions. Indeed, our model's focus on population rather than aggregate activity distinguishes it from the earlier work. One reason that population rather than income may matter for regulation is that, as income rises, so do real wages and therefore the fixed labor cost of setting up and running a regulatory institution. If the fixed costs rise as fast as do the aggregate benefits per capita, population rather than income determines the adoption of a regulation.[7]

Alesina and Spolaore [2003] present a model of the determinants of country size, in which the benefits of spreading the fixed costs of a particular policy among more people are traded off against the inefficiency of implementing uniform policies in a

6. The number of lawyers is likely to be correlated with other determinants of the number of laws. However, including this variable does not affect the estimated population elasticity because population and lawyers per capita happen to be uncorrelated. Appendix 2 explains how lawyers per capita are measured from the 1990 Census. Another measure of lawyers per capita for 2003 from the American Bar Association [2003] also does not help predict KBs of law, in part because it records (unlike the Census) NY and MA as extreme outliers.

7. We are aware of only four studies that use absolute population as a determinant of regulation. Among the variables they use to predict adoption of "general incorporation code" by U. S. states, Shughart and Tollison [1985] include both aggregate population and aggregate manufacturing income (both in levels, with population measured in different years for different states). They find that populous states adopt later and states with more manufacturing income earlier, so it is hard to tell from their results whether populous states adopted earlier or later (we find the raw correlation between year of adoption and log 1910 population to be −0.55). McCormick and Tollison [1981] use absolute size of legislature to predict occupational licensing, and note that Stigler [1976] used absolute population to predict the size of legislature. Davis [2003] argues that smaller jurisdictions should have fewer and more vague legal rules.

TABLE I
KBs of Law across States

Independent variables	(1)	(2)	(3)	(4)	(5)	Addendum: inclusion in sample
log(2000 population)	0.31	0.32	0.36	0.31	0.46	0.34
	(0.06)	(0.07)	(0.09)	(0.02)	(0.06)	(0.24)
south	−0.21	−0.20	−0.22	−0.16	−0.17	−0.37
	(0.10)	(0.09)	(0.10)	(0.06)	(0.07)	(0.23)
lawyers per capita, log	0.20	0.21	0.23	0.16	0.11	−0.05
	(0.10)	(0.10)	(0.10)	(0.07)	(0.11)	(0.24)
land area, log	0.01	0.01	−0.01			−0.13
	(0.04)	(0.04)	(0.05)			(0.12)
income per capita, log	−0.28	−0.28	−0.23			−0.04
	(0.31)	(0.31)	(0.32)			(0.73)
90-10 household income differential, log	0.13					
	(0.22)					
fr. labor force coded with just 75 occ. codes		0.13				
		(1.53)				
fr. population urban			−0.25			−1.45
			(0.44)			(1.13)
fr. of population white	0.19	0.17	0.18			−0.20
	(0.28)	(0.29)	(0.28)			(0.81)
# of state senators & representatives, log	−0.12	−0.12	−0.15			−0.41
	(0.11)	(0.11)	(0.12)			(0.24)
year of statehood/100	−0.08	−0.07	−0.05			0.03
	(0.12)	(0.12)	(0.13)			(0.31)
log(1920 population)	0.03	0.03	0.01			−0.16
	(0.05)	(0.05)	(0.06)			(0.15)
adj-R^2	.82	.82	.82	.84	.85	.13
sample	37	37	37	37	17	50

Each of the first five columns present results for a cross-state regression with log of number of kilobytes of law as the dependent variable. Columns differ in terms of independent variables, and states included. The last column reports marginal probabilities from a probit for inclusion in our 37-state sample.

a. Constant terms are estimated, but not displayed in the table. OLS standard errors are displayed in parentheses.

b. Specification (5) limits sample to states with year 2000 population at least the median.

c. See Appendix 2 for variable definitions.

heterogeneous population. In their view, population is positively correlated with heterogeneity such as ethnic diversity. In our model, population is a proxy for a different kind of heterogeneity—namely the likelihood of having at least some minimum number of people engaged in esoteric activities—which could be found in a large jurisdiction even if it were very homogeneous in terms of race, geography, education, or income. Empirically for U. S. states, does population proxy for heterogeneity, and if so which kind? Specifications (1)–(3) suggest that population does not proxy for heterogeneity as measured by income inequality, occupational diversity, the importance of cities, or the prevalence of racial minorities, because these measures do not predict KBs or affect the estimated population elasticity.[8]

Figure II also does not readily tell us whether the amount of law in a state today depends on its current population or, since statutes accumulate over time, the population it had in the distant past or the number of years the state has existed (as a state). As shown in Table I, these two variables (the former measured as 1920 population) have no power to predict statute KBs conditional on current population. We also include log of the number of seats in each state's House and Senate, in case the amount of law depends on the number of lawmakers which just happens to be correlated with population.[9] This control does not matter either.

As indicated in footnote 4, our model calibrated with Zipf's law says that the population elasticity of regulation should be about 0.5. Although not included in our model, there may be a "necessary" range of activities such as murder, elections, or traffic, that are regulated in some detail regardless of population. In this case, we expect the population elasticity to be less than 0.5 and then rise with population to approach 0.5 as the regulation moves significantly beyond the necessary range. A small state may also adopt a regulation more cheaply by imitating the earlier-adopting large states. Imitation induces a positive correlation between population and the cost of adopting regulations, which means that the cross-state population elasticity may be less than 0.5, especially among the smaller states many of whose statutes are imitated. Figure II suggests, and specifications (4) and (5) confirm, that a larger elasticity in fact prevails among the larger states. Specification (4) is for the entire 37-state sample, and

8. See Appendix 2 for details on constructing the heterogeneity measures. We have also tried various measures of earnings inequality from the 1990 Census PUMS, and the fractions of income and employment in agriculture, with similar results.

9. Log seats is more correlated with log 1920 population than with log 2000 population.

without the various controls other than Southern, and displays an elasticity of 0.33. Specification (5) throws out the 20 of the 37 states with below median population (i.e., states with a smaller 2000 population than Kentucky's 4,041,000), and displays an elasticity of 0.46. Although not shown in the table, the estimated population elasticity is similar if we cut the sample at 3, 5, or 6 million rather than 4,041,000.

III.B. What Do KBs of Law Represent?

There are two reasons we believe that pages of statutes are correlated with the real amount of regulation. First, the aggregate time series of *Federal Register* pages (the *Federal Register* consists of new laws passed by Congress, executive orders, and federal government agency reports) deviates significantly from its trend during exactly those periods (since 1936) when it is commonly believed that federal regulation was accelerating the most—World War II and the 1970s. Second, as we show in Section IV, the population gradient seen in Figure II also appears in studies of the history of states' adoption of various laws, including occupational licensing, telegraph regulation, and worker's compensation. However, regulations like these diffuse quickly from large to small states and, at least in the case of occupational licensing, the cross-state regulation-population gradient falls over time as regulation diffuses. Hence the pages we measure in 2003 may not have much to do with the adoption of regulations such as occupational licensing and worker's compensation that began their diffusion decades ago, but rather with the adoption in more recent areas of regulation, with further elaboration of old regulations, or with the adoption of esoteric regulations by the big states that may never diffuse to the smaller ones.

Illinois and Indiana are an interesting comparison, as the states are similar in many ways, except that Illinois has twice the population. Both states are near the regression line; Illinois has 40 percent more bytes of law than Indiana. Part of this difference is that Illinois has almost twice the bytes of criminal law and corrections.[10] Can these byte counts be attributed to a number of activities that are legal in Indiana and illegal in Illinois? Or do both prohibit the same set of activities, and Illinois is just more

10. From the annotated statutes (not used for the KB counts cited in the text) we see that Illinois has many more annotations and corrections to its criminal law than does Indiana.

detailed in its regulation of them? Several examples suggest that both differences are present.

Relative to Indiana, Illinois has many acts devoted to pretty minor issues (such as the "Coin Slug Act" and the "Peephole Installation Act").[11] Among the issues covered in the criminal law of both states, Illinois seems to regulate them in more detail. For example, Illinois has 359 KB devoted to drug offenses, while Indiana has only 124 KB.[12] Included among Illinois' 359 KB is an entire "Drug Asset Forfeiture Procedure Act" (22 KB) devoted to the forfeiture of assets by persons involved in drug offenses, where Indiana has only a Civil Law chapter "Forfeiture of Property Used in Violation of Certain Criminal Statutes" (21 KB) on the seizing of assets of criminals, and this chapter applies to all kinds of criminals, including thieves, (media) pirates, smugglers, and terrorists.

Consider offenses related to animal fighting. Indiana has only a few sections (totaling 2 KB) in a chapter "Offenses Relating to Animals," while Illinois has a criminal section "Dog Fighting" plus two sections of the "Human Care for Animals Act" (with all three fighting sections totaling 11 KB). The Indiana statutes prohibit promotion, use of animals, or attendance with animal (or without) at animal fighting contest, and the possession of animal fighting paraphernalia. Conducting or attending a dog fight is also explicitly illegal in Illinois, but so is a whole range of other activities connected to dog fighting. Namely, Illinois explicitly prohibits a person to:

(a) "own, capture, breed, train, or lease a dog" for fighting,
(b) "promote, conduct, carry on, advertise, collect money for or in any other manner assist or aid in the presentation" of a dog fight,
(c) "sell or offer for sale, ship, transport, or otherwise move, or deliver or receive any dog which he or she knows has

11. Indiana covers coin slugs under a wider law regarding "Forgery, Fraud, and Other Deceptions" in reference to a slug that might be "deposited in a coin machine." Illinois' Coin Slug Act explicitly references "slug, washer, disc, token, string, cord or wire or by means of any false, counterfeited, mutilated, sweated or foreign coin, or by any means, method, trick, or device whatsoever not lawfully authorized by the owner of such coin box telephone, coin operated transit turnstile or transit fare box." In addition, Illinois has a "Telephone Coin Box Tampering Act."

To our knowledge, Indiana has no statute covering peephole installation (apartment units must be built with peepholes for the occupants to see out).

12. Results are similar if we use statutes inclusive of annotations: Illinois has 426 drug pages while Indiana has 147.

been captured, bred, or trained, or will be used, to fight another dog or human,"

(d) "manufacture for sale, shipment, transportation, or delivery any device or equipment which he or she knows or should know is intended for use in any [dog fight],"

(e) "possess, sell or offer for sale, ship, transport, or otherwise move any [dog fighting equipment],"

(f) "make available any site, structure, or facility, whether enclosed or not, that he or she knows is intended to be used for the purpose of conducting [a dog fight]".

Illinois law also details the procedures for sheltering animals found in connection with the enforcement of the animal fighting statutes.

The Indiana-Illinois comparison is likely to be representative of the population-animal regulation gradient for all 50 states. We have counted words of statute devoted to animal fighting for 37 states. Regressing log animal fighting words on log 2000 population and a dummy for south yields coefficients of 0.30 (s.e. = 0.14) and 0.02 (s.e. = 0.30), respectively. The population elasticity for animal laws is the same as that for all laws combined.

IV. The Diffusion of Regulation across States

Proposition 2 implies that regulations are first introduced in the most populous states, and then diffuse to smaller ones. In this section we test this prediction.

IV.A. Patterns of Adoption: Occupation and Industry Regulation

Stigler [1971] looks at the licensing of 37 occupations in the 48 mainland U. S. states. He predicts the year a state licenses an occupation using the prevalence and urbanization of that occupation in the state, and occupation fixed effects. Our model suggests that total population, or the *absolute* size of the occupation, should be added to the licensing year regressions. Roughly speaking, the difference between Stigler's specification and that suggested by our model is the inclusion of log total population as a regressor in addition to, or instead of, occupational prevalence.[13]

13. Stigler did not enter occupational prevalence (total number of persons practicing the occupation divided by total labor force) in log form, but if he had, and occupation size were normalized by population rather than labor force, then

When we regress year of licensing on occupation dummies, the fraction of the population living in cities, and the log of 1910 population, the estimated population elasticity is −2.13 (standard error clustered by state = 0.55). Larger states tended to license occupations earlier.

The diffusion of regulation from large to small states is readily seen in our licensing data. Mulligan and Shleifer [2004, p. 13] report some regression results along these lines, but the basic point is readily illustrated with diffusion curves for occupational licensing. The diffusion curve for, say, real estate broker licensing is a graph of year on the horizontal axis versus fraction of states licensing brokers by that year on the vertical axis. Stigler [1971] considered 36 other occupations as well, so we consider the cross-occupation average of the diffusion curves; our vertical axis measures the fraction of state-occupation cells licensed as of the year indicated on the horizontal axis. Figure III displays a separate diffusion curve for the ten largest states (solid line, classified on 1910 population) and the ten smallest states (dashed line).[14] The large state curve is to the left of the small state curve: licensing appears earlier in the large states. The difference is about five years in the middle of the sample period, which is a lot less time than it takes for the small states to grow to the size of the big ones (the former have average 1910 population of 0.3 million, compared with 4.6 million for the latter). The result is what we would expect if the leading states lower the adoption costs for the followers.

Seven of the ten small states are western, and were not admitted to the Union until about 1900, so it may be possible that the dashed curve sits to the right merely because the represented states are young rather than small. The dotted line omits the seven western states, leaving DE, NH, and VT, which were among the first states of the United States. It still sits to the right of the solid line, despite the fact that the ten largest states average twenty years younger than DE, NH, and VT.

Other evidence is broadly consistent with our findings on

his specification and ours would differ only by a log population term. Stigler's estimated occupational prevalence coefficient was statistically insignificant. Another reason we emphasize log population, rather than log occupation size, as a regressor is that licensing may affect occupation size more readily than it affects population.

14. The ten largest states were GA, IL, IN, MA, MI, MO, NY, OH, PA, and TX. The ten smallest states were AZ, DE, ID, MT, NH, NM, NV, UT, VT, WY.

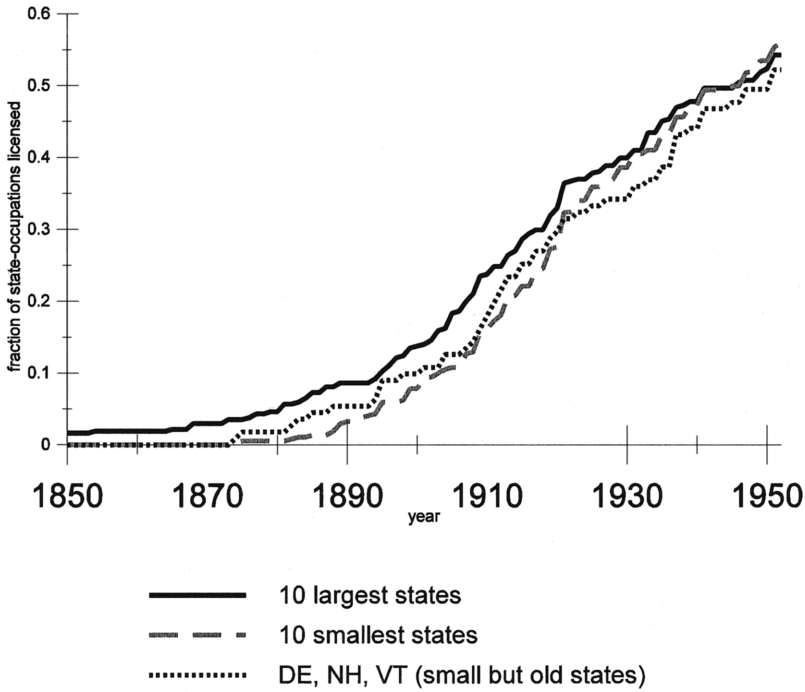

FIGURE III
The Diffusion of Occupational Licensing

The figure displays cross-occupation averages of the diffusion curves: the vertical axis measures the fraction of state-occupation cells licensed as of the year indicated on the horizontal axis. The figure displays a separate diffusion curve for the ten largest states (solid line, classified on 1910 population) and the ten smallest states (dashed line). The dotted line displays the diffusion curve for the three oldest of the ten smallest states.

Stigler's data. Nonnenmacher [2001] looks at the adoption of telegraph regulation circa 1850. Figure IV graphs total state population, measured in 1850 and on a log scale, versus the year of first telegraph regulation for each of the 32 U. S. states at the time. As expected, the populous states like NY, PA, MA, and VA were early adopters, and the last adopters (TX, FL, MN, IA, AR) were relatively unpopulated. The correlation between year of first law and log population is -0.56 (t-stat $= 3.73$).

More populous states were also quicker to regulate working hours of women. Figure V graphs Landes' [1980, Table 1] report of the year of first maximum female working hours legislation against (log scaled) 1890 population. The correlation is -0.34

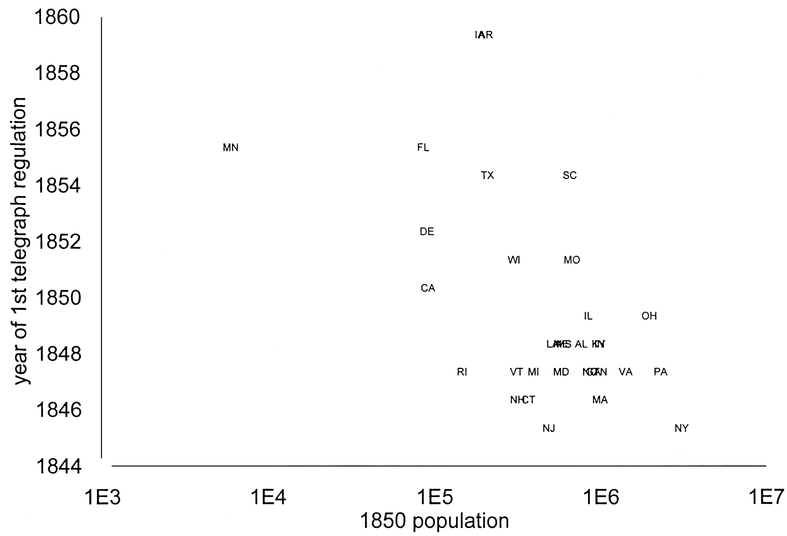

FIGURE IV
Telegraph Regulation across States

(t-stat = 2.3). Among the 23 states for which Landes reports, there being a minimum wage law for women, the correlation between year of first minimum wage law and log population is −0.29 (t-stat = 1.0). TX, ND, DC, AR, and KS had an average 1890 population of 1.0 million and were the last of the thirteen to legislate a minimum wage, while MA passed the first law and had an 1890 population of 2.2 million.

IV.B. Population or Affected Population?

In Section II we noted that the exact specification of the model might be too narrow, and that what may matter is the size of the population (and the number of interactions and conflicts) affected by a given regulation. Some evidence indeed supports this view.

Worker's compensation provides an interesting application of our analysis, because the population relevant for determining whether there will be worker's comp regulation—namely, the individuals likely to be hurt in workplace accidents—can be quite different from the total state population, especially in the early twentieth century when states were first taking up these laws. For example, the 1910 Census shows Wyoming's

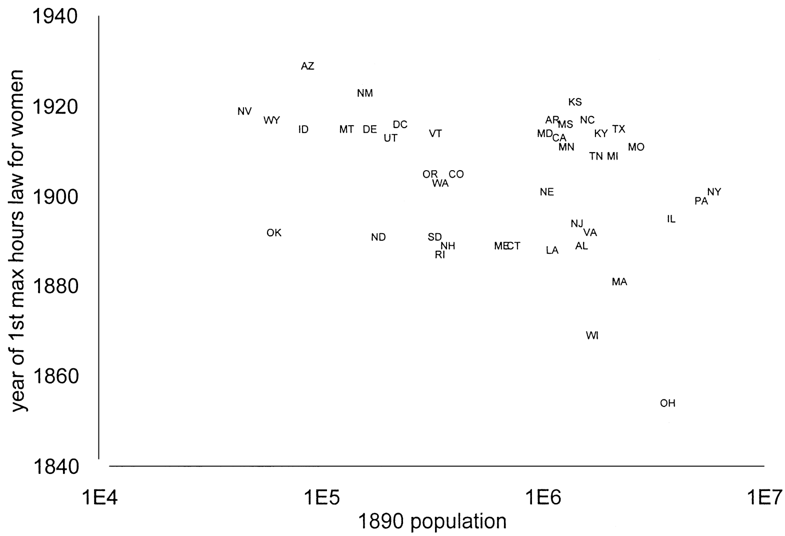

FIGURE V
Female Hours Laws versus Population

ranking 47th out of 48 in terms of total population, but 29th out of 48 in terms of total number of persons working as miners (a group likely to experience serious work injury). Figure VI graphs *total* state miners found in the 1910 Census PUMS, on a log scale, against the year of first worker's compensation law (from Fishback and Kantor [2000, Table 4.3]) for each of the 48 U. S. states at the time. The correlation is -0.27 (t-stat = 1.9). If we regress year of first law on log miners and miners per capita, log miners is the more important variable: the t-statistics on the regression coefficients are -1.5 and -0.5, respectively.

The size of the affected population also predicts which states were early to pass legislation "prohibiting discrimination in employment on the grounds of race, creed, color, or national origin" [Landes 1968, p. 507]. When Landes wrote, eighteen northern states had laws *and* agencies to enforce them. As Table II's "enforceable" column shows, the average 1950 Black population in these states was 171,615, and three-quarters of these states had at least 100,011 Blacks. The four northern states with discrimination laws but no commission to enforce them (ID, ME, MT, VT) were much smaller—each had roughly 1,000 Blacks. North Dakota and South Dakota were the only Northern states without

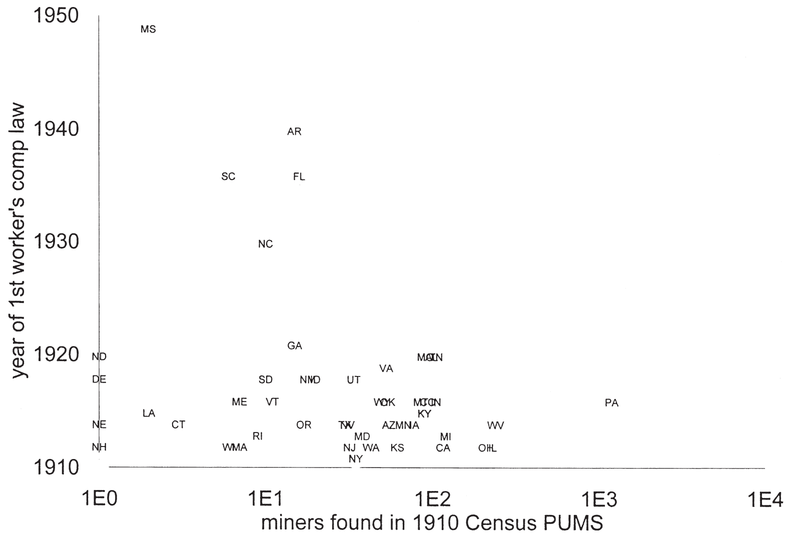

FIGURE VI
Total Miner Population and the Adoption of Workers' Comp

laws; their Black populations were 257 and 727, respectively. Table II is consistent with our hypothesis that small states are late to adopt regulation. However, in this case total population is

TABLE II
NORTHERN STATES, CLASSIFIED BY THEIR EMPLOYMENT DISCRIMINATION LAWS

	1968 Employment Discrimination Law		
1950 Black population	Enforceable	No enforcement commission	No law
avg	171,615	987	492
	100,011	898	375
	interquartile range		
	302,457	1,224	610
percent of total	1.8	0.2	0.1

enforceable states: AK, AZ, CA, CO, CT, HI, IL, IN, IA, KS, MA, MI, MN, MO, NE, NV, NH, NJ, NM, NY, OH, OR, PA, RI, UT, WA, WI, WY
no commission states: ID, ME, MT, VT. states w/o a law: ND, SD

This table displays summary statistics for Black populations of northern states, where the states are classified in columns by the type of Employment Discrimination Law they had in 1968. The last rows of the table list the states appearing in each column.

Source: Landes [1968], University of Virginia Geospatial and Statistical Data Center, and Texas A&M University [2002].

correlated with population frequency; the last row of the table shows that the regulating states were not only populous, but also had relatively large Black population percentages.[15]

V. Regulation across Countries

In this section we bring the predictions of our theory to the cross-country data. We check whether higher population countries are more likely to have several types of regulation for which we have data. In addition, we develop the argument that the origin of a country's laws is a proxy for the level of incremental fixed costs of adding new regulations. These origins include the laws of England (common law), and civil laws of France, Germany, Scandinavia, and the U.S.S.R. Legal traditions have spread throughout the world through conquest and colonization [La Porta et al. 1998], and represent very different approaches to addressing social concerns. But transplantation did not just affect the legal systems available at the time; it influenced broader patterns of regulation in countries from different legal origins. Once a country used a particular way of meeting a social goal, the human capital of its administrators and the structure of its existing institutions made it cheaper to use a similar approach in the future.

Motivated by the work of Woloch [1994] on Napoleonic conscription in France, we suggest that legal origin of a country's laws is a proxy for the level of fixed regulatory costs. Woloch describes how, following the Revolution, France established a pervasive administrative state. The country was divided into 80 departments, which were further subdivided down to the village level, with each level administered through a vertical hierarchy and directly accountable to the center. The administration was involved in budgets, police, roads, courts, primary education, hospitals, and some social welfare. Given the level of penetration of the state administration into national life, Woloch argues, draft administration was only an extension of the existing structures. "By Napoleon's choice, conscription constituted the ultimate frontier of state building, of the articulation of the administrative state projected by the Revolution . . . . Conscription became the state's obsession, the preoccupation of officials up and down the government hierarchy . . ." [p. 433].

15. Interestingly, among the 28 states with enforceable legislation, the correlation of year of first law with log total Black population (Black population share) is −0.26 (−0.11), respectively.

In our more prosaic view, conscription and other regulations were introduced successfully in France because the initial administrative innovations created sufficiently invasive governmental structures that could then regulate more without prohibitively expensive *incremental* mechanisms of assuring compliance. The French legal origin is, then, in part, a shorthand for this administrative or regulatory approach to addressing social problems [Djankov et al. 2003]. Through Napoleonic conquest and colonization, it was then transplanted to much of continental Europe, all of Latin America, North and West Africa, and parts of Asia. Scandinavian, German, and Socialist civil law countries have developed similar approaches to social intervention. England and its colonies, in contrast, did not develop such an administrative state at the early stages, and therefore we take common law to be a shorthand for the more decentralized approach to solving social problems. If the transplantation of the administrative/regulatory approach to addressing social problems reduces the fixed (and perhaps also the variable) costs of dealing with incremental ones, then our theory predicts that common law countries should have fewer regulations than civil law countries.

A few studies have measured regulations for a broad cross section of countries. Here we briefly analyze the business entry regulation index of Djankov et al. [2002], the employment laws index of Botero et al. [2004], the death penalty measures of Mulligan, Gil, and Sala-i-Martin [2004], and measures of military conscription of Mulligan and Shleifer [2005]. Table III reports one cross-country regression in each column. The columns differ according to the regulation measure (one of the five referenced above), and to whether a broader set of political variables (namely "left power") are included. The broadest sample is the 127 country "MGX" sample of Mulligan, Gil, and Sala-i-Martin [2004], but includes only measures of death penalty, population, British legal origin, GDP per capita, democracy, whether a country belongs to Kornai's [1992] list of communist states, and some information about military activities. A narrower 71-country "LaPorta" sample of Djankov et al. [2002] includes the regulation measures from those studies and a political measure of "left power."[16]

With the exception of the death penalty, all measures of regulation are lower in common law countries, and the effect is

16. Botero et al. [2004] and Djankov et al. [2002] have 85 countries. We exclude the former Soviet republics, Vietnam, and Lebanon, due to insufficient data on GDP for the years 1960–1990.

TABLE III
FOUR REGULATIONS ACROSS COUNTRIES

Dependent variable:	Business entry procedures, log	Employment laws index	Death penalty		Have draft	
Independent variables	(1)	(2)	(3)	(4)	(5)	(6)
log(population)/10	**0.95**	**0.11**	**0.50**	**0.71**	**0.75**	**0.17**
	(0.32)	(0.14)	(0.20)	(0.33)	(0.24)	(0.32)
British legal origin	−0.70	−0.24	0.30	0.40	−0.50	−0.66
	(0.10)	(0.04)	(0.07)	(0.10)	(0.08)	(0.09)
real GDP per capita, log	−0.32	0.01	0.09	0.06	−0.06	−0.06
	(0.07)	(0.03)	(0.04)	(0.08)	(0.05)	(0.08)
democracy index	−0.02	0.03	−0.56	−0.34	0.11	0.03
	(0.18)	(0.08)	(0.10)	(0.19)	(0.12)	(0.17)
communist dummy	−0.07	−0.06	0.09	0.39	0.15	0.01
	(0.15)	(0.07)	(0.10)	(0.16)	(0.11)	(0.15)
left power	−0.15	0.12		−0.28		0.08
	(0.13)	(0.06)		(0.13)		(0.12)
armed forces per male aged 15–24					1.62	1.69
					(0.56)	(0.66)
years at war since 1950					0.00	0.00
					(0.02)	(0.01)
adj-R^2	.57	.34	.27	.32	.38	.50
sample	LaPorta	LaPorta	MGX	LaPorta	MGX	LaPorta
countries	71	71	127	71	127	70

Each column presents results for a cross-country regression with a measure of regulation as the dependent variable. Columns differ in the measure of regulation used, the independent variables, and countries included.

a. Constant terms are estimated, but not displayed in the table. OLS standard errors displayed in parentheses.

b. Democracy index is on 0–1 scale, and averaged 1975–1990.

large and statistically significant. The death penalty results are puzzling, but other evidence is broadly consistent with our interpretation of the civil law tradition as lowering the fixed costs of introducing and administering new regulations.

What about the population effects? Specifications (1)–(2) suggest that, holding constant legal origin, GDP per capita, democracy, and communism, more populous countries have more business entry procedures and employment regulations. The impact of population on the number of procedures is statistically significant, that on employment regulations is not. The result on business entry procedures is particularly supportive of our model since a higher index of regulations in this area reflects more "issues" that the government gets involved in. In contrast, the index of labor regulations is constructed to reflect higher costs, rather than more areas of government supervision.

In modern times, the death penalty administration is another example of a regulatory attempt to solve social problems using methods involving significant fixed costs. For example, modern polities with the death penalty prefer to set up a system of appeals in order to reduce the probability that an innocent person is executed by the state. It is said that each execution costs the state millions of dollars (www.deathpenaltyinfo.org). Although a detailed study of scale economies in death penalty administration is beyond the scope of this paper, it does appear that execution costs are less than proportional to population.[17] Of course, administration costs do not include the costs of organizing the various interest groups for and against the death penalty. In any case, specifications (3) and (4) suggest that more populous countries are more likely to have the death penalty.

Conscription is relatively easy to measure for a large panel of countries—on both the intensive and extensive margins. We obtain data on the existence of the draft, and on the number of draftees for 138 countries for the years 1985, 1990, and 1995 from *The Military Balance* published annually by the International Institute for Strategic Studies. Following Ross [1994], we use measures of the size of the Armed Forces, democracy, and economic development as predictors of a country's reliance on conscription.[18] Specifications (5) and (6) are like the previous five specifications, except that some military activity variables are added to the list of independent variables, and that the dependent variable is the fraction of the years 1985, 1990, and 1995 a country enlists conscripts in its armed forces.

The population effect is large, significant, and consistent with our theory in the sample of 127 countries. However, once we restrict attention to the subsample of 71 countries for which we have measures of left power, the size of the effect falls, and its significance disappears. This is a consequence of using the sub-

17. www.deathpenaltyinfo.org reports that Florida (2000 pop = 16 million) and California (34 million) annually spend $51 million, and $90 million, respectively, in order to have the death penalty rather than life in prison.

18. We have also used government spending/GDP and the share of the population over the age of 65, and obtained similar results.

sample of richer and more democratic countries: the correlation between left power and log population is −.02 in the smaller sample, so omitting the left power variable has essentially no effect on the population coefficient. We also find that, when a country uses the draft, it uses it intensively, especially when the country is small (results not reported in the table). Among the countries with less than median population and having a draft, 75 percent have more conscripts than volunteers. This observation is consistent with fixed costs of having a draft system, and inconsistent with the hypothesis that small countries just happen to intend to use the draft lightly.

Overall, the cross-country evidence on both the effects of population and those of legal origins is broadly supportive of the fixed cost theory of regulation, and in particular with the predictions of Propositions 1 and 2.

VI. Summary and Conclusions

In this paper we have presented a model of efficient regulation along the lines of Demsetz [1967]. In this model, setting up and running regulatory institutions takes a fixed cost, and therefore jurisdictions with larger populations affected by a given regulation are more likely to have them. We then tested the model using data from both U. S. states and countries around the world. We found that higher population U. S. states have more pages of legislation and adopt particular laws earlier in their history. We also found that specific types of regulation, including the regulation of entry, the regulation of labor, and the military draft are more extensive in countries with larger populations. Finally, we have found that civil law countries regulate various activities more heavily than common law countries, a result consistent with earlier work and with our interpretation of civil law as lowering the fixed costs of administering new regulations. Overall, the results are strongly supportive of the fixed cost theory of regulation.

Our results suggest that, because of increasing returns in regulation, we would expect to observe regulatory specialization, particularly in activities that can cheaply travel across jurisdictions. Delaware's specialization in corporate law is broadly consistent with the perspective of this model. Regardless of the exact model of fixed costs, the evidence is supportive of the view that overcoming such costs is an important determinant of regulatory choice.

Appendix 1: Algorithm for Counting KBs of Law

A. *Statute Types*

There are two main formats for publishing state laws: "annotated" and "unannotated." The former are most commonly found in libraries—presumably because they are more useful to lawyers—and contain the text of each statute in effect at a point in time, *plus* some of the precedents that have affected interpretation of the statute and perhaps information about previous versions of the statute. The unannotated statutes contain only the text of the statute. Since we are interested in the relation between regulation and population, the distinction between annotated and unannotated statutes is important. A populous state is more likely to have had a court case that tested a particular statute, so we expect the quantity of annotations to increase with population.

B. *Computer Algorithm for Counting KBs of Law*

Every state has unannotated statutes available for browsing on the internet. The browsing is either in html, java, or pdf format, or in multiple formats. Our computer programs can only browse the internet in html format, so we were unable to make counts for nine states which had laws on-line only in java format.[19] The byte counts of pdf files exceed the number of characters in the file (due to formatting), so we exclude the two states (Kentucky and North Dakota) for which on-line statutes are only in pdf format. The final two states, Georgia and New Hampshire, were excluded from the sample even though they had html statutes available, because they were not in a format accessible by our programs. As we show below, the 13 states excluded from our data set are very similar to the 37 included in terms of population and many other characteristics.

Statutes on-line are usually presented in a tree format, where users first browse a list of titles, for each title a list of chapters, etc., with the final nodes in the tree being the actual

19. Those nine states are Colorado, Kansas, Louisiana, Maryland, New Mexico, Ohio, Oklahoma, Virginia, and Wisconsin. A number of states have both java and html statutes on line, including AR, CA, SD, and TN.

texts of laws. The tree format can be used to categorize formats by their legal classification, for example, tax, criminal, schools, occupations, or estates. States differ in terms of the number of levels in the tree, the number of final nodes used to present a given set of statutes, and hence the number of statutes and KB of statutes per final node. For example, New York has less than 4,000 final nodes, and South Dakota more than 40,000, even while the former has a lot more statutes than the latter. Since each html page usually includes headers and footers, this implies that the number of KB of html required to present a *given* set of statutes expands significantly with the number of html pages on which those statutes are presented. For example, SD has more bytes devoted to headers and footers than actual statutes, whereas NY has more than 80 bytes of actual statutes per byte of header or footer.[20] We therefore count statutes KB in four steps:

(1) A computer program automatically browses the entire html tree presenting a state's statutes, and downloads each www page from the tree, stripped of html tags. The statutes browsed were those in effect in 2001, 2002, or 2003.[21]
(2) A sample of downloads are visually inspected for a number of bytes of headers and footers on a typical html page.
(3) The number of html pages is multiplied by the result from step (2) to give total KB of headers and footers, and then subtracted from the total KB downloaded in step (1).
(4) If applicable, the aggregate KB of annotations are estimated as in steps (2) and (3), and then subtracted from the total.

20. A typical html page from SD statutes reads: "*32-5-10.2. Motorcycle safety education fee—Deposit in special revenue fund. The county treasurer shall remit to the department the motorcycle safety education fees collected pursuant to § 32-5-10.1. The fees shall be deposited in the state treasury in a special revenue fund for use as specified in § 32-20-14.* Statutes Menu | FAQ | My Legislative Research | Privacy Policy | LRC Menu This page is maintained by the Legislative Research Council. It contains material authorized for publication that is copyrighted by the state of South Dakota. Except as authorized by federal copyright law, no person may print or distribute copyrighted material without the express authorization of the South Dakota Code Commission," where we have italicized the actual statute. The nonitalicized portion is 523 bytes, so we subtract 523 bytes per SD www page of law.

21. The only exception is VT, for which we counted statutes in effect as of 1995. Including year of statute in the regressions has no impact on the results.

As a result, we interpret our KB counts as number of KB (and hence, roughly the number of pages) of unannotated statutes, exclusive of headers and footers, but inclusive of tables of contents used to organize those statutes.

Appendix 2: U. S. States Data Sources

1920 population by state. University of Virginia Geospatial and Statistical Data Center, plus AK & HI from Texas A&M University (2002).

1990 and 2000 population by state. Census Bureau (2001).

south Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia.

lawyers per capita. 1990 Census PUMS weighted number of persons aged 25–54 and reporting working in 1989 and reporting occupation code 178.

land area square miles from http://www.imagesoft.net/flags/usstate1.html

90-10 family income differential. Tenth and ninetieth percentiles of the within-state household income distribution, from the March 2001 CPS (referring to year 2000 income). The ninetieth percentile is divided by the tenth percentile, and the ratio is used in log form in the regressions.

fraction of labor force coded with just 75 occupation codes. Labor force is 1990 Census PUMS persons aged 25–54, reporting work in 1989, and reporting an occupation. The fraction used is the ratio of total labor force persons in a state's 75 largest occupation codes to total labor force.

fraction of labor force employed in agriculture. year 2000 from *Statistical Abstract of the United States* 2001, 2002; Census 2000 Summary File 1, 2 at http://factfinder.census.gov

fraction of population urban, white. year 2000, sources above.

income per capita. year 2000, personal income, sources above.

number of state senators and representatives. year 2002 from *Book of the States.*

year of statehood. http://cointown.com/htm/statehood_facts_2.htm

APPENDIX 3: SUMMARY STATISTICS FOR U. S. STATE DATA
(37 states with KB measures)

Variable name	mean	std dev	min	max
KB of law	47,723	21,963	20,922	132,862
2000 population (1000s)	5,970	6,975	493	33,871
1920 population (1000s)	2,165	2,321	55	10,385
south	.27	.45	0	1
lawyers per 1000 people	2.25	0.80	0.70	3.93
area (square miles)	75,632	97,895	1,054	570,833
personal income per cap. (year 2000 $)	28,162	4,491	20,916	40,757
90-10 household inc differential, log	2.07	0.16	1.79	2.42
fraction of labor force coded with just 75 occupation codes	0.70	0.03	0.64	0.77
fraction of population urban	0.72	0.16	0.38	0.94
fraction of population white	0.78	0.14	0.24	0.97
# of state senators & representatives	140	49	49	253
year of statehood	1841	48	1787	1959

UNIVERSITY OF CHICAGO AND NBER
HARVARD UNIVERSITY AND NBER

REFERENCES

Alesina, Alberto, and Enrico Spolaore, *The Size of Nations* (Cambridge, MA: MIT Press, 2003).

American Bar Association, *National Lawyer Population by State* (Chicago, IL: ABA Market Research Department, 2003).

Axtel, Robert L., "Zipf Distribution of U. S. Firm Sizes," *Science,* CCXCIII (September 7, 2001), 1818–1820.

Becker, Gary S., "A Theory of Competition among Pressure Groups for Political Influence," *Quarterly Journal of Economics,* XCVIII (1983), 371–400.

Becker, Gary S., and Casey B. Mulligan, "Deadweight Costs and the Size of Government," *Journal of Law and Economics,* XLVI (2003), 293–340.

Botero, Juan, Simeon Djankov, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, "The Regulation of Labor," *Quarterly Journal of Economics,* CXIX (2004), 1339–1382.

Council of State Governments, *The Book of the States* (Chicago, IL: Council of State Governments, various issues).

Davis, Kevin E., "Lawmaking in Small Jurisdictions," mimeo, 2003.

Demsetz, Harold, "Toward a Theory of Property Rights," *American Economic Review,* LVII (1967), 347–359.

Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, "The Regulation of Entry," *Quarterly Journal of Economics,* CXVII (2002), 1–37.

Djankov, Simeon, Edward Glaeser, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, "The New Comparative Economics," *Journal of Comparative Economics,* XXXI (2003), 595–619.

Fishback, Price V., and Shawn Everett Kantor, *A Prelude to the Welfare State* (Chicago, IL: University of Chicago Press for the NBER, 2000).

Gabaix, Xavier, "Zipf's Law for Cities: An Explanation," *Quarterly Journal of Economics,* CXIV (1999), 739–767.
Glaeser, Edward L., Simon Johnson, and Andrei Shleifer, "Coase versus the Coasians," *Quarterly Journal of Economics,* CXVI (2001), 853–899.
Glaeser, Edward L., and Andrei Shleifer, "A Reason for Quantity Regulation," *American Economic Review,* XCI (2001), 431–435.
International Institute for Strategic Studies, *The Military Balance,* London, various issues.
Kornai, János, *The Socialist System: The Political Economy of Communism* (Princeton, NJ: Princeton University Press, 1992).
Landes, Elisabeth M., "The Effect of State Maximum-Hours Laws on the Employment of Women in 1920," *Journal of Political Economy,* LXXXVIII (1980), 476–494.
Landes, William M., "The Economics of Fair Employment Laws," *Journal of Political Economy,* LXXVI (1968), 507–552.
La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer, "What Works in Securities Laws?" *Journal of Finance,* LXI (2006).
La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert W. Vishny, "Law and Finance," *Journal of Political Economy,* CVI (1998), 1113–1155.
McChesney, Fred S., "Rent Extraction and Rent Creation in the Economic-Theory of Regulation," *Journal of Legal Studies,* XVI (1987), 101–118.
McCormick, R. E., and R. D. Tollison, *Politicians, Legislation, and the Economy* (Boston, MA: Martinus Nijhoff, 1981).
Mulligan, Casey B., Ricard Gil, and Xavier Sala-i-Martin, "Do Democracies Have Different Public Policies Than Nondemocracies?" *Journal of Economic Perspectives,* XVIII (2004), 51–74.
Mulligan, Casey B., and Andrei Shleifer, "Population and Regulation," NBER working paper No. 10234, January 2004.
Mulligan, Casey B., and Andrei Shleifer, "Conscription as Regulation," *American Law and Economics Review,* VII (2005), 85–111.
Nonnenmacher, Tomas, "State Promotion and Regulation of the Telegraph Industry, 1845–60," *Journal of Economic History,* LXI (2001), 19–36.
North, Douglass C., *Structure and Change in Economic History* (New York, NY: Norton, 1981).
Peltzman, Sam, "Toward a More General Theory of Regulation," *Journal of Law and Economics,* XIX (1976), 211–240.
——, "The Economic Theory of Regulation After a Decade of Deregulation," *Brookings Papers on Economic Activity,* Special Issue (1989), 1–41.
Pigou, Arthur Cecil, *A Study in Public Finance* (London: Macmillan & Co., Ltd., 1928).
Ross, Thomas W., "Raising an Army: A Positive Theory of Military Recruitment," *Journal of Law and Economics,* XXXVII (1994), 109–131.
Shughart, William F., and Robert D. Tollison, "Corporate Chartering: An Exploration of the Economics of Legal Change," *Economic Inquiry,* XXIII (1985), 585–599.
Stigler, George J., "The Theory of Economic Regulation," *Bell Journal of Economics and Management Science,* II (1971), 3–21.
——, "The Sizes of Legislatures," *Journal of Legal Studies,* V (1976), 17–34.
Stuart, Charles, "Pareto-Optimal Deductibles in Property-Liability Insurance: The Case of Homeowner Insurance in Sweden," *Scandinavian Actuarial Journal,* IX (1983), 227–238.
Texas A&M University, Real Estate Center, "State Population by Decade," Online http://recenter.tamu.edu/data/popsd/, Texas A&M University, 2002.
Tullock, Gordon, "The Welfare Costs of Tariffs, Monopolies, and Theft," *Western Economic Journal,* V (1967), 224–232.
United States Census Bureau, *Statistical Abstract of the United States* (Washington, DC: Census Bureau, 2001).
University of Virginia Geospatial and Statistical Data Center, *United States Historical Census Data Browser,* Online http://fisher.lib.virginia.edu/census, University of Virginia, 1998.
Woloch, Isser, *The New Regime* (New York, NY: Norton, 1994).