

REGULATION AND DISTRUST*

PHILIPPE AGHION

YANN ALGAN

PIERRE CAHUC

ANDREI SHLEIFER

We document that, in a cross section of countries, government regulation is strongly negatively correlated with measures of trust. In a simple model explaining this correlation, distrust creates public demand for regulation, whereas regulation in turn discourages formation of trust, leading to multiple equilibria. A key implication of the model is that individuals in low-trust countries want more government intervention even though they know the government is corrupt. We test this and other implications of the model using country- and individual-level data on trust and beliefs about the role of government, as well as on changes in beliefs during the transition from socialism.

I. INTRODUCTION

In a cross section of countries, government regulation is strongly negatively correlated with trust. We document and try to explain this highly significant empirical correlation. The correlation works for a range of measures of trust, from trust in others to trust in corporations and political institutions, as well as for a range of measures of regulation from product markets to labor markets.

We present a simple model explaining this correlation. We think of trust as beliefs resulting from decisions about civiness made in families.¹ Individuals make two decisions: whether or not to become civic, and whether to become entrepreneurs or choose routine (perhaps state) production. Those who become uncivic

*The authors thank for their very useful comments Alberto Alesina, Gary Becker, Bruce Carlin, Nicholas Coleman, William Easterly, Elhanan Helpman, Lawrence Katz, Francis Kramarz, Peter Leeson, Joshua Schwartzstein, Jesse Shapiro, Antoine Terracol, Glen Weyl, Luigi Zingales, and five anonymous referees. We have also benefited from many helpful comments from seminar participants at the Chicago Application workshop, the Harvard Macro and Labor Seminars, and the NBER Political Economy workshop.

1. In this paper, we focus on beliefs and avoid loaded terms such as “social capital” and “culture.” There is a vast literature on the determinants of such beliefs and their durability across generations. See, among others: Banfield (1958), Coleman (1990), Putnam (1993, 2000), Knack and Keefer (1997), Alesina and Glaeser (2004), Guiso, Sapienza, and Zingales (2004, 2006), Bloom, Sadun and Van Reenen (2007), Algan and Cahuc (2009, 2010), Francois, Fujiwara and van Ypersele (2009), and Tabellini (2010). La Porta et al. (1997, 1999), Guiso, Sapienza, and Zingales (2003), and Stulz and Williamson (2003) measure culture using religious affiliations, and also examine its effects on outcomes; Licht, Goldschmidt and Schwartz (2005) introduce psychological measures of culture.

impose a negative externality on others when they become entrepreneurs (e.g., pollute), whereas those who become civic do not. The community (through voting or some other political mechanism) regulates entry into entrepreneurial activity when the expected negative externalities are large. Regulation constrains choices and hence negative externalities. But regulation itself is implemented by government officials, who demand bribes when they are not civic.

In this model, when people expect to live in a civic community, they expect low levels of regulation and corruption, and so become civic. Their beliefs are justified, and their choices lead to civiness, low regulation, and high levels of entrepreneurial activity. When in contrast people expect to live in an uncivic community, they expect high levels of regulation and corruption, and do not become civic. Their beliefs again are justified, as their choices lead to unciviness, high regulation, high corruption, and low levels of entrepreneurial activity. The model has two equilibria: a good one with a large share of civic individuals and no regulation, and a bad one where a large share of uncivic individuals support heavy regulation.

The model explains the correlation between regulation and distrust, but also has a number of additional implications, which we bring to the data. The model predicts, most immediately, that distrust influences not just regulation itself, but also the demand for regulation. Using the World Values Survey, we show both in a cross section of countries and in a sample of individuals from around the world that distrust fuels support for government control over the economy. Consistent with the model's predictions, distrust generates demand for regulation even when people realize that the government is corrupt and ineffective; they prefer state control to unbridled activity by uncivic entrepreneurs.

The most fundamental implication of the model, however, is that beliefs (as measured by distrust) and institutions (as measured by regulation) coevolve. Beliefs shape institutions, and institutions shape beliefs.² We take the evidence on the demand for regulation as consistent with, if not proving, causality running

2. It is difficult to test this prediction using instrumental variables because many exogenous factors that influence trust might also directly influence regulation, and vice versa. For example, one can think of using legal origins as instruments for regulation (Djankov et al. 2002; La Porta, Lopez-de-Silanes, and Shleifer 2008), but to the extent that colonizing Europeans who transplanted legal traditions also transplanted aspects of beliefs, the exclusion restriction is violated. For similar reasons, we do not use religion as an instrument.

from distrust to regulation. To consider whether regulation influences trust, we look at the experiment of transition from socialism, which we interpret as a radical reduction in government control in low-trust societies. Our model predicts that such a reduction should lead to (1) a reduction in output, (2) an increase in corruption, (3) an increase in demand for government control at a given level of trust, and (4) a reduction in trust in the short run. We present evidence supporting these predictions using the World Values Survey and the Life in Transition Survey, the latter devoted to former socialist economies.

Our paper follows two strands of related research. The first strand deals with the political demand for regulation and government control more generally. Glaeser and Shleifer (2003) follow the large historical literature on the rise of the regulatory state in the United States at the beginning of the twentieth century to argue that the demand for regulation resulted from perceived unfairness of the existing social order. Di Tella and McCulloch (2009) argue that voters in developing countries dislike capitalism because it is associated with high levels of corruption. Landier, Thesmar, and Thoenig (2008) similarly examine cultural attitudes to capitalism. Pinotti (2008) is a contemporaneous paper close to ours. He also shows empirically that distrust increases the demand for regulation. His theory focuses on regulation as a successful screening device as in Banerjee (1997), but not on the joint determination of civicness and regulation. In Djankov et al. (2003), the demand for public control is a response to disorder; our paper advances this argument by emphasizing distrust as the source of disorder.

A second strand makes the point that the causal link runs not only from beliefs to policies but from policies to beliefs as well. Piketty (1995) started the research on co-evolution of beliefs and behavior. Alesina and Angeletos (2005b) describe large variation in beliefs about redistribution across European countries, and show how these beliefs influence, and are influenced by, actual redistribution policies. Alesina and Angeletos (2005a) show how redistribution leads to corruption, which in turn generates demand for redistribution. Aghion, Algan, and Cahuc (2010) show that minimum wage policies undermine the ability of firms and workers to learn about each others' cooperative attitudes, and that low cooperation in turn creates a demand for wage policies. Carlin, Dorobantu, and Viswanathan (2010) argue that trust and regulation are substitutes in financial markets.

Our paper is distinguished from this research in two central ways. First, we consider the two-way relationship between beliefs and the role of the government in the economy at a broader level than the previous papers. Second, our model and analysis explain what is perhaps one of the central puzzles in research on political beliefs: why do people in countries with bad governments want more government intervention?

Section II describes the basic relationship between regulation and distrust. Section III presents our model and its main implications. Section IV documents the empirical relationship between distrust and attitudes toward the state and markets. Section V examines the effect of regulation on distrust by looking at the transition experience. Section VI focuses on generational difference in beliefs, especially in transition economies, to look more closely at the role of family education. Section VII concludes. An Online Appendix presents many additional theoretical and empirical results.

II. BASIC FACTS

We use data on distrust from the World Values Survey (WVS). The WVS is an international social survey consisting of four main waves, 1981–1984, 1990–93, 1995, and 1999–2003, denoted henceforth 1981, 1990, 1995, and 2000. This survey provides a range of indicators of distrust in others, in markets, and in institutions for a large sample of countries.

The basic measure of distrust comes from the following question: “*Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?*” We construct a *distrust* indicator equal to 0 if the respondent answers “Most people can be trusted” and 1 if he or she answers “Can’t be too careful.” We take the country’s average level of distrust over the four waves.

We also use a measure of unciviness based on the following question from the WVS: “*Do you think that it is unjustifiable to cheat on government benefits?*” The answer ranges from 1 for “*never justifiable*” to 10 for “*always justifiable*.” The cross-country correlation at the aggregate level between this measure of unciviness and distrust is 0.258.³

3. As stressed by Glaeser et al. (2000), the question about trust may capture trustworthiness of others rather than trust in others. The Online Appendix investigates further the relationship between the measures of distrust, unciviness, and respect for institutions in Table A.1.

WVS also asks the following questions: “Do you have a lot of confidence, quite a lot of confidence, not very much confidence, no confidence at all in the following: Major companies? Civil servants?” The answers range from 1 for a lot of confidence, through 2 for quite a lot of confidence, 3 for a little confidence, and 4 for no confidence. We create a dummy equal to 1 if the respondent chooses the answer no confidence, and zero otherwise. We thus have two dummy variables, *distrust in companies* and *distrust in civil servants*. We have checked the robustness of the results using the originally coded variables, without finding any significant change.

We use standard indicators of regulation of product and labor markets. The data of Djankov et al. (2002) on the number of steps that an entrepreneur must complete to open a business legally are available for the year 1999 and cover almost all countries present in the WVS database. The Botero et al. (2004) index of the rigidity of employment regulation aggregates three areas: (i) difficulty of hiring, (ii) rigidity of hours, and (iii) difficulty of firing. Using these data, we can estimate the empirical relationship between distrust and regulation for a maximum of 57 countries.⁴ The sample of countries changes slightly depending on the indicators for distrust and the type of regulation we are looking at.

Figure I illustrates the strong positive correlation between the regulation of entry as measured by the (ln) number of steps to open a business, and the country level of distrust. High-trusting countries such as Nordic and Anglo-Saxon countries impose very few controls on opening a business, whereas low-trusting countries, typically Mediterranean, Latin-American, and African countries, impose heavy regulations. One-third of the cross-country variation in the regulation of entry is explained by distrust. Figure II shows a strong positive correlation between the rigidity of employment contracts and distrust. Finland, Norway, and Sweden are outliers in this figure. If we use instead state regulation of the minimum wage, these countries fit with the other high-trusting countries such as Denmark or the Anglo-Saxon countries (Aghion, Algan, and Cahuc 2008).

4. The list includes Algeria, Argentina, Australia, Austria, Bangladesh, Belgium, Brazil, Bulgaria, Canada, Chile, China, Croatia, the Czech Republic, Denmark, Egypt, Finland, France, Germany, Greece, Hungary, India, Indonesia, Ireland, Italy, Jordan, Japan, Korea, Latvia, Lithuania, Mexico, Morocco, the Netherlands, Nigeria, Norway, Pakistan, Peru, Philippines, Poland, Portugal, Romania, Russia, Singapore, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Tanzania, Turkey, Uganda, Ukraine, the United Kingdom, the United States, Vietnam, Venezuela, and Zimbabwe.

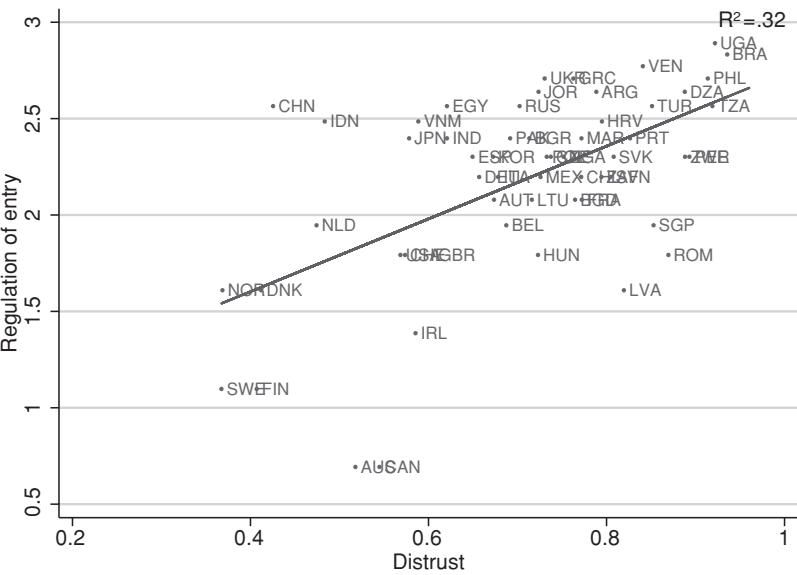


FIGURE I
Distrust and Regulation of Entry
Regulation is measured by the (ln) number of procedures to open a firm.
Sources: World Values Survey and Djankov et al. (2002).

Table I confirms these correlations in regressions controlling for the log per capita GDP, the average years of education, and population (Mulligan and Shleifer 2005). Column (1) in Panel A shows that the correlation between regulation of entry and distrust in others is statistically significant at the 1% level. Columns (2)–(4) show that the correlation between distrust and regulation of entry holds also for distrust in civil servants and distrust in companies. Table I, Panel B, reports the results for the regulation of labor. For all the various indicators of distrust, there is a statistically significant correlation between these indicators and the index of labor regulation.⁵ Per capita income and education barely predict regulation.⁶

5. We use the number of steps to open a business as our main measure of regulation of product market. This indicator captures the idea of the model that distrusting citizens want to screen entrepreneurs to get rid of negative externalities. The Online Appendix reports results for additional indicators of regulation: time and cost to open a business in Figures A.1 and A.2, price controls in Figure A.3, minimum wage legislation in Figure A.4, and court formalism in Figure A.5. Our finding holds for all these indicators.

6. We have also checked the effects of democracy and ethnic fractionalization (Easterly and Levine 1997; Alesina and La Ferrara 2002; Alesina et al. 2003).

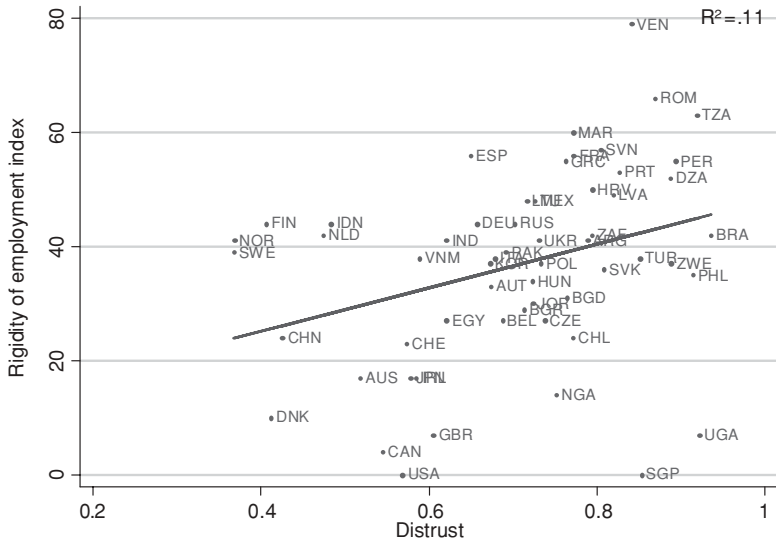


FIGURE II

Distrust and Rigidity of Employment Index

Sources: World Values Survey and Botero et al. (2004).

The correlation between regulation and distrust does not hold for the subsample of poor countries. In this subsample, controlling for education and population raises the significance of the correlation between distrust and regulation, but does not suffice. Some key outliers are transition economies displaying low regulation and high distrust. We later provide a rationale for this finding: transition economies are not in equilibrium.

III. THE MODEL

We present a simple model of the interplay between distrust and regulation, with causality running in both directions. We use the model to organize the empirical work; in many instances, we make extremely strong assumptions to simplify and clarify the analysis.

The starting point of the model is the family choice of civicness for their children. Children are taught either how to behave

Ethnic fractionalization is measured by the ethnolinguistic fragmentation variable of Alesina et al. (2003). Democracy is measured by the average Polity IV score over the period 1980–2000. These additional variables are not statistically significant.

TABLE I
DISTRUST AND REGULATION, MACROESTIMATES

Panel A: Dependent variable: Regulation of entry				
	Distrust others (1)	Distrust civil servants (2)	Distrust companies (3)	Uncivciness (4)
Distrust	1.431*** (0.380)	1.746*** (0.575)	1.524*** (0.496)	0.157** (0.067)
Ln (GDP per capita)	−0.034 (0.050)	−0.100* (0.053)	−0.060 (0.053)	−0.081 (0.052)
Education	−0.039 (0.028)	−0.053* (0.029)	−0.067** (0.029)	−0.064** (0.029)
Ln (population)	0.085** (0.037)	0.048 (0.037)	0.059 (0.038)	0.039 (0.037)
Observations	57	55	55	57
R ²	.52	.48	.48	.45
Panel B: Dependent variable: Regulation of labor market				
	Distrust others (1)	Distrust civil servants (2)	Distrust companies (3)	Uncivciness (4)
Distrust	0.297* (0.177)	0.958*** (0.207)	0.531** (0.201)	0.062** (0.028)
Ln (GDP per capita)	0.002 (0.023)	−0.009 (0.019)	0.008 (0.021)	−0.010 (0.022)
Education	−0.009 (0.012)	−0.009 (0.010)	−0.020 (0.011)	−0.014 (0.012)
Ln (population)	−0.015 (0.017)	−0.024* (0.013)	−0.025 (0.015)	−0.025 (0.016)
Observations	57	55	55	57
R ²	.13	.36	.22	.16

Notes. The dependent variable in Panel A is the (ln) number of steps to open a business for the year 1999. It is based on Djankov et al. (2002). The dependent variable in Panel B is the index of the rigidity of employment regulation for the year 2004. It is based on Botero et al. (2004). The main explanatory variables are the country levels of (1) distrust in others, (2) distrust in civil servants, (3) distrust in companies, and (4) uncivciness. These indicators are calculated as the country average over the four waves of the WVS. Average distrust is calculated from the question “Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?” Distrust is equal to 1 if the respondent answers “Can’t be too careful” and 0 otherwise. Average distrust in civil servants is calculated from the question (2) “Do you have a lot of confidence, quite a lot of confidence, not very much confidence, no confidence at all in civil servants?” The variable is equal to 1 if the answer is no confidence, and 0 otherwise. Average distrust in companies is calculated from the question (4) “Do you have a lot of confidence, quite a lot of confidence, not very much confidence, no confidence at all in major companies?” The variable is equal to 1 if the answer is no confidence, and 0 otherwise. Average uncivciness is calculated from the question (5) “Do you think it can always be justified, never be justified, or something in between: Claiming government/state benefits to which you have no right.” The variable ranges from 1 for “never justifiable” to 10 for “always justifiable.” The additional controls are (ln) income per capita, average years of education, and ln(population). Income per capita is taken from the World Bank for the year 2001. Education is the average years of schooling of the population aged over 25 for the period 1995–2000. The data are taken from Barro and Lee (2000). (Ln) population is taken from the World Bank for the year 2000. OLS regressions. Coefficient is statistically different from 0 at the *** .01, ** .05, and * .10 level.

in a civic way, learning tolerance, mutual respect and independence, or to behave uncivically outside the family. We think of the choice of civiness as being made by families, although we recognize that formal schooling can play a role as well (Almond and Verba 1989). It is important for us, however, that civiness choices be individual, not collective. The idea that civiness is taught in families was previously considered by Bisin and Verdier (2000), Guiso, Sapienza, and Zingales (2008), and Tabellini (2008).

There is a continuum of risk-neutral individuals of mass one. There are labor and a numeraire good produced with labor. The timing of events is as follows:

1. Individuals choose to become either civic or uncivic. Either kind of family education is free. Following this choice, the individual can become either a routine producer (perhaps working for the state factory) or an entrepreneur. Everyone's productivity in routine production is normalized to zero. Routine production imposes no negative externalities on society. If an individual becomes an entrepreneur, he or she can produce an additional y units of the numeraire good if he or she is uncivic, and $y + \varepsilon$ if he or she is civic. Individuals learn their y after education, but before they vote on policies (see below). We assume that y is uniformly distributed on the interval $[0, 1]$ and that ε is small; it is only used in the model to break ties. ε can be interpreted as a small private productivity benefit from civiness, which would arise if, for example, production required cooperation among individuals over time (see Tabellini [2010]; Algan and Cahuc [2010]). We have constructed an alternative model in which productivity gains resulting from two civic individuals cooperating are modeled explicitly. The model yields very similar results, including two stable equilibria, but obviously relies on an additional increasing return in production. That model is presented in the Online Appendix.

As an entrepreneur, each uncivic individual also generates a negative externality of $e > 1$ for every member of the society. Civic individuals do not generate negative externalities when they become entrepreneurs. We think of the negative externalities as pollution, production of low-quality goods that impose risks on the community, or perhaps even cheating. Denote by α the fraction of the population that becomes civic.

2. People vote to regulate entry into entrepreneurship or to leave it unrestricted. We assume that voting leads to the socially preferred policy, which would obtain, for example, in the probabilistic voting model proposed by Lindbeck and Weibull (1987) (see also Persson and Tabellini [2000]).⁷ We assume that the society does not have the option to stop all entrepreneurship, but at least in a market economy it must rely on officials to implement the regulation of entry. Officials can forbid or allow entry, but they do not observe the individual's output y and whether he or she is civic or uncivic.
3. Entrepreneurs produce if entry is authorized. People work as officials at night (alternatively, officials are drawn randomly from the population), so there is no decision to become an entrepreneur or an official.⁸ A civic official, fearful of a large negative externality, always bans entry. (Indeed, in equilibrium this will be the optimal policy.) An uncivic official uses his power as the implementer of the rule to demand a bribe to authorize entry regardless of the entrepreneur's type. We assume that civic entrepreneurs refuse to pay the bribe, but the uncivic ones agree to pay it if it is worth it and enter.⁹ We denote by b the bribe demanded by uncivic officials. Because civicness is private information, it is impossible to forbid entry by the civic and to authorize that by the uncivic. If a prospective entrepreneur is denied entry (either by a civic official or by an uncivic one who does not get his bribe), he returns to routine production with the productivity of zero. If uncivic, he can still collect bribes when serving as an official.

The equilibrium in this model is characterized by α (the fraction of individuals who become civic), the corresponding social choice to regulate on not regulate entry, and the resulting levels of entrepreneurial activity and output. Conditional on the

7. We have also solved the model with simple majority voting. This leads to some complications, but the same conclusion of multiple Pareto-ranked equilibria with different levels of civicness. It also does not matter whether people learn their y before they vote.

8. We could have assumed that public officials differ from other individuals in their level of civicness. Yet recent evidence shows that the behavior of public officials is quite in line with the country-average level of civicness of their fellow citizens. See Fisman and Miguel (2008) for an analysis of diplomats.

9. We could alternatively assume, with similar results, that civic entrepreneurs also agree to pay bribes. This case is worked out in the Online Appendix.

expected payoffs from entrepreneurial activity and government service, individual decisions to become civic or not are rational and aggregate to the equilibrium α .

Before the model is solved, a preliminary remark is in order. We could have assembled a much simpler model in which there were no government officials or corruption. Regulation would take the simple form of prohibiting all production. In that model, there would still be two stable Pareto ranked equilibria: a good one with civic individuals and low regulation, and a bad one with uncivic individuals and high regulation. Such a model would deliver the positive relationship between distrust and regulation. That simple model, however, leaves unsettled one of the central questions raised by the data, namely why it is the case that individuals who distrust government nonetheless want more government intervention. By introducing public officials into the model, we are able to address this issue and to generate testable predictions.

We solve the model by backward induction. In the third step, all individuals become entrepreneurs if entry is unregulated or authorized in Step 2. If the society decides to regulate entry in Step 2, every uncivic official sets the bribe that maximizes his or her rent, equal to the bribe times the share of individuals who agree to pay it,

$$b(1-b)(1-\alpha).$$

The maximand reflects the two facts that (a) only the uncivic agree to pay bribes and (b) among them, only those with productivity in entrepreneurship above the level of the bribe actually pay it. The term $(1-b)$ comes then from the assumption that y is uniformly distributed on $[0, 1]$. Under these assumptions, the optimal bribe chosen by uncivic officials is equal to $1/2$.

We can now compute the social decision to regulate as a function of α . Without regulation, the expected entrepreneurial output (because everyone enters) is given by

$$A = \frac{1}{2} + \alpha\varepsilon - (1-\alpha)e,$$

where the first two terms correspond to output and the last is the aggregate externality.

If the society chooses to regulate, the expected entrepreneurial output is given by

$$R = (1-\alpha)^2 \int_{1/2}^1 (y-e)dy = \frac{(1-\alpha)^2}{2} \left(\frac{3}{4} - e \right).$$

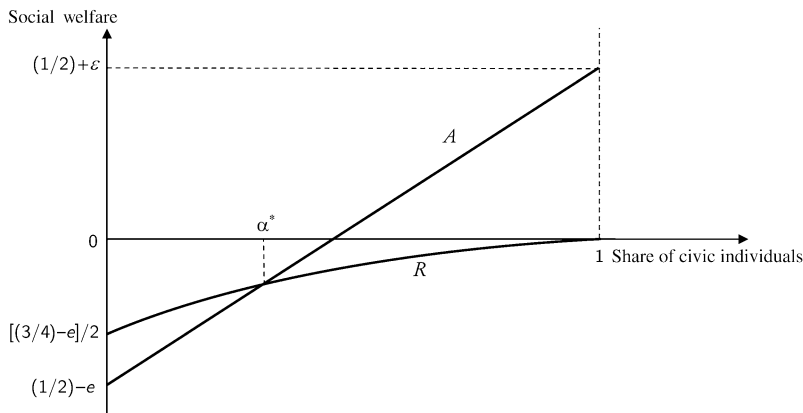


FIGURE III

The Threshold Value α^* above Which Regulation Yields Lower Social Welfare Than the Authorization of Production

To understand this expression, recall that all civic officials prohibit entry, and that when civic entrepreneurs encounter uncivic officials they refuse to pay bribes, and there is no entry either. Entry occurs only when uncivic entrepreneurs encounter uncivic officials and pay bribes (there is the double coincidence of uncivicness). Moreover, only the most productive uncivic entrepreneurs are able to pay the bribe, so they enter and impose a negative externality on others.¹⁰

It is easy to show, as illustrated by Figure III, that there exists a unique threshold value of $\alpha \in (0, 1)$, denoted by α^* , such that $A > R$ if and only if $\alpha > \alpha^*$.

Now, let us look at the civic education decisions at stage one. The expected payoff of a civic individual is

$$(1) \quad \begin{array}{ll} \frac{1}{2} + \varepsilon - (1 - \alpha)e & \text{if there is no regulation} \\ -(1 - \alpha)^2 \frac{e}{2} & \text{if there is regulation.} \end{array}$$

10. The assumption that $e > 1$ simplifies the analysis. Without this assumption, it is not possible to rule out regulation that includes entry fees f set at $f = e \leq 1$ (a Pigouvian tax), because society would prefer such regulation over a straight ban for all values of α (assuming uncivic officials ignore the fee and pay a bribe instead). Likewise, when $e < 1$ and regulation can only take the form of a total ban on entry, the fact that uncivic officials demand bribes can be a “good” thing because bribes can effectively act as a Pigouvian tax on production by the uncivic. To see this clearly, suppose that $e < 3/4$. Then the expression for expected entrepreneurial output under regulation, R , is increasing in the fraction of uncivic officials.

The first two terms in the first row correspond to entrepreneurial output and the last term is the expected externality from the $(1 - \alpha)$ uncivic entrepreneurs absent regulation. With regulation, civic entrepreneurs do not enter but a share $(1 - \alpha)^2 \Pr(y > 1/2) = (1 - \alpha)^2/2$ of uncivic entrepreneurs pay bribes, enter (due to the double coincidence of uncivicness), and impose the negative externality e .

Assuming that people work during the day and are officials at night, the expected payoff of an uncivic individual is

$$(2) \quad \begin{array}{ll} \frac{1}{2} - (1 - \alpha)e & \text{if there is no regulation} \\ \frac{1}{8}(1 - \alpha) + \frac{1}{4}(1 - \alpha) - (1 - \alpha)^2 \frac{e}{2} & \text{if there is regulation.} \end{array}$$

Every uncivic entrepreneur enters if there is no regulation. With regulation, uncivic entrepreneurs have to pay a bribe of $1/2$ to enter, so only those whose productivity turns out to be higher than $1/2$ and who are regulated by an uncivic official enter. For such entrepreneurs, the expected income from entrepreneurship is equal to $\frac{1}{8}(1 - \alpha)$. All uncivic individuals also get income from corruption, equal to the bribe times the probability of getting to regulate an uncivic entrepreneur whose productivity is higher than $1/2$. This probability is equal to $(1 - \alpha)/2$.

We know that regulation is chosen in stage 2 only when $\alpha \leq \alpha^*$. When $\alpha > \alpha^*$, comparing the first rows of equations (1) and (2) shows that individuals prefer becoming civic. In contrast, when $\alpha \leq \alpha^*$, the comparison of the second row of equation (1) with that of equation (2) shows that becoming uncivic is preferable. If you expect to live in a corrupt society, you would rather learn to pay and demand bribes. In addition to the equilibrium with $\alpha = 1$ and no regulation, there is then an equilibrium in which everyone is uncivic ($\alpha = 0$) and entry is regulated. Both equilibria are locally stable in the sense that an infinitesimal perturbation in α creates incentives to move to the corner.

The two equilibria have very intuitive interpretations. In the good equilibrium, everyone is civic, individuals do not expect others to impose negative externalities on them, and hence see no reason to regulate entry. Civicness and trust eliminate the demand for regulation. At $\alpha = 1$, output is at the maximum possible level in this economy.

In the bad equilibrium, everyone is uncivic and there are incentives to be uncivic because entrepreneurs are held up by

bribe takers.¹¹ Entrepreneurs in equilibrium are the most productive, but also corrupt, individuals. In this equilibrium, even though the regulators who allow entry are corrupt, they still serve a useful social purpose because, with the society being largely uncivic, the negative externalities from entry by the relatively unproductive entrepreneurs whom they deter outweigh the positive benefits. The society would be even worse off without the regulation, if all uncivic entrepreneurs were allowed to enter.

This observation has an interesting implication. Specifically, even though the regulators are corrupt, the society wants more regulation and further restrictions on entry—it wants more government control. To return to Figure III, people want output to be closer to the horizontal line at zero, where everyone engages in routine production. Uncivic producers, when they enter, earn positive returns for themselves but impose negative externalities on others. For the public, it is better to have more restrictions on entrepreneurs, whether this means state management or more regulation. When individuals distrust others, they prefer government officials to regulate and control, even when they know that these officials themselves cannot be trusted.

This simple model has three interesting implications. First, if we interpret the model as suggesting that different countries are at different equilibria, the model explains our starting fact. High-trust societies exhibit low levels of government regulation, and low-trust societies exhibit high levels of government regulation.

Second, the model suggests that distrust drives the demand for regulation. In low-trust societies, individuals correctly do not trust business, because business is dishonest. To control business, they support government regulation, fully recognizing that such regulation leads to corruption. Government is bad, but business is worse. Individuals in low-trust societies actually want even more government control than they see already, because such control would weed out even more producers imposing negative externalities. The model thus predicts the demand for more regulation even when regulation is ineffective, and for more government even when government is corrupt. We test this prediction below.

We note the important connection of our work to that of Di Tella and MacCulloch (2009), who argue that corruption leads to leftist politics and the demand for more government. The authors

11. Even if we assume that civic individuals are willing to pay bribes, there is a bad equilibrium with $\alpha = 0$, because regulation creates more opportunities for uncivic individuals to take bribes when serving as public officials. See the Online Appendix.

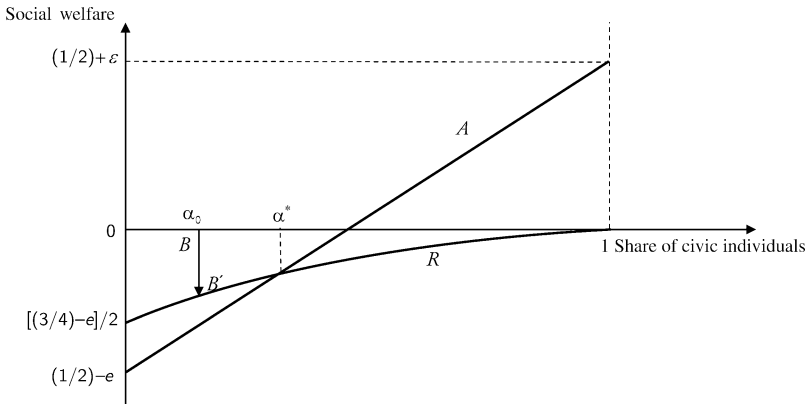


FIGURE IV
Liberalization in a Low-Trust Environment

do not address the paradox of how corrupt government leads to the demand for more government, but our model explains why. Individuals rationally demand more government, even corrupt government, when they see private business hurting their lives.

Third, our model has some implications for the causal effect of regulation on trust. To examine those, suppose the economy starts from a position α_0 where trust is below α^* , but all entrepreneurial activity is repressed. We interpret this starting point as central planning, where everyone engages in routine production, and normalized output is zero (point B in Figure IV). Suppose that, starting from this point, the country undergoes liberalization, so the economy moves down to the R -curve for its level of civicness, where public officials regulate entry.

In Figure IV, this transition to a regulated market economy can be thought of as an immediate jump from point B , where social welfare is equal to zero, to point B' . Comparing regulation at B' to central planning at B at the civicness level α_0 , corruption is higher, social welfare is lower ($[(1 - \alpha_0)^2/2](3/4 - e) < 0$), and people demand more regulation—a return to the point where entrepreneurial activity is banned by the state. What happens starting from this disequilibrium?

To address this question, we introduce some dynamics into the model. Suppose that each individual lives for one period, and has payoffs as before. His or her child has the same level of civicness with probability p and is free to choose whether or not to become civic with probability $1 - p$. Thus, each period t , a fraction $1 - p$ of the population choose whether or not to become civic,

whereas a fraction $p\alpha_{t-1}$ are constrained to be civic and a fraction $p(1 - \alpha_{t-1})$ to be uncivic by inheritance. Suppose we start this economy at the point B' in Figure IV, where the share of civic individuals is given by α_0 . If there is enough persistence in the level of civicness ($p > [1 - \alpha^*]/[1 - \alpha_0]$), then starting at B' everyone free to choose in period 1 chooses to become uncivic, so $\alpha_1 = p\alpha_0 < \alpha_0$. As the society reduces its investment in civicness, distrust in others and in institutions rises over time. Unless trust is exogenously built up, the fraction of civic individuals in period t is $p^t\alpha_0$, which converges to zero: the economy moves toward the bad (static) equilibrium with zero civicness. This simple dynamic analysis suggests that an economy starting from a large share of civic individuals will implement no regulation and the share of civic individuals will grow over time. In contrast, when the society starts from a low level of civicness, regulation emerges and the share of uncivic individuals rises over time, as does corruption. We assess this set of predictions by looking at the transition from socialism.

IV. THE EFFECT OF DISTRUST ON THE DEMAND FOR REGULATION

In this section, we seek to establish three points related to the first implication of the model. These are that (1) the political demand for regulation varies across countries, (2) countries that have a higher demand for regulation actually have higher regulation, and, crucially, (3) low trust predicts high demand for regulation, and not just high actual levels of regulation. We thus hope to identify, as predicted by the model, a causal link from distrust to regulation working through popular demand. We use three main databases.

From the World Values Survey, we are mainly interested in three questions concerning attitudes toward competition or state regulation. The first question reads as follows: "*Competition is good: it stimulates people to work hard and develop new ideas. Or competition is harmful: it brings out the worst in people.*" The variable takes on values from 1 to 10, a lower score indicating a higher level of distrust of competition. The second question reads as follows: "*People should take more responsibility to provide for themselves or the government should take more responsibility.*" The variable ranges from 1 to 10, with a higher score indicating a stronger support for government intervention. We also look at a question related to the efficiency of the economic system under democracy: "*Here are some things that people sometimes say*

about a democratic political system: In democracy, the economic system runs necessarily badly. Could you please tell me if you agree strongly, agree, disagree, or disagree strongly?" To make the results more interpretable, we create a dummy variable equal to 1 if the respondent strongly agrees or agrees with the statement that the economy runs badly under democracy, and 0 otherwise.

We also look at the International Social Survey Program (ISSP) to measure attitudes toward specific government regulations. The ISSP is a compilation of surveys devoted each year to different specific topics such as religion, social networks, or the role of government. It has been carried out since 1985. Two specific ISSP surveys on "The Role of Government" were carried out in 1990 and 1996. These surveys ask two main questions about regulation of wages and prices: "*Here is a list of potential government action for the economy: (i) Control prices by law, (ii) Control wages by law.*" The answer can take on values from 1 to 4, with 1 meaning strongly agree and 4 strongly disagree. To ease the interpretation of the results, we create two dummy variables for control of wages and of prices by grouping together households who strongly agree or agree with each government intervention.¹²

Finally, to look at the relationship between the demand for regulation and distrust in transition economies, we use the Life in Transition Survey (LITS) conducted by the European Bank for Reconstruction and Development and the World Bank in 2006. The LITS consists of 28,000 interviews in 28 post-communist countries in Europe and Central Asia.¹³ In each country, a sample of 1,000 individuals were selected randomly for face-to-face interviews. The main question of interest regarding regulation reads as follows "*Which one of the following statements do you agree with the most? (1) A market economy is preferable to any other form of economic system; (2) under some circumstances, a planned economy may be preferable to a market economy; (3) for people like*

12. The ISSP surveys on government regulation cover almost all OECD and East European countries, including separate surveys for East and West Germany. By merging the 1990 and 1996 waves, we get observations for the following eight East European countries: Bulgaria, the Czech Republic, Hungary, Latvia, Poland, Romania, Russia, and Slovenia, in addition to East Germany. We also have information for the following 19 OECD countries: Austria, Canada, Denmark, Finland, France, West Germany, Ireland, Italy, Japan, the Netherlands, Norway, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States. The panel of countries is unbalanced between 1990 and 1996.

13. Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, the Czech Republic, Estonia, FYR Macedonia, Georgia, Hungary, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Mongolia, Montenegro, Poland, Romania, Russia, Serbia, the Slovak Republic, Slovenia, Tajikistan, Ukraine, and Uzbekistan.

me, it does not matter whether the economic system is organized as a market economy or as a planned economy." To measure the preference for a planned economy, we create a dummy *Preference for planning* that equals 1 if the respondent chooses statement (2) and 0 if he or she chooses (1).

The survey also asks specific questions about trust in others and confidence in public institutions. Respondents are first asked, "Generally speaking, would you say that most people can be trusted, or that you can't be too careful in dealing with people? What would it be today?" In addition, individuals are asked, "To what extent do you trust the following institutions: government, banks, foreign companies?" The answers are given on a scale from 1 to 5, where 1 means "complete distrust," 2 "some distrust," 3 "neither distrust nor trust," 4 "some trust," and 5 "complete trust." To ease the interpretation of the results, we also use dummy variables equal to 1 if the respondent has some or complete distrust, and 0 if the respondent has some or complete trust.

Judging by ISSP surveys, socialist countries such as Russia, Slovenia, East Germany, and Bulgaria exhibit the strongest support for government control of wages. Approximately 92% of Russians and 82% of East Germans favor wage control. Respondents in Mediterranean countries also strongly favor wage control by the state: 78% of the Spaniards and 60% of the French agree with the statement. At the other extreme, in Anglo-Saxon and Nordic countries, less than half the population agree with the statement that the government should control wages. Similar patterns obtain for the support of government control of prices.

Figure V shows that the correlation between the subjective measure of political support for regulation of wages and the objective measures of such regulation is fairly high, with an R^2 of .39. This result suggests that understanding regulation requires understanding the determinants of its political support, as predicted by our model.

Figure VI presents the correlations at the country level between distrust in others and support for government control of wages. The indicator of distrust is based on the four waves of the WVS. The support for government control is given by the indicators from ISSP in 1990 and 1996. The correlation between distrust and support for regulation of wages is always positive and significant, with R^2 of .33.

Table II reports the corresponding OLS regressions based on individual answers from the WVS. We regress the indicators of

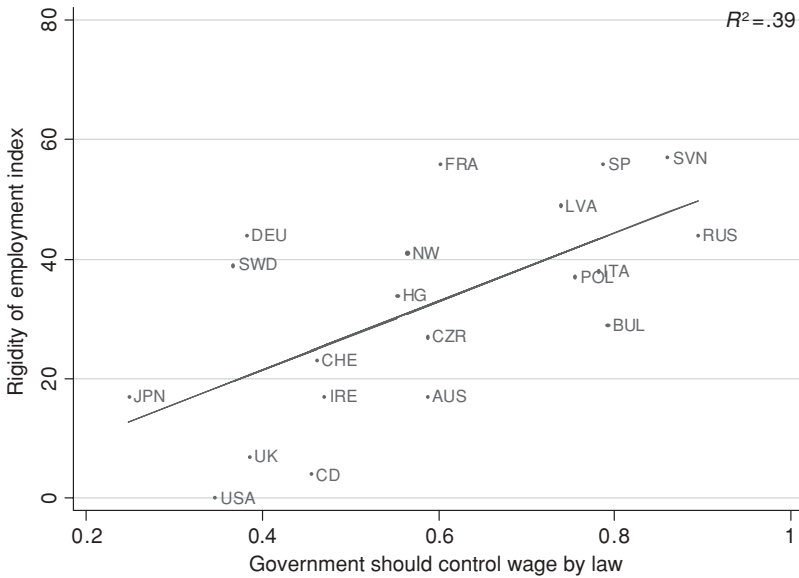


FIGURE V

Correlation between Rigidity of Employment Index and Political Support for Government Control of Wages

Source. International Social Survey Program 1990–1996 and Botero et al. (2004).

support for regulation, reported in rows, on distrust in others and distrust in public institutions. We control for age, gender, education, income, and country fixed effects. Standard errors are clustered at the country level. Row (1) reports the regression for attitudes toward competition. Individuals who distrust others are more likely to believe that competition is harmful. The relationship is statistically significant at the .01 level. Individuals who distrust private companies or civil servants also dislike competition. Row (2) shows that distrustful individuals also call for more responsibility of the government; the relationship is statistically significant at the .01 level. Row (3) shows that the same relationship holds between distrust and the belief that the economic system runs badly under democracy. Distrustful individuals seek greater control by government, consistent with a central prediction of our model.

Table III documents the demand for regulation in transition economies using individual data from LITS. The dependent variable is the preference for a planned rather than a market economy.

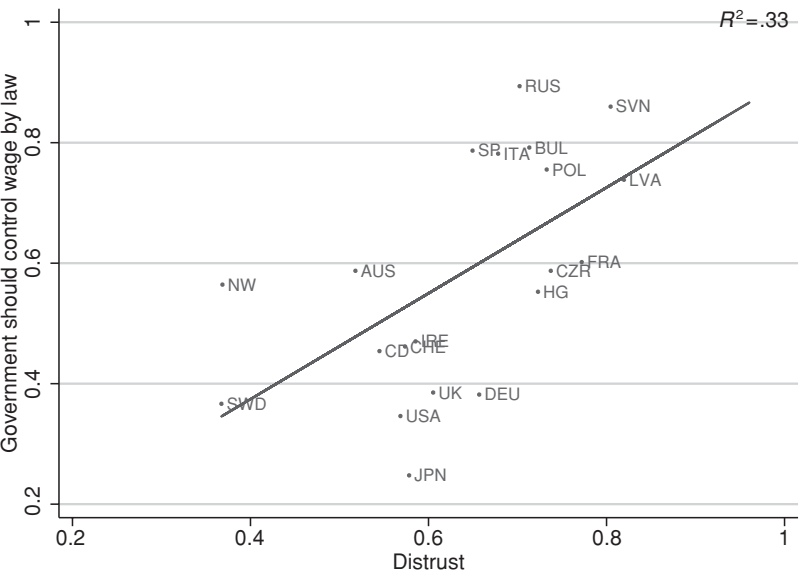


FIGURE VI
Correlation between Distrust and Political Support for Government Control of Wages

Source. WVS 1980–2000 and ISSP 1990 and 1996.

The main explanatory variables of interest are distrust in others, distrust in public institutions, and distrust in companies. We capture these various aspects of distrust using dummy variables. We also control for age, age squared, education, income scale, and occupation. In transition countries, the preference for a planned economy might be driven by the individual hardships during the transition or by a concern about the economic and social situation in the country. We control for whether the individual believes that his or her household lives better now than before 1989 and whether he or she thinks that inequality should be reduced. These attitudes are measured by the questions “*the situation of my household is better today than around 1989*” and “*the gap between the rich and the poor today in this country should be reduced.*” The answers take on values from 1 to 5, a higher score indicating that the respondent strongly agrees with the statement. We run OLS regressions.

Column (1) of Table III shows that distrust in others is positively related to the preference for a planned economy. The effect is statistically significant at the .01 level and economically sizable.

TABLE II
DISTRUST AND DEMAND FOR REGULATION

Dependent variables (rows)	Explanatory variables		
	Distrust others	Distrust civil servants	Distrust companies
(1) Competition is harmful	0.100*** (0.030)	0.079*** (0.023)	0.392*** (0.049)
<i>N</i>	73,607	71,779	60,611
(2) Government should take more responsibility	0.159*** (0.039)	0.026 (0.040)	0.198*** (0.057)
<i>N</i>	73,389	75,331	63,749
(3) The economic system runs badly in democracies	0.130*** (0.017)	0.073*** (0.014)	0.027** (0.013)
<i>N</i>	40,566	40,368	28,062

Notes. The dependent variables come from the answers to the following questions: (1) "Competition is good: it stimulates people to work hard and develop new ideas. Or competition is harmful: it brings out the worst in people." The variable takes on values from 1 to 10, a higher score indicating a higher level of distrust of competition. (2) "People should take more responsibility to provide for themselves or the government should take more responsibility." The variable ranges from 1 to 10, with a higher score indicating a stronger support for government intervention. (3) "In democracy, the economic system runs necessarily badly. Could you please tell me if you agree strongly, agree, disagree, or disagree strongly?" The variable is equal to 1 if the answer is strongly agree or agree, and 0 otherwise. The main explanatory variables are distrust others in column (1), distrust civil servants in column (2), distrust companies in column (3). Additional controls: age, gender, education, income and country fixed effects. OLS regressions with robust standard errors clustered at the country level. Coefficient is statistically different from 0 at the *** .01, ** .05, and * .10 levels.

Source. World Values Surveys. Waves: 1980, 1990, 1995, 2000. The OECD countries and the transition economies.

Distrust of others increases by four percentage points the probability of preferring a planned economy. This effect is twice as large as that of belonging to the lower tail of the income distribution or of being unemployed. Column (2) documents the positive relationship between distrust in government and preference for a planned economy. Columns (3) and (4) show that the same pattern holds for distrust in banks and distrust in foreign companies.

In summary, both country-level and individual data, obtained from a variety of data sets, support our model's prediction that distrust leads to support for government regulation.

V. THE EFFECT OF REGULATION ON DISTRUST

Perhaps the more unusual prediction of our model is that regulation itself influences distrust. We have elaborated an implication of this prediction, namely that, in a low-trust society, an exogenous liberalization from a position of nearly full state control would bring about an increase in disorder and corruption, a

TABLE III
DISTRUST AND PREFERENCE FOR A PLANNED ECONOMY IN TRANSITION ECONOMIES

	Dependent variable: Preference for a planned economy			
	(1)	(2)	(3)	(4)
Distrust others	0.040*** (0.012)			
Distrust government		0.032** (0.015)		
Distrust banks			0.057*** (0.016)	
Distrust foreign companies				0.078*** (0.014)
Household life better now than before 1989	-0.047*** (0.006)	-0.048*** (0.007)	-0.042*** (0.007)	-0.040*** (0.008)
Inequality should be reduced	0.016 (0.031)	0.014* (0.008)	0.010 (0.007)	0.013* (0.007)
R ²	.062	.059	.058	.058
Observations	9,808	9,971	9,345	7,982

Notes. The dependent variable comes from the answers to the question: "A market economy is preferable to any other form of economic system; or under some circumstances, a planned economy may be preferable to a market economy." The dependent variable equal 1 if the answer is preference for a planned economy, and 0 otherwise. Control variables: the dummy distrust others in column (1), the dummy distrust civil servants in column (2), the dummy distrust companies in column (3). Additional controls: age, gender, education, income, and country fixed effects. OLS regressions with robust standard errors clustered at the country level. Coefficient is statistically different from 0 at the *** .01, ** .05, and * .10 levels.

Source. Life in Transition Survey, 2006.

demand for reregulation, and absent such reregulation a decrease in civickness and in trust. In this section, we assess these predictions in the context of transition economies. Our starting point is the observation that the rapid transition from socialism to capitalism, and the dismantling of the communist party and other control mechanisms of the state (Shleifer 1997), can be seen as reductions of state control from nearly total to something more similar to the regulatory regime in our model. The communist state stopped nearly all entrepreneurial activity; transition economies allowed private entry but relied on extensive, and often corrupt, regulation. Consistent with the predictions of our model, output initially declined in all transition economies (e.g., Blanchard and Kremer [1997]). Corruption also increased, consistent with the model's predictions. We need to investigate whether the initial levels of trust were low in socialist economies, whether liberalization caused a demand for reregulation, and most importantly, whether transition brought about growth in distrust. Below, we focus on these three questions.

From the WVS, we have data on the initial levels of distrust in transition economies circa 1990. To measure the national component of distrust for the 1990 wave, we estimate the country fixed effects in the individual-level regression of trust on individual characteristics (age, education, gender, and income). The country fixed effect is measured relative to Sweden, which displays the lowest level of distrust in this wave. The highest levels of distrust in 1990 are in socialist countries. Compared to the Swedes, for example, the Romanians exhibit a probability of distrusting each other thirty-two percentage points higher.¹⁴

Our model predicts that liberalization in a low-trust environment triggers a rise in corruption at a given level of regulation, leading people to demand even more regulation. The LITS asks the following question: *“To what extent do you agree with the following statement: There is less corruption now than in 1989?”* In transition economies, 81% of households report that corruption has increased. Georgia and Belarus are the only two countries where the majority of households think that corruption has not increased over this period.

The WVS asks a directly related question on corruption: *“Do you think it can always be justified, never be justified, or something in between: Someone accepting bribes in the course of his duties?”* The question takes on values ranging from 1 for never justifiable to 10 for always justifiable. To ease the interpretation of the results, we create a dummy variable equal to 0 if the respondent thinks that bribing is never justifiable, and 1 otherwise.¹⁵

We compare attitudes toward corruption in the 1990 and 2000 waves in transition economies based on the interaction term between the wave 2000 dummy and the transition economy dummy. This interaction term measures the change in attitudes in transition economies relative to the OECD countries. We include the wave 2000 dummy separately to measure the change in attitudes in the OECD countries. Other baseline controls include age, education, gender, income category and country fixed effects. We run OLS regressions.

14. In the Online Appendix, Figure A.11 reports the marginal probit estimates of the country fixed effect for the 1990 wave. Online Appendix Table A.2 reports the marginal probit estimates of the effect of living in a transition economy on different indicators of distrust in 1990. Distrust in others, distrust in companies, and distrust in civil servants are higher by 16.9 percentage points, 15.1 percentage points, and 5.5 percentage points, respectively, when the respondent is living in a transition rather than an OECD country during the 1990 wave. The effects are statistically significant at the .01 level.

15. The results are similar when we work with the original coding.

TABLE IV
CHANGES IN CORRUPTION, DEMAND FOR REGULATION AND DISTRUST: MICROESTIMATES

Dependent variables	Explanatory variables		R ²	N
	Wave 2000	Transition × wave 2000		
(1) Justifiable to accept bribes	−0.011 (0.014)	0.077*** (0.023)	.082	60,329
(2) Competition is harmful	0.299*** (0.079)	0.493*** (0.030)	.074	60,061
(3) Government should own business	0.240* (0.122)	0.465* (0.257)	.108	47,700
(4) Distrust others	0.038 (0.025)	0.025 (0.032)	.085	60,866
(5) Distrust civil servants	−0.034** (0.016)	0.125*** (0.038)	.049	48,106
(6) Distrust companies	0.037 (0.024)	0.079 (0.076)	.062	38,477

Notes. The dependent variables come from the answers to the questions: (1) “Do you think it can always be justified, never be justified, or something in between: Someone accepting bribes in the course of his duties?” The variable is equal to 0 if the respondent thinks that bribing is never justifiable, and 1 otherwise. (2) “Competition is good: it stimulates people to work hard and develop new ideas. Or competition is harmful: it brings out the worst in people.” The variable takes on values from 1 to 10, a higher score indicating a higher level of distrust of competition. (3) “Do you think that private ownership of business should be increased or government ownership of business should be increased?” The answer takes on values from 1 to 10, a higher score indicating a preference for government ownership. (4) “Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?” The dummy distrust is equal to 1 if the respondent answers “Can’t be too careful” and 0 otherwise. (5) “Do you have a lot of confidence, quite a lot of confidence, not very much confidence, no confidence at all in civil servants?” The variable is equal to 1 if the answer is “not very much confidence” or “no confidence at all,” and 0 otherwise. (6) “Do you have a lot of confidence, quite a lot of confidence, not very much confidence, no confidence at all in major companies?” The variable is equal to 1 if the answer is “not very much confidence” or “no confidence at all,” and 0 otherwise. Additional controls: age, gender, education, income and country fixed effects. OLS regressions with robust standard errors clustered at the country level. Coefficient is statistically different from 0 at the *** .01, ** .05, and * .10 levels.

Source. World Values Surveys, waves 1990 and 2000. The OECD countries and the transition economies.

Table IV, row (1), shows that the share of people who think it can be justified to accept a bribe in the course of one’s own duties has increased by 7.7 percentage points more in transition economies than in the OECD countries. The effect is statistically significant at the .01 level. In contrast, acceptance of corruption has dropped in other OECD countries over this period.

We next document the changes in attitudes toward regulation in transition economies and the OECD countries in 1990 and in 2000 using the WVS. We look at two main variables. The first variable takes on values from 1 to 10, a higher score indicating that the respondent sees competition as harmful. The second relates to private versus state ownership of business: “Do you think that private ownership of business should be increased or government

ownership of business should be increased?" The answer takes on values from 1 to 10, a higher score indicating a preference for government ownership.

Table IV reports the estimates. Row (2) shows the estimates of attitudes toward competition. The sign of the interaction term between the transition dummy and the wave 2000 dummy is strongly positive and statistically significant at the .01 level. The dislike of competition has increased in both the transition economies and the OECD countries, but significantly more in the former. Row (3) shows the attitudes toward government versus private ownership. The sign on the interaction term between the transition dummy and the wave 2000 dummy is positive, suggesting that the opposition to private ownership has increased more in transition economies than in the OECD countries. The effect is statistically significant at the .10 level.¹⁶

Table IV finally describes the effect of transition on distrust. Row (4) shows that distrust in others has increased by 2.5 percentage points more in transition economies than in the OECD countries, but the coefficient is not statistically significant. Row (5) shows a statistically significant increase in distrust of civil servants in transition economies. Distrust of civil servants has increased by 12.7 percentage points more in transition economies than in the OECD. This effect is statistically significant at the .01 level. During the same period, distrust in civil servants has declined by 2.9 percentage points in the OECD countries. Row (6) shows that distrust in business has risen in transition economies relative to the OECD countries, but the effect is not statistically significant. In absolute terms, distrust in companies has increased by 11.3 percentage points in transition economies, against a rise of 3.7 percentage points in the OECD.

In summary, the findings of this section confirm all the predictions of the model concerning the transition from socialism, as

16. The Online Appendix investigates further the role of additional controls. The results are reported in Online Appendix Table A.3. Losers from transition might want more government regulation to help them. We have addressed this concern by interacting the level of education with the interacted dummy transition economy times wave 2000. The results show that the preference for government regulation has dropped among the more educated people over this period. The change in attitudes towards government regulation could also be driven by the economic decline and growth in inequality. We have estimated these channels by including measures of unemployment, GDP change, and GINI indices. The IMF provides yearly data for GDP change and unemployment rates. We average these data over the periods 1990–94 and 1999–2000. The GINI indices correspond to the early 1990s and early 2000s and are taken from the World Bank. All these variables are statistically much less significant than the interaction between the dummy transition economy and wave 2000.

illustrated in Figure IV. Liberalization of entrepreneurial activity starting from a low level of civiness has increased corruption, invited a demand for greater state control of economic activity, and reduced trust. This evidence points to a link from the regulatory environment to beliefs.

VI. THE ROLE OF FAMILY CIVIC EDUCATION

In this section, we present some evidence on the mechanism of belief formation in our model, namely family civic education.¹⁷ We first consider the relationship between parental values, beliefs, and regulation in a cross section of countries. We then turn this into changes in parental values during transition. Finally, we compare beliefs across generations in transition economies.

We measure family civic education by using the following two questions in the WVS: “*Here is a list of qualities which children can be encouraged to learn at home. Which, if any, do you consider to be especially important: Tolerance and Respect for others? Unselfishness?*” The variables take on the value 1 if the respondent mentions the quality and 0 otherwise. This question covers fifty countries for which we also have indicators of distrust and regulation. Our measures of family civic education are the country averages of each of these variables.

Table V presents OLS regressions of distrust and regulation of entry on parental values. It uses multiple controls: average per capita income during the period 1980–2000, average democracy score for the period 1970–2000 based on Polity IV, and an index of ethnolinguistic fractionalization based on Alesina et al. (2003). All these data are available for forty countries. Columns (1) and (2) report the regressions of distrust on civic education. *Tolerance and Respect* is negatively correlated with distrust and statistically significant at the .01 level. The coefficient on *Unselfishness* is negative but not statistically significant. Column (3) reports a strong negative correlation between regulation of entry and *Tolerance and Respect*, statistically significant at the .01 level. *Unselfishness* is again insignificant. Other variables likely to influence distrust,

17. Another natural mechanism of belief formation is public education. As stressed by Almond and Verba (1989), Putnam (2000), Glaeser, Ponzetto, and Shleifer (2007), and Helliwell and Putnam (2007), education is strongly associated with civic behaviors. Putnam (2000) notes that “education is by far the strongest correlate that I have discovered of civic engagement in all its forms.” Dee (2004) probes into the causal impact of education on civic behavior using the geographical availability of junior colleges as an instrument.

TABLE V
CIVIC EDUCATION, DISTRUST AND REGULATION: MACROESTIMATES

	Dependent variables:			
	Distrust others		Regulation of entry	
	(1)	(2)	(3)	(4)
Civic education: tolerance and respect	-0.697** (0.271)		-2.14*** (0.780)	
Civic education: unselfishness		-0.207 (0.162)		-0.181 (0.481)
Ln (GDP per capita)	-0.004 (0.026)	-0.017 (0.028)	-0.116 (0.076)	-0.146* (0.084)
Democracy	-0.000 (0.001)	-0.005 (0.010)	0.010 (0.029)	-0.011 (0.032)
Fractionalization	0.035 (0.096)	0.077 (0.101)	-0.171 (0.271)	-0.059 (0.302)
Observations	40	40	40	40
R ²	.30	.21	.44	.32

Notes. The dependent variables are Distrust others and Regulation of entry. Regulation of entry is the (ln) number of steps to open a business for the year 1999. It is based on Djankov et al. (2002). The country level of distrust is calculated by averaging individual answers from the question "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" Distrust is equal to 1 if the respondent answers "Can't be too careful" and 0 otherwise. Average distrust is calculated over the four waves of the WVS. The explanatory variable "Civic education: Tolerance and respect" is the country average answer, over the four waves of the WVS, to the question "Here is a list of qualities which children can be encouraged to learn at home. Which, if any, do you consider to be especially important: Tolerance and respect?" The variable is equal to 1 if the respondent mentions this quality and 0 otherwise. The explanatory variable "Civic education: Unselfishness" is the country average answer, over the four waves of the WVS, to the question "Here is a list of qualities which children can be encouraged to learn at home. Which, if any, do you consider to be especially important: Unselfishness?" The variable is equal to 1 if the respondent mentions this quality and 0 otherwise. The additional controls are (ln) income per capita in 2001 from the World Bank, the index of democracy taken from the database POLITY IV for the period 1980–2000, and the index fractionalization taken from Easterly and Levine (1997). OLS regressions. Coefficient is statistically different from 0 at the *** .01, ** .05, and * .10 levels.

such as ethnic fractionalization, are not statistically significant once civic education is controlled for.

A key prediction of the model is that liberalization in a low-trust environment reduces the incentive to become civic. We test the prediction by looking at how parental values have evolved in transition economies.

Table VI documents the evolution of parental values in transition economies between the 1990 and 2000 waves of the WVS. We focus again on *Tolerance and Respect for Others* and *Unselfishness*. We capture the change in parental values in transition economies, relative to the OECD countries, by including an interaction term between the wave 2000 dummy and the transition economy dummy. We include separately a wave 2000 dummy to

TABLE VI
CHANGE IN CIVIC EDUCATION

	Dependent variables	
	Parental values: Tolerance and respect (1)	Parental values: Unselfishness (2)
Wave 2000	0.042** (0.017)	0.026** (0.010)
Transition economies × wave 2000	−0.032 (0.021)	−0.048*** (0.014)
R ²	.045	.105
Observations	62,699	62,699

Notes. The dependent variables come from the answers to the questions: (1) “Here is a list of qualities which children can be encouraged to learn at home. Which, if any, do you consider to be especially important: Tolerance and respect?” The variable is equal to 1 if the respondent mentions this quality and 0 otherwise. (2) “Here is a list of qualities which children can be encouraged to learn at home. Which, if any, do you consider to be especially important: Unselfishness?” The variable is equal to 1 if the respondent mentions this quality and 0 otherwise. Additional controls: age, gender, education, income, and country fixed effects. OLS regressions with robust standard errors clustered at the country level. Coefficient is statistically different from 0 at the *** .01, ** .05, and * .10 levels.

Source. World Values Surveys, waves 1990 and 2000. The OECD countries and the transition economies.

capture the evolution of parental values in the OECD countries compared to that in transition economies. Baseline controls include age, education, gender, income category, and country fixed effects.

Table VI shows that the likelihood of mentioning tolerance and unselfishness increased steadily in the OECD countries between 1990 and 2000, with the coefficient statistically significant at the .05 level. In contrast, family civic education dropped in transition economies relative to the OECD countries, with a statistically significant effect at the .01 level in the case of unselfishness.

In the model as specified, only one generation is active at a time, acquiring beliefs, voting on regulation, and participating in the labor market. However, the elderly, although retired from the labor market, are still alive and hold beliefs. What would be the beliefs of the older people following transition from communism, compared to those of the young? If their values and civicness have not changed, as those are acquired through family education, we predict that older people will be more civic and more trusting than the younger ones. Because the elderly do not get to benefit from markets as either entrepreneurs or officials, however, they will be even more skeptical than the young about free markets. The elderly will then be more supportive of government control of the

economy than the young. We bring this very strong prediction to the data.

In Table VII, we compare changes in beliefs across generations. If the transition experiment is capturing the effect of chaos or poor law enforcement on beliefs, then the effect should be more pronounced among the older people longing for the good old days. If, as our model suggests, beliefs are directly affected by the change in the economic environment, we should see that trust has changed among the young people more than among the old, whose beliefs are less flexible. However, preference for markets should have changed more among the elderly, who do not benefit from participating in them. We distinguish four different age cohorts: 16–24 years old, 25–44 years old, 45–64 years old, and older than 65 years.

We capture the evolution of beliefs across age cohorts in the OECD countries by interacting the age cohort dummies with the wave 2000. The reference cohort is individuals older than 65 years. Thus the interaction term between age cohort and the wave 2000 dummy measures the evolution of trust among younger cohorts relative to the old cohort in the OECD. We measure the evolution of beliefs across age cohorts in transition economies with a triple interaction term between age cohorts, the wave 2000, and the transition economy dummy. The reference age cohort is individuals older than 65 years. The sum of the triple interaction term cohort \times wave 2000 \times transition economy and the double interaction term cohort \times wave 2000 captures the evolution of trust among younger cohorts relative to the old cohort in transition economies. The triple interaction term cohort \times wave 2000 \times transition, taken alone, measures the differential evolution of trust of younger cohorts in transition economies relative to the OECD countries. We include the age cohort dummies taken separately, age cohorts interacted with the transition economy dummy, the wave 2000 dummy taken separately, and the wave 2000 interacted with the transition economy. Additional controls include education, gender, income, and country fixed effects.

Column (1) of Table VII focuses on teaching respect and tolerance to children. The coefficient on the variable Age 16–24 \times wave 2000 \times transition economy is -0.060 , whereas the coefficient on the variable Age 16–24 \times wave 2000 is -0.007 . In absolute terms, teaching respect and tolerance has thus dropped by 6.7 percentage points among the youngest cohort relative to the oldest cohort in transition economies. The decline in teaching respect

TABLE VII
CHANGE IN DISTRUST AMONG YOUNG GENERATIONS: MICROESTIMATES

	Dependent variables			
	Family civic education (1)	Unciviness (2)	Distrust others (3)	Government should own business (4)
Age 16–24 × wave 2000 × transition	−0.060** (0.026)	0.073* (0.036)	0.062** (0.030)	−0.676 (0.455)
Age 25–44 × wave 2000 × transition	−0.017 (0.017)	0.057** (0.023)	0.048** (0.021)	−0.481 (0.298)
Age 45–64 × wave 2000 × transition	−0.014 (0.023)	0.022 (0.017)	0.048** (0.019)	−0.559*** (0.178)
Age 16–24 × wave 2000	−0.007 (0.015)	−0.023 (0.018)	−0.042* (0.022)	0.204 (0.135)
Age 25–44 × wave 2000	−0.022** (0.009)	−0.008 (0.013)	−0.018 (0.016)	0.093 (0.145)
Age 45–64 × wave 2000	−0.010 (0.009)	−0.003 (0.014)	−0.011 (0.014)	0.221 (0.149)
Age 16–24 × transition	0.046 (0.037)	0.012 (0.031)	−0.024 (0.036)	−0.872*** (0.218)
Age 25–44 × transition	0.006 (0.023)	0.007 (0.032)	−0.003 (0.023)	−0.738*** (0.218)
Age 45–65 × transition	0.008 (0.019)	0.015 (0.019)	−0.025 (0.017)	−0.008*** (0.141)
Age 16–24	0.018 (0.019)	0.228*** (0.017)	0.049 (0.028)	0.264** (0.098)
Age 25–44	0.045*** (0.012)	0.115*** (0.015)	0.012 (0.020)	0.244** (0.088)
Age 45–64	0.024** (0.010)	0.044*** (0.009)	−0.003 (0.013)	0.108 (0.082)
Wave 2000	0.055*** (0.017)	−0.006 (0.017)	0.053* (0.031)	0.127 (0.190)
Wave 2000 × transition	0.013 (0.023)	0.043* (0.023)	−0.011 (0.040)	0.849*** (0.240)
R ²	.047	.083	.084	.114
Observations	62,699	60,329	60,866	47,700

Notes. The dependent variables come from the answers to the questions: (1) “Here is a list of qualities which children can be encouraged to learn at home. Which, if any, do you consider to be especially important: Unselfishness?” The variable is equal to 1 if the respondent mentions this quality and 0 otherwise. (2) “Do you think it can always be justified, never be justified, or something in between: Someone accepting bribes in the course of his duties?” The variable is equal to 0 if the respondent thinks that bribing is never justifiable, and 1 otherwise. (3) “Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?” The dummy distrust is equal to 1 if the respondent answers “Can’t be too careful” and 0 otherwise. (4) “Do you think that private ownership of business should be increased or government ownership of business should be increased?” The answer takes on values from 1 to 10, a higher score indicating a preference for government ownership. Additional controls: gender, education, income, country fixed effects. OLS regressions with robust standard errors clustered at the country level. Coefficient is statistically different from 0 at the *** .01, ** .05, and * .10 levels.

Source. World Values Surveys, waves 1990 and 2000. The OECD countries and the transition economies.

and tolerance of the youngest cohort, relative to the old, is limited to 0.7 percentage points in the OECD countries, and is not statistically significant. The coefficient on the variable Age 16–24 \times wave 2000 \times transition economy, taken alone, indicates that the decrease in family civic education among the youngest cohort is larger in transition economies (by 6 percentage points) than in the OECD countries. This differential effect between the transition and the OECD countries is statistically significant at the .05 level.

Column (2) shows the results for uncivicness, measured by the probability of finding it justifiable to accept bribes. Uncivicness has risen more among younger cohorts than among older cohorts in transition economies, whereas the generational effect goes in the other direction in the OECD countries. As a consequence, the uncivicness of the young generations relative to the old has increased more in transition economies than in the OECD countries. This differential evolution across generations between transition economies and the OECD countries is equal to 7.3 percentage points for the age group 16–24 and to 5.8 percentage points for the age group 25–44. The effects are statistically significant at the .05 and .01 levels, respectively.

Column (3) reports the differential effects of transition on distrust of younger and older generations. In absolute terms, distrust has increased among the young cohorts in transition economies, whereas it has decreased in the OECD countries among those age groups. Distrust by the young generations relative to the old has increased more in transition economies than in the OECD countries. For example, this differential effect in transition economies is equal to 6.2 percentage points for the youngest cohort, and is statistically significant at the .05 level. Because we control for education, income, and unemployment status, the sharper rise in distrust among the younger cohort cannot be entirely attributed to differences in economic gains from the transition across cohorts. This result is consistent with our prediction that deregulation changes civic education within families and leads to a decline in trust, especially among the young. In contrast, this result is at odds with the “good old days” hypothesis.

Finally, column (4) of Table VII focuses on attitudes toward markets. Even though the older retired generation is more civic and trusting than the younger ones, it is more supportive of government ownership of business. These results offer new support for our framework: the elderly have little to gain from

participating in the new economy, and lose from the negative externalities imposed by the uncivic entrepreneurs. As a consequence, they support regulation even more than do the young, despite being more trusting.

VII. CONCLUSIONS

We have presented a model in which beliefs and regulations jointly influence each other, and some evidence from cross sections of countries and individuals, as well as from the transition from socialism, broadly consistent with the model. We note two aspects of the problem that were mentioned in the discussion but not analyzed in any detail.

The first is the relationship between our findings and research on legal origins. A number of papers summarized in La Porta, Lopez-de-Silanes, and Shleifer (2008) show that the very same measures of government regulation that we consider in this paper are predicted by legal origins. This raises the question of the relationship between legal origins and distrust, and their respective influences on regulation. It is easy to show that French legal origin countries, on average, exhibit lower levels of trust than common law and Scandinavian legal origin countries, but is there a deeper relationship here?

Glaeser and Shleifer (2002) argue that France and England developed their legal systems many centuries ago in response to very different levels of disorder prevalent in the two countries, with England being much more peaceful and orderly than France. The two legal traditions were subsequently transplanted through conquest and colonization to many parts of the world, and there is no reason to think that the colonies of the two countries started with different levels of distrust (Nunn and Wantchekon 2009). On the other hand, our paper suggests that, over time, the level of regulation can itself influence investment in social capital. It is possible, then, that compared to the English colonies, the more heavily regulated French colonies over the decades have developed lower levels of trust (because of a more controlling role of the state) and that this lower trust has generated continued demand for government regulation. If this hypothesis is correct, one reason that legal origins have had such a pervasive influence on outcomes over the years might be that their influence is mediated by trust in a self-fulfilling equilibrium. This might be a new explanation for the persistent effects of legal origins.

A second aspect of the problem that deserves some additional attention is our assumption that civic education is largely decentralized because it takes place in families. In fact, in our model, if the community can agree on a program of public education that reduces distrust, and if this program is successfully implemented, the bad equilibrium is eliminated. It is unquestionably the case that, in some countries, an important goal of public education is to build trust (Glaeser, Ponzetto, and Shleifer 2007). But, evidently, this goal is not universal. This observation is of great consequence to our discussion of transition economies, and in particular raises the question of whether, in light of our evidence, these economies are stuck to a future of low trust, heavy regulation, and low output. Alternatively, can education lead the way toward greater civicness, lower regulation, and higher productivity? We suspect that the future of many transition economies is indeed brighter than our short run analysis suggests, largely due to the possibilities of public education. Nonetheless, the discussion raises the question of what are the possibilities and the limits of public education in raising trust, especially in environments where parents do not share an interest in civicness.

More generally, the analysis points to a broad complementarity between trust and free market economics, which remains to be explored.

HARVARD UNIVERSITY
SCIENCES PO, OBSERVATOIRE FRANÇAIS DES CONJONCTURES ECONOMIQUES
ECOLE POLYTECHNIQUE, CREST
HARVARD UNIVERSITY

REFERENCES

- Aghion, Philippe, Yann Algan, and Pierre Cahuc, "Can Policy Influence Culture? Minimum Wage and the Quality of Labor Relations," *Journal of the European Economic Association*, forthcoming, 2010.
- Alesina, Alberto, and George-Marios Angeletos, "Corruption, Inequality, and Fairness," *Journal of Monetary Economics*, 52 (2005a), 1227–1244.
- , "Fairness and Redistribution," *American Economic Review*, 95 (2005b), 960–980.
- Alesina, Alberto, Arnaud Devleeschauwer, William Easterly, Sergio Kurlat, and Romain Wacziarg, "Fractionalization," *Journal of Economic Growth*, 8 (2003), 155–94.
- Alesina, Alberto, and Edward Glaeser, *Fighting Poverty in the US and Europe* (Oxford, UK: Oxford University Press, 2004).
- Alesina, Alberto, and Eliana La Ferrara, "Who Trusts Others?" *Journal of Public Economics*, 85 (2002), 207–304.
- Algan, Yann, and Pierre Cahuc, "Civic Virtue and Labor Market Institutions," *American Economic Journal: Macroeconomics*, 1 (2009), 111–145.

- , "Inherited Trust and Growth," *American Economic Review*, forthcoming, 2010.
- Almond, Gabriel, and Sidney Verba, *The Civic Culture: Political Attitudes and Democracy in Five Nations* (London: Sage Publications, 1989).
- Banerjee, Anurag, "A Theory of Misgovernance," *Quarterly Journal of Economics*, 112 (1997), 1289–1332.
- Banfield, Edward C., *The Moral Basis of a Backward Society* (New York: Free Press, 1958).
- Barro, Robert, and Jong-Wha Lee, "International Data on Educational Attainment Updates and Implications," NBER Working Paper 7911, 2000.
- Bisin, Alberto, and Thierry Verdier, "Beyond the Melting Pot: Cultural Transmission, Marriage and the Evolution of Ethnic and Religious Traits," *Quarterly Journal of Economics*, 115 (2000), 955–988.
- Blanchard, Olivier, and Mickael Kremer, "Disorganization," *Quarterly Journal of Economics*, 112 (1997), 1091–1126.
- Bloom, Nick, Raffaella Sadun, and John Van Reenen, "The Organization of Firms Across Countries," Stanford University, Mimeo, 2007.
- Botero, Juan, Simeon Djankov, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, "The Regulation of Labor," *Quarterly Journal of Economics*, 119 (2004), 1339–1382.
- Carlin, Bruce, Florin Dorobantu, and S. Vish Viswanathan, "Public Trust, the Law, and Financial Investment," *Journal of Financial Economics*, 92 (2010), 321–341.
- Coleman, James, *Foundations of Social Theory* (Cambridge, MA: Harvard University Press, 1990).
- Dee, Thomas, "Are There Civic Returns to Education?" *Journal of Public Economics*, 88 (2004), 1697–1720.
- Di Tella, Rafael, and Robert MacCulloch, "Why Doesn't Capitalism Flow to Poor Countries?" *Brookings Papers on Economic Activity*, Spring 2009.
- Djankov, Simeon, Edward Glaeser, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, "The New Comparative Economics," *Journal of Comparative Economics*, 31 (2003), 595–619.
- Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, "The Regulation of Entry," *Quarterly Journal of Economics*, 117 (2002), 1–37.
- Easterly, William, and Ross Levine, "Africa's Growth Tragedy: Policies and Ethnic Divisions," *Quarterly Journal of Economics*, 112 (1997), 1203–1250.
- Fisman, Ray, and Edward Miguel, "Corruption, Norms, and Legal Enforcement: Evidence from Diplomatic Parking Tickets," *Journal of Political Economy*, 115 (2008), 1020–1048.
- Francois, Patrick, Thomas Fujiwara, and Tanguy van Ypersele, "Competition Builds Trust," UBC Working Paper, 2009.
- Glaeser, Edward, David Laibson, José Scheinkman, and Christine L. Soutter, "Measuring Trust," *Quarterly Journal of Economics*, 115 (2000), 811–846.
- Glaeser, Edward, Giacomo Ponzetto, and Andrei Shleifer, "Why Does Democracy Need Education?" *Journal of Economic Growth*, 12 (2007), 77–99.
- Glaeser, Edward, and Andrei Shleifer, "Legal Origins," *Quarterly Journal of Economics*, 117 (2002), 1193–1229.
- , "The Rise of the Regulatory State," *Journal of Economic Literature*, 41 (2003), 401–425.
- Guiso, Luigi, Paola Sapienza, and Luigi Zingales, "People's Opium? Religion and Economic Attitudes," *Journal of Monetary Economics*, 50 (2003), 225–282.
- , "The Role of Social Capital in Financial Development," *American Economic Review*, 94 (2004), 526–556.
- , "Does Culture Affect Economic Outcomes?" *Journal of Economic Perspectives*, 20 (2006), 23–48.
- , "Social Capital as Good Culture," *Journal of the European Economic Association Papers and Proceedings*, 6 (2008), 295–320.
- Helliwell, John, and Robert Putnam, "Education and Social Capital," *Eastern Economic Journal*, 33 (2007), 1–19.
- Knack, Stephen, and Keefer, Philip, "Does Social Capital Have an Economic Payoff? A Cross-Country Comparison," *Quarterly Journal of Economics*, 112 (1997), 1251–1288.

- Landier, Augustin, David Thesmar, and Mathias Thoenig, "Investigating Capitalism-Aversion," *Economic Policy*, 55 (2008), 3–42.
- La Porta, Rafael, Florencio Lopez-de-Silanes, and Andrei Shleifer, "The Economic Consequences of Legal Origins," *Journal of Economic Literature*, 46 (2008), 285–332.
- La Porta, Rafael, Florencio Lopez-de-Silanes, Andrei Shleifer, and Robert Vishny, "Trust in Large Organizations," *American Economic Review*, 87 (1997), 333–38.
- , "The Quality of Government," *Journal of Law, Economics and Organizations*, 15 (1999), 222–279.
- Licht, Amir, Chanan Goldschmidt, and Shalom Schwartz, "Culture, Law, and Corporate Governance," *International Review of Law and Economics*, 25 (2005), 229–255.
- Lindbeck, Assar, and Jorgen Weibull, "Balanced-Budget Redistribution as the Outcome of Political Constitution," *Public Choice*, 52 (1987), 273–297.
- Mulligan, Casey B., and Andrei Shleifer, "The Extent of the Market and the Supply of Regulation," *Quarterly Journal of Economics*, 120 (2005), 1445–1473.
- Nunn, Nathan, and Leonard Wantchekon, "The Trans-Atlantic Slave Trade and the Evolution of Mistrust in Africa: An Empirical Investigation," NBER Working Paper 14783, 2009.
- Persson, Torsten, and Guido Tabellini, *Political Economics* (Cambridge, MA: MIT Press, 2000).
- Piketty, Thomas, "Social Mobility and Redistributive Politics," *Quarterly Journal of Economics*, 110 (1995), 551–584.
- Pinotti, Paolo, "Trust, Honesty and Regulations," MPRA Paper 7740, 2008.
- Putnam, Robert, *Making Democracy Work* (Princeton, NJ: Princeton University Press, 1993).
- , *Bowling Alone: The Collapse and Revival of American Community* (New York: Simon & Schuster, 2000).
- Shleifer, Andrei, "Government in Transition," *European Economic Review*, 41 (1997), 385–410.
- Stulz, Rene, and Rohan Williamson, "Culture, Openness, and Finance," *Journal of Financial Economics*, 70 (2003), 313–349.
- Tabellini, Guido, "The Scope of Cooperation: Norms and Incentives," *Quarterly Journal of Economics*, 123 (2008), 905–950.
- , "Culture and Institutions: Economic Development in the Regions of Europe," *Journal of the European Economic Association*, forthcoming, 2010.