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

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1 Introduction

In a cross-section of countries, government regulation is strongly negatively correlated with social capital. We document, and try to explain, this highly significant empirical correlation. The correlation works for a range of measures of social capital, 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, to judicial procedures.

We present a simple model explaining this correlation. In the model, people make two decisions: whether or not to become civic (invest in social capital), and whether to become entrepreneurs or choose routine (perhaps state) production. We accept a broad view of civicness or social capital, namely that it is a broad cultural attitude. Those who have not invested in social capital impose a negative externality on others when they become entrepreneurs (e.g., pollute), while those who have invested do not. The community (whether through voting or through some other political mechanism) regulates entry into entrepreneurial activity when the expected negative externalities are large. But regulation itself must be implemented by government officials, who demand bribes if they had not invested in social capital. As a consequence, when entrepreneurship is restricted through regulation, investment in social capital may not pay.

In this model, when people expect to live in a civic community, they expect low levels of regulation and corruption, and so invest in social capital. Their beliefs are justified, and investment leads to civicness, 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 invest in social capital. Their beliefs again are justified, as lack of investment leads to uncivicness, 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. What is perhaps most interesting about this finding, and also consistent with the model's predictions, is that 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 culture (as measured by distrust) and institutions (as measured by regulation) coevolve. Culture shapes institutions, and institutions shape culture. Unfortunately, it is difficult to test this prediction of the model using instrumental variables, since many exogenous factors that influence trust might also directly influence regulation, and vice versa.[1] We take the evidence on the demand for regulation as consistent with, if not proving, causality running 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.

Although our paper combines ideas about regulation and distrust in an apparently novel way, it follows a large literature on related topics. Following Banfield (1958), Gam-

[1]For example, one can think of using legal origins as instruments for regulation (see, e.g., Djankov et al. 2002, La Porta et al. 2008), but to the extent that colonizing Europeans who transplanted legal traditions also transplanted aspects of culture, the instrument would not be valid.

betta (1988) and Coleman (1990), Putnam (1993) reinvigorated research on social capital by showing tremendous dispersion of levels of trust and social capital across Italian regions as well as the ability of social capital measures to predict government performance. Knack and Keefer (1997) and La Porta et al. (1997) are early empirical studies showing that social capital predicts good economic outcomes in a cross-section of countries. Recent studies in a related vein are Alesina and Glaeser (2004), Algan and Cahuc (2009), Guiso, Sapienza, and Zingales (2004, 2006), Tabellini (2005), and Bloom et al. (2007). [2]

Three recent strands in research have further advanced this area. First, Tabellini (2007) and Guiso, Sapienza, and Zingales (2007a) present new evidence of deep historical roots of modern variation in trust among regions of Europe and Italy, consistent with Putnam's view that trust is a measure of highly persistent culture. Bisin and Verdier (2001), Tabellini (2008), and Guiso, Sapienza and Zingales (2007b) focus on explicit cultural transmission of beliefs within families, which is in part shaped by economic incentives. Guiso et al. (2006) and Algan and Cahuc (2007) offer empirical evidence consistent with these models using data on US-immigrants. These papers, however, do not note the connection between distrust and regulation, nor the role of regulation in undermining social capital accumulation.

A second related literature 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 US at the beginning of the 20th century to argue that the demand for regulation results from perceived unfairness of the existing social order. Di Tella and McCulloch (2006) argue that voters in developing countries dislike capitalism because it is associated with high levels of corruption. Landier et al. (2007) similarly examine cultural attitudes to capitalism. Pinotti (2008) is a contempora-

[2]Landes (1998), La Porta et al. (1997, 1999), Guiso et al. (2003), and Stulz and Williamson (2003) measure culture using religious affiliations, and also examine its effects on outcomes, whereas Licht et al.(2003) introduce psychological measures of culture.

neous paper closest to ours. He also shows empirically that distrust increases the demand for regulation, although his theoretical focus is on the differences in beliefs among agents rather than on multiple equilibria. Djankov et al. (2003b) present a broader discussion of these arguments, in which the demand for public control is a response to disorder; our paper advances this argument by emphasizing distrust as the source of disorder.

A third literature 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 (2005a) 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 (2005b) show how redistribution leads to corruption, which in turn generates demand for redistribution. Aghion, Algan and Cahuc (2008) show that minimum wage policies undermine the ability of firms and workers to learn about each others' cooperative attitudes, and that low cooperation in turns creates a demand for wage policies. Carlin et al. (2007) argue, similarly to our paper, 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 cultural attitudes 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 it is that people in countries with bad governments want more government intervention?

We proceed as follows. Section 2 describes the basic relationship between regulation and distrust. Section 3 presents our model and its main implications. Section 4 documents the empirical relationship between distrust and attitudes toward the state and markets. Section 5 examines the effect of regulation on distrust by looking at the transition experience. Section 6 looks at the evidence on educational values across countries, as a further test of the model's predictions. Section 7 concludes.

2 Basic facts

This section correlates distrust and government regulation across countries. The exact definitions of variables are summarized in the Appendix.

2.1 Data on distrust

We use data on distrust from the *World Values Survey* (WVS). The *WVS* database is an international social survey consisting of four main waves 1981-84, 1990-93, 1995 and 1999-2003, denoted henceforth 1980, 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 she answers "Can't be too careful". We take the country average level of distrust over the four waves.

We also use indicators of distrust associated with the lack of civic spirit.[3] We use the following question from the World Values Survey: "*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*". We define the proportion of *uncivic* households as those who do not think that it is never justifiable to cheat on public benefits.

Distrust can also be measured with respect to instutions such as business, unions or the legal and political systems. We consider the following set of questions provided by the *WVS : "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? Unions ? Justice ?*

[3] As stressed by Glaeser et al. (2000), the question about trust may capture trustworthiness of others rather than trust in others.

Parliamentary democracy?". The answers range from 1 for a lot of confidence, 2 for quite a lot of confidence, 3 for a little confidence, to 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 four dummy variables *distrust in companies*, *distrust in organized labor*, *distrust in legal system*, *and distrust in political system*. We have also checked the robustness of the results using the originally coded variables, without finding any significant change.

2.2 Data on regulation

To measure regulation, we start with government regulation of entry. We use Djankov et al. (2002) data on the number of steps that an entrepreneur must complete to open a business legally. The measure is available for the year 1999 and covers almost all countries present in the WVS database. We also use an index of the frequency of price controls by the state. Gwartney et al. (1996) construct an index of the extent to which companies can set prices freely, from 0 for no freedom at all to 10 for perfect freedom. La Porta et al. (2002) use the average of this index for the two available years 1989 and 1994 as a measure of price controls.

Next, we look at the regulation of the labor market. Botero et al. (2004) construct an index of the rigidity of employment regulation that aggregates three areas: i) Difficulty of hiring, ii) Rigidity of hours, and iii) Difficulty of firing. We also use a measure of the extent of state regulation of the minimum wage, which takes into account the existence of a statutory legal minimum wage and the potential exceptions based on age, skills, industries, or regions. This index is from Aghion et al. (2008) and covers 21 OECD countries. We also look at formalism of legal procedures from Djankov et al. (2003a).

Using these data, we can estimate the empirical relationship between distrust and regulation for a maximum of 57 countries. The list includes: Argentina, Australia, Austria, Bangladesh, Belgium, Brazil, Bulgaria, Canada, Chile, China, Colombia, Croatia, Czech

Republic, Denmark, Egypt, Finland, France, Germany, Greece, Hungary, India, Indonesia, Ireland, Italy, Jordan, Japan, Korea, Latvia, Lithuania, Morocco, Mexico, Netherlands, Nigeria, Norway, Pakistan, Peru, Philippines, Poland, Portugal, Romania, Russia, Singapore, Slovakia, Slovenia, Spain, South Africa, Sweden, Switzerland, Tanziana, Turkey, Uganda, Ukraine, United Kingdom, United States, Vietnam, Venezuela and Zimbabwe. The sample of countries changes slightly depending on the indicators for distrust and the type of regulation we are looking at.

2.3 The correlation between distrust and regulation

We present five figures illustrating the relationship between distrust and regulation. Figure 1 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 while 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 associated with distrust. Figure 2 presents the evidence of a strong negative correlation between the freedom that firms enjoy in setting their prices and distrust. The R^2 is 0.34.

Figure 3 and 4 present the relationship between regulation of the labor market and distrust. Figure 3 shows a strong positive correlation between the rigidity of employment contracts and distrust. Nordic countries such as Finland, Norway, and Sweden are outliers in this figure. Yet, when we focus on state regulation of the minimum wage (Aghion et al., 2008), these Nordic countries fit much more with the other high-trusting countries such as Denmark or Anglo-Saxon countries. The indice of state regulation of wage include the existence of a legal statutory minimum wage in the country, the ratio of the minimum wage to the median wage, the existence of potential derogations from the law, such as

the provision of sub-minimum wages for certain categories. A higher score indicates heavier regulation by the state. Figure 4 shows a strong positive correlation between state regulation of the minimum wage and distrust; 65 percent of the variance in distrust is explained by state regulation of wages. Figure 5 shows that the same relationship holds between distrust and judicial formalism.

Table 1 confirms these correlations in regressions controlling for the log per capita GDP, the average years of education, and population (Mulligan and Shleifer 2005). The correlation between regulation and distrust in others is statistically significant at the one percent level in most cases. In contrast, per capita income and education does not predict regulation.[4]

Table 2 shows that the correlation between distrust and regulation holds also for distrust in institutions. We use the regulation of entry as our measure of regulation. The correlation is statistically significant with the same controls as used in Table 1.

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 relationship in transition economies: they are not in equilibrium.

[4]We have also checked the effects of democracy and ethnic fractionalization (Easterly and Levine 1997, Alesina and La Ferrara 2002, Alesina et al. 2003). Ethnic fractionalization is measured by the ethnolinguistic fragmentation variable of Alesina et al. (2003). Democracy is measured by the average Polity IV score over for the period 1980-2000. These additional variables are not statistically significant.

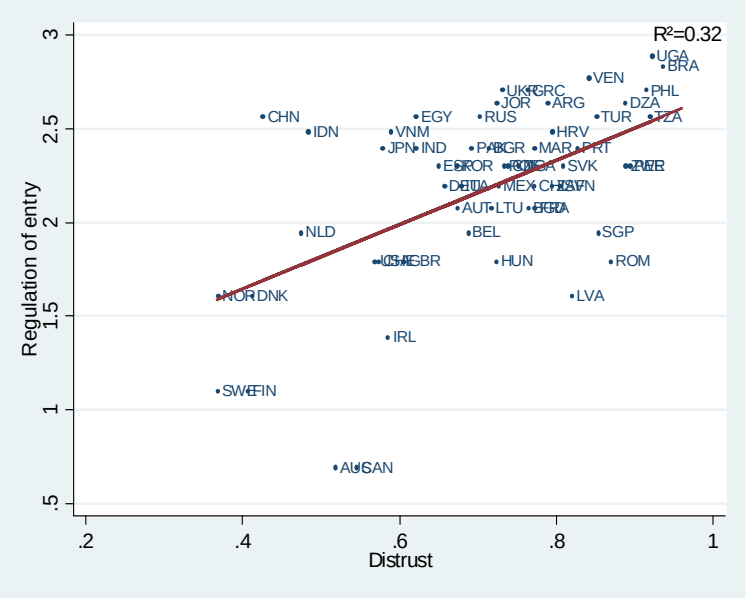

Figure 1: Distrust and Regulation of entry. Regulation is measured by the (ln)-number of procedures to open a firm. Sources: World Values Survey and Djankov et al. (2002).

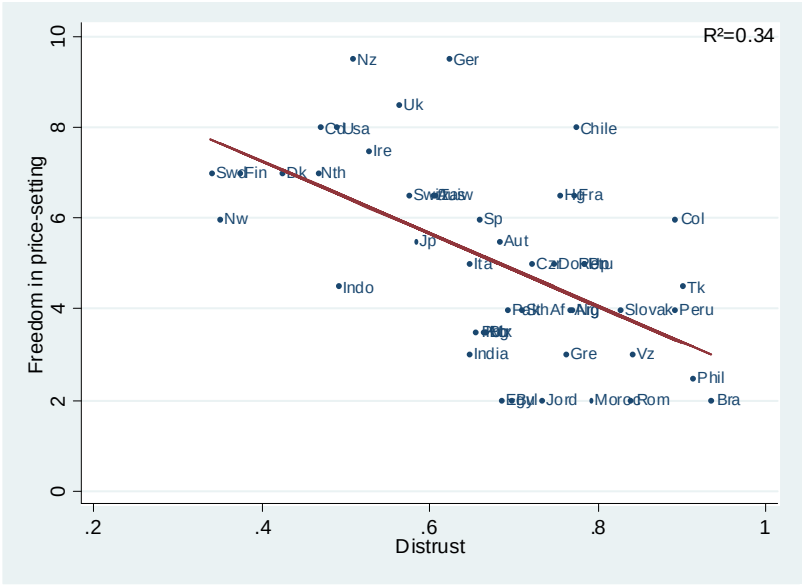

Figure 2: Distrust and Freedom of firms in setting prices. The indicator ranges from 1 for no freedom at all to 10 for perfect freedom. Source: World Values Survey and La Porta et al. (2002).

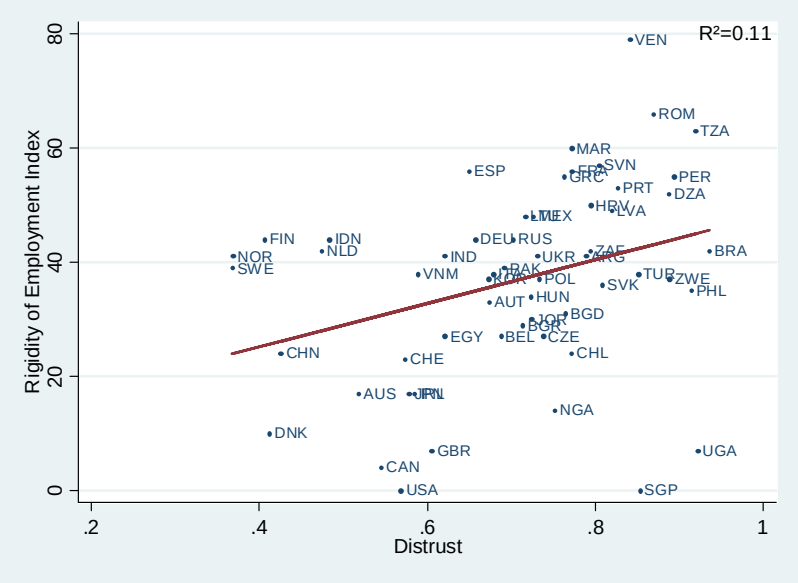

Figure 3: Distrust and Rigidity of employment index. Sources: World Values Survey and Botero et al. (2004).

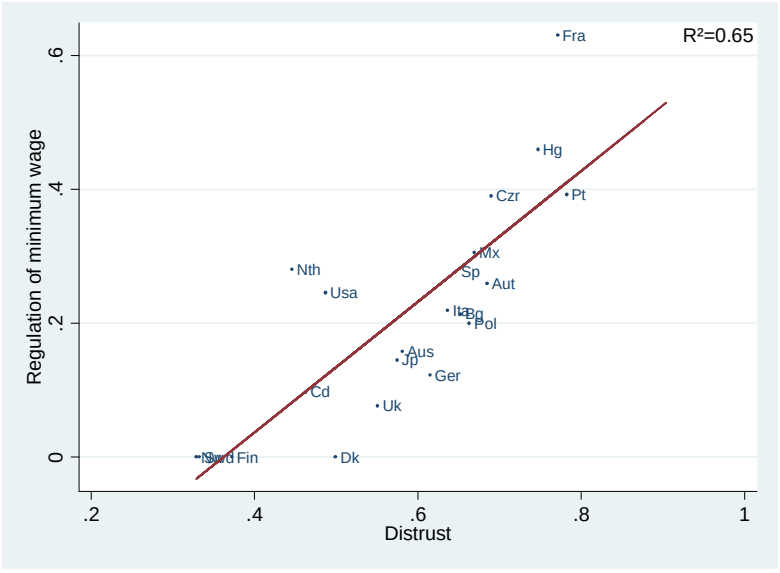

Figure 4: Distrust and State regulation of minimum wages. Source: World Values Survey and Aghion, Algan, Cahuc (2008).

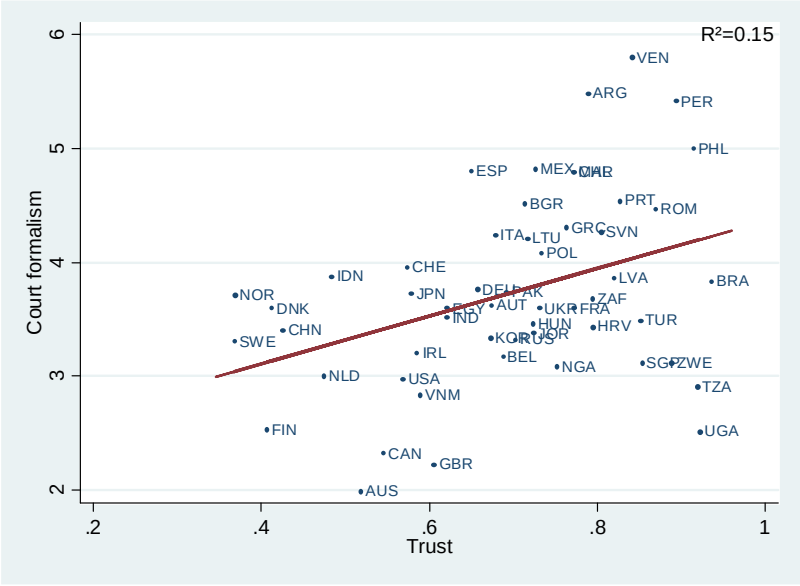

Figure 5: Distrust and Court formalism. The index measures substantive and procedural statutory intervention in judicial cases at lower-level civil trial courts in a case for evicting a tenant that has not paid rent. Higher values represent more statutory control or intervention in the judicial process. Source: Djankov et al. (2003a) and World Values Survey.

3 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 of their children. Children are taught either how to behave in a civic way, learning tolerance, mutual respect and independence, or to only cooperate with family members and to behave selfishly outside the family, even if selfishness leads to corruption.[5] This assumption captures an important distinction stressed by sociologists between limited and generalized morality. Norms of limited morality are applicable to a narrow circle of friends and relatives only. Banfield (1958) refers to these family values as amoral familism. Norms of generalized morality instead are meant to apply to everyone and to induce individuals to behave in a civic way with a larger range of other anonymous persons.

There is a continuum of risk neutral individuals of mass one. There is 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 his civic or uncivic education, 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 can produce an additional y units of the numeraire good if he is uncivic, and $y+\varepsilon$ if he 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 very small; it is

[5] We generally think of the investment in civicness as being made in families, although we recognize that formal schooling can play a role as well (Glaeser, Ponzetto, and Shleifer 2007). It is important for us, however, that civicness choices are individual, not collective.

only used in the model to break ties.[6]

As an entrepreneur, each uncivic individual also generates a negative externality of $e > 1$ per 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 imposes 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 Persson-Tabellini (2000) probabilistic voting model.[7] We assume that the society does not have the option to stop all entrepreneurship, but at least in a market economy 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 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] We assume that a civic official, fearful of a large negative externality, always bans entry. (Indeed in equilibrium this will be the optimal policy.) If an official is not civic, he 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 worth it and enter.[9] We denote by b the bribe demanded by uncivic officials. Recall that since civicness is private information, it is impossible to forbid entry by the civic and to

[6] ε can be interpreted as a small private productivity benefit from civicness, which would arise if, for example, production requires cooperation among individuals over time (see Tabellini, 2005; Algan and Cahuc, 2007).

[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.

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

Before solving the model, a preliminary remark is in order. We could have assembled a much simpler model in which there are no government officials or corruption. Regulation takes the simple form of prohibiting all production. In that model, there would still be multiple 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 also note that there are many ways to introduce corrupt public officials into the model: the central substantive assumption is that such officials reduce both negative externalities and the incentive to be civic.

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 rent, equal to the bribe times the share of individuals who agree to pay it

$$b\left(1-b\right)\left(1-\alpha\right)$$

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 (since 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:

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

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 only occurs 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.

It is easy to show, as illustrated by Figure 6, 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

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

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.

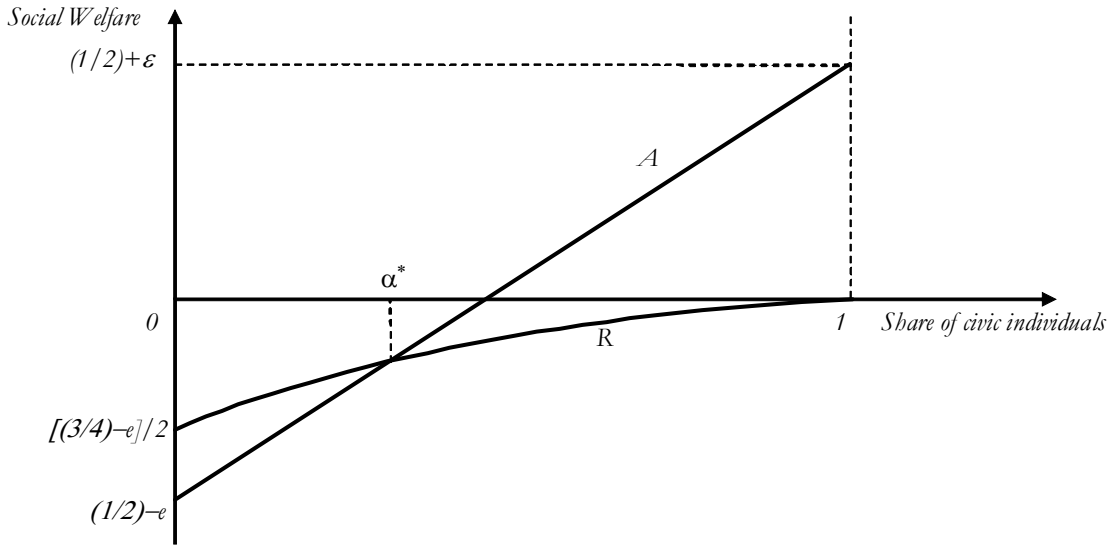

Figure 6: The threshold value α^* above which regulation yields lower social welfare than the authorization of production.

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

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

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 at 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.

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 since entrepreneurs are held up by bribe-takers.[10] 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 since, 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 creates an interesting implication of our model. 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 6, 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

[10] Even if we assume that civic individuals are willing to pay bribes, there is a bad equilibrium with $\alpha = 0$, since regulation creates more opportunities for uncivic individuals to accept bribes when serving as public officials.

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, since 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, since 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 the government is corrupt. We test this prediction below.

We note the important connection of our work to that of DiTella and McCulloch (2006), who argue that corruption leads to leftist politics and the demand for more government. The authors 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 more of corrupt government, when they see private business hurting their lives.

Third, our model has some implications for the causal effect of regulation on accumulation of social capital. To examine those, suppose the economy starts from a position where social capital 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 P in Figure 7). Suppose that, starting from this point, the country undergoes liberalization, so the economy moves down to the R-curve for its

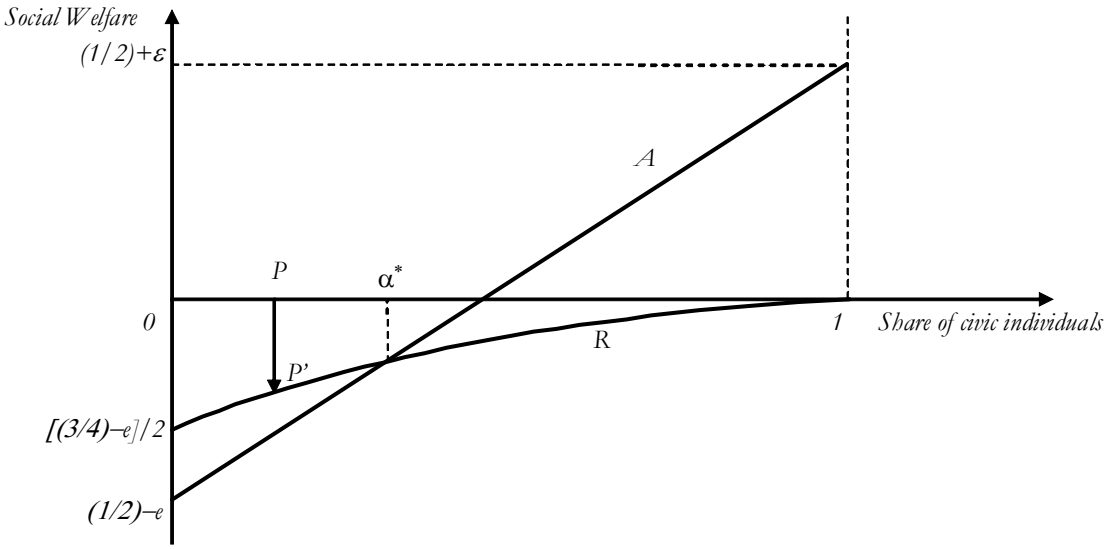

Figure 7: Liberalization in a low trust environment.

level of social capital, where public officials regulate entry. In Figure 7, this transition to a regulated market economy can be thought of as a move from point P to point P'. What happens now?

If this happens, the model predicts that corruption rises. It also predicts that people would demand more regulation – a return to the point where entrepreneurial activity is banned by the state. Perhaps most interestingly, the model predicts that, starting from this disequilibrium, people reduce their investment in social capital, so trust in others and in institutions diminishes. Unless social capital is built up, the economy moves toward the bad equilibrium with zero civicness. We assess this set of predictions using the experience of transition from socialism.

4 The effect of distrust on the demand for regulation

4.1 Data

In this section, we seek to establish three points related to the first implication of the model. These are: 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.

We first look at the World Values Survey database that we have described already. We are mainly interested in three questions concerning attitudes toward competition or state regulation. The first question reads : "*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: "*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. In addition to these questions, 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 result 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* to measure attitudes towards specific government regulations. The ISSP database 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 five specific questions about regulation. The first two assess the views of regulation of wages and prices: "*Here is a list of potential government action for the economy: i) Control prices by law, ii) Con-*

trol 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. Three other questions refer to government control of specific sectors: "*Do you think that electricity should be run by the government or private companies? Hospitals should be run by the government or private companies? Banks should be run by the government or private companies?*". In 1996, the answers take on the value 1 to indicate that the sector should be run by the government and 0 otherwise.

The ISSP surveys on government regulation cover almost all OECD and East European countries. Moreover, the ISSP database contains separate surveys for East and West Germany. By merging the 1990 and 1996 waves, we get observations for the following 8 East European countries: Bulgaria, Czech Republic, Hungary, Latvia, Poland, Romania, Russia, 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, Netherlands, Norway, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom and United States. The panel of countries is unbalanced between 1990 and 1996.

Finally, we look more precisely 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 Life in Transition Survey consists of 28,000 interviews in 28 post-communist countries in Europe and Central Asia.[11] In each country, a sample of 1,000 individuals was selected randomly for face-to-face interviews. The main question of interest regarding

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

regulation reads:

"*Which one of the following statements 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 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 to one if the respondent chooses statement (2) and 0 if he chooses statement (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, courts, parliament, 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 1 if the respondent has some or complete distrust, and 0 if the respondent has some or complete trust.

4.2 Public support for regulation

Figures 8 and 9 display attitudes toward government regulation at the country level, based on the ISSP database. Figures 8 and 9 report the share of households who strongly agree or agree with the statement that the government should control wages and prices, respectively. We measure the country average over the two ISSP surveys in 1990 and in 1996. Former socialist countries such as Russia, Slovenia, East Germany and Bulgaria exhibit the strongest support for government control of wages. Approximately 92 percent of Russians and 82 percent of East Germans favor wage control. Respondents in Mediter-

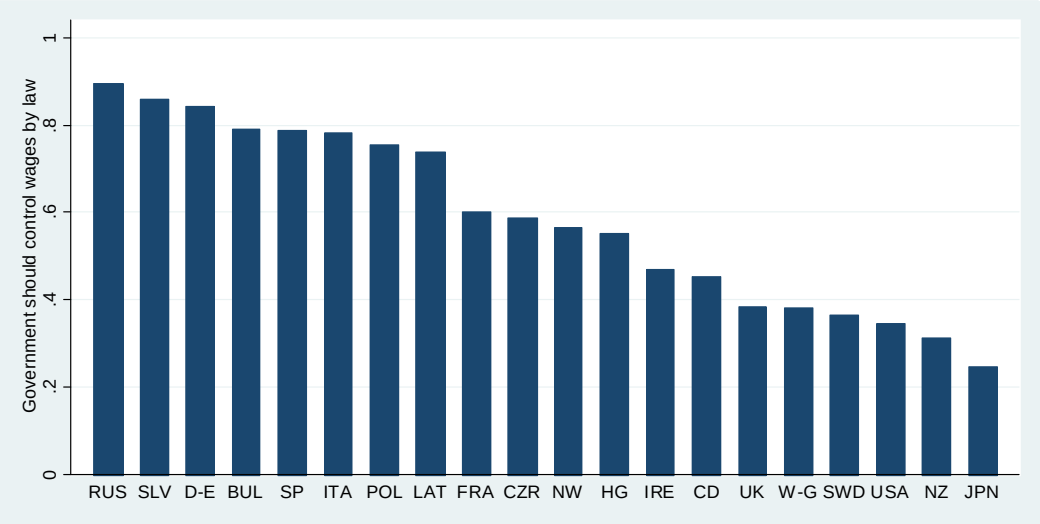

Figure 8: Share of political support for wage control by law. Source: International Social Survey Program 1990-1996

ranean countries such as France, Italy and Spain also strongly favor wage control by the state: 78 percent of the Spaniards and 60 percent of the French agree with the statement. At the other extreme we find Anglo-Saxon and Nordic countries such as Sweden. In these 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 electricity and banks.

Figures 10 and 11 show the correlation between political support for regulation and the objective measures of actual regulation of the goods and labor markets. We use the (ln) number of steps to open a business and the rigidity of employment index as indicators of actual regulation. The correlation between the subjective measure of political support for regulation and the objective measures of regulation is fairly high, the R^2 reaching 0.37 for regulation of entry and 0.39 percent for regulation of the labor market. This result suggests that understanding regulation requires understanding the determinants of its political support. We present this analysis below.

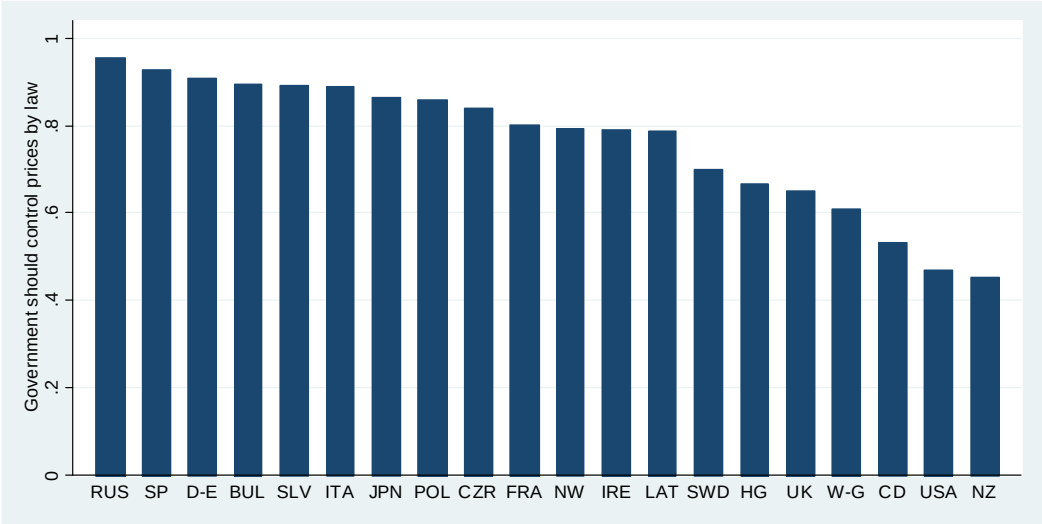

Figure 9: Share of political support for price control by law. Source: International Social Survey Program 1990-1996.

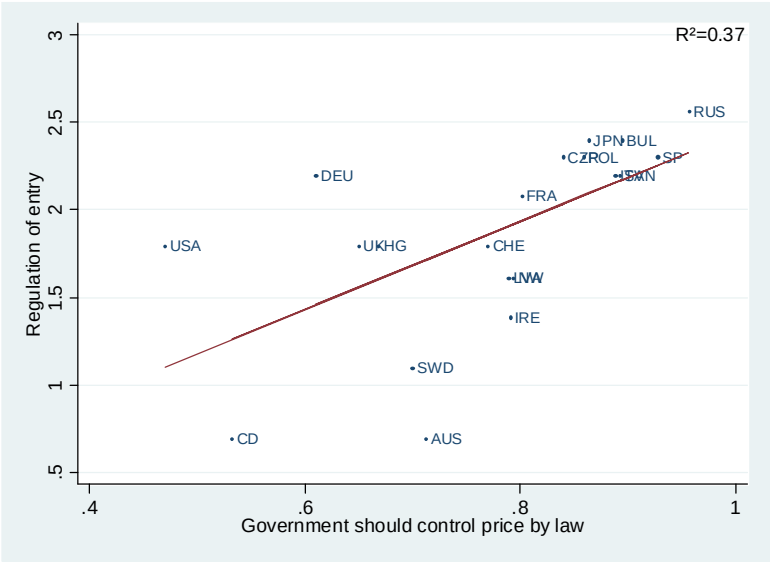

Figure 10: Correlation between regulation of entry and political support for government control of prices. Source: International Social Survey Program 1990-1996 and La Porta et al. (2002)

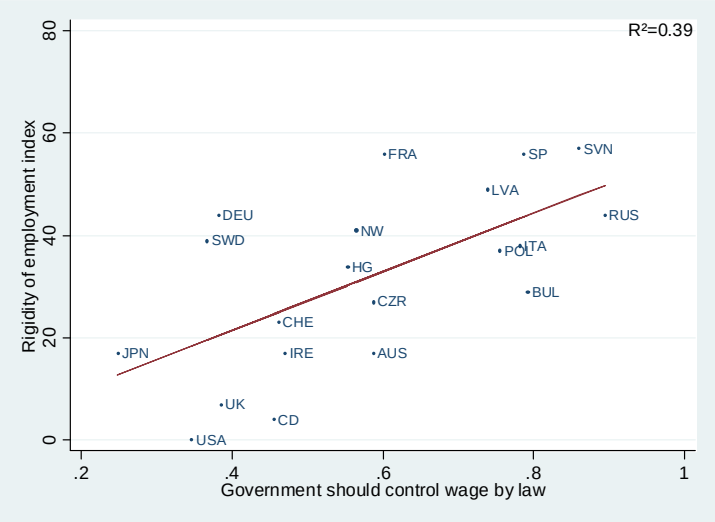

Figure 11: Correlation between rigidity of employment index and political support for government control of wages. Source: International Social Survey Program 1990-1996 and Botero et al. (2004)

4.3 Distrust and public support for regulation

Our model predicts that distrust causes support for regulation. In this section, we look at this prediction.

We begin with simple correlations. Figure 12 through Figure 14 present the correlations at the country level between distrust in others and support for government control of prices and of specific sectors such as electricity. 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 is always positive and significant, the R^2 reaching 0.33 for wage control, 0.16 for price control, and 0.20 for government control of electricity.

Table 3 reports the corresponding micro evidence based on individual answers from the WVS. We regress the various measures of support for regulation on distrust in others and distrust in public institutions. The left hand side variables are indicators of support for regulation and are reported in rows. We control for age, gender, education, income,

political affiliation and country fixed effects. Standard errors are clustered at the country level.

Row 1 reports the ordered probit regression for attitudes towards competition. Individuals who distrust others are more likely to believe that competition is harmful. The relationship is statistically significant at the 1 percent level. Individuals who distrust private companies, the legal system, or the civic 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 1 percent level. Row 3 shows that the same relationship holds between distrust and the belief that the economic system runs badly under democracy. In the WVS data, distrustful individuals seek greater control by government, consistent with a central prediction of our model.

Table 4 documents the demand for regulation in transition economies using individual data from LITS. The left-hand side variable is the preference for a planned rather than a market economy. 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 household lives better now than before 1989 and whether he 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.

Column 1 of Table 4 shows that distrust in others is positively related to the preference for a planned economy. The effect is statistically significant at the 1 percent level and

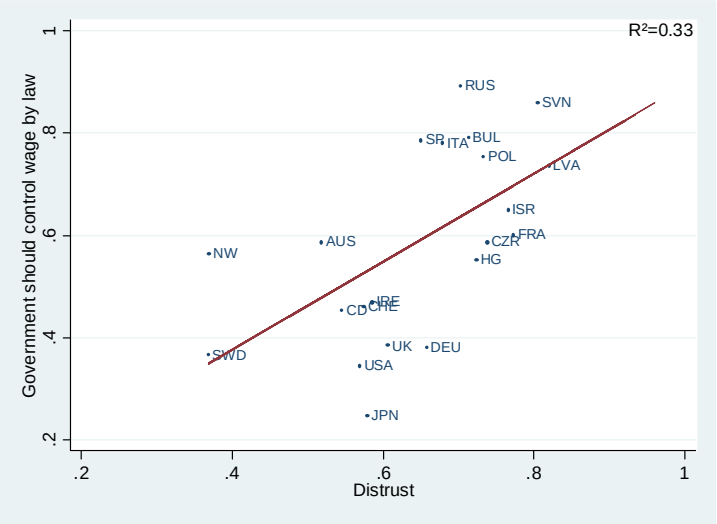

Figure 12: Correlation between distrust and political support for government control of wages. Source WVS: 1980 - 2000 and ISSP 1990 and 1996.

economically sizeable. Distrust of others increases by 4 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. Columns 2 and 3 of Table 4 document the positive relationship between distrust in public institutions, such as the government and justice, and preference for a planned economy. Columns 4 and 5 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 datasets, support our model's prediction that distrust leads to support for government regulation.

5 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 the position of nearly full state control would bring about an increase in disorder and corruption, a demand for re-regulation, and ab-

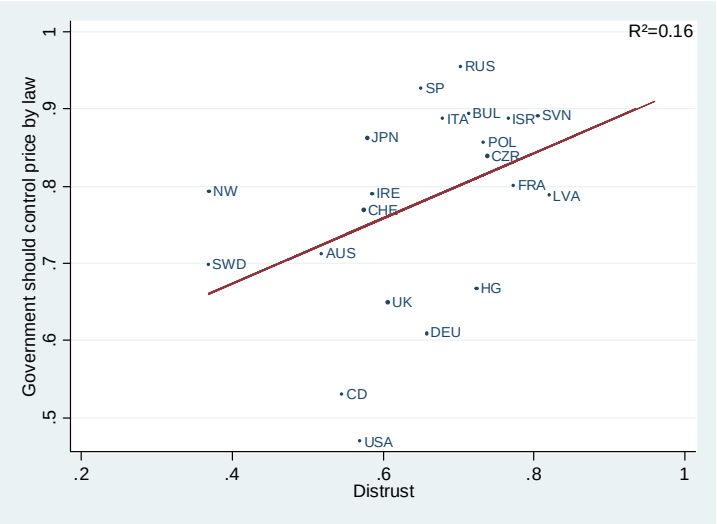

Figure 13: Correlation between distrust and political support for government control of prices. Source WVS: 1980 - 2000 and ISSP 1990 and 1996.

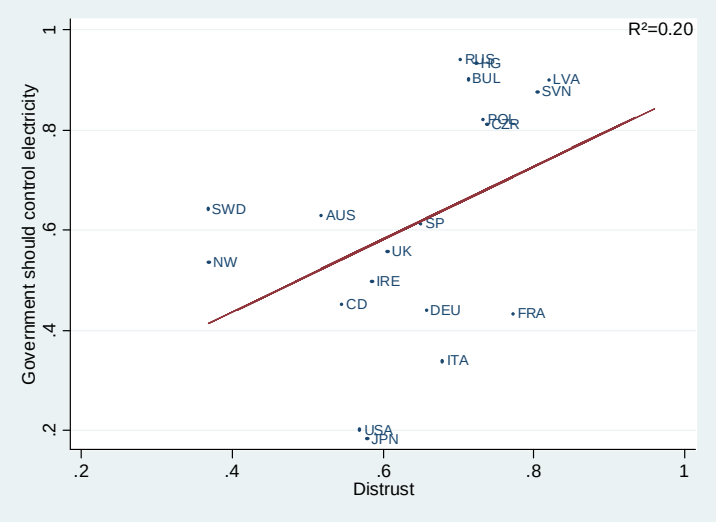

Figure 14: Correlation between distrust and political support for government control of electricity. Source WVS: 1980 - 2000 and ISSP 1996.

sent such re-regulation a decrease in civic education 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 all, or 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 has 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 has caused a demand for re-regulation, and most importantly, whether transition brought about a reduction in social capital accumulation and growth in distrust. Below, we focus on these three questions.

5.1 Initial level of distrust in transition economies

We have data on the initial level of distrust in transition economies circa 1990, provided by the WVS. Figure 15 reports the country levels of distrust for the 1990 wave. We measure the national component of distrust by estimating the country fixed effects in the individual-level regression of trust on individual characteristics (age, education, gender, income, political affiliation). The country fixed effect is measured relative to Sweden, which displays one of the lowest level of distrust in this wave. Figure 15 reports the marginal probit estimates of country fixed effects. For instance, Figure 15 shows that, compared to the Swedes, the Romanians exhibit a 32 percentage points higher probability of distrusting each other. The highest levels of distrust in 1990 are in socialist countries.

Table 5 reports marginal probit estimates of the effect of living in a transition economy

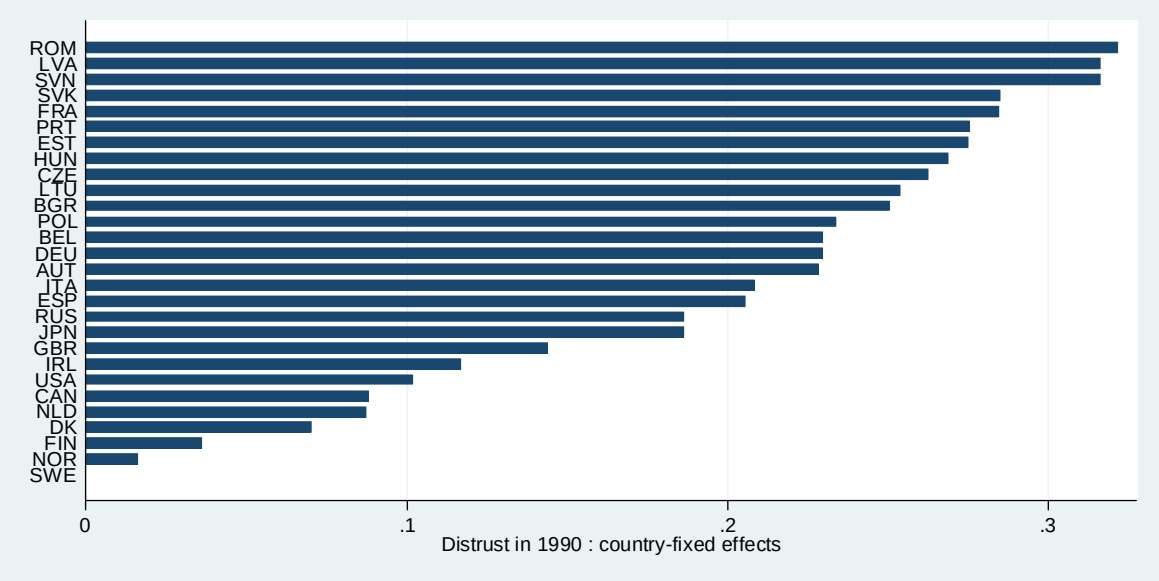

Figure 15: Marginal country fixed effects on distrust relatively to Sweden. Source: WVS 1990.

on different indicators of distrust in 1990. We create a dummy equal to 1 if the country used to be socialist, and 0 if it belongs to the OECD. We control for age, education, gender, income and political affiliation.

Column 1 of Table 5 shows that the probability of distrusting others rises by 16.9 percentage points when the respondent is living in a transition rather than an OECD country during the 1990 wave. The effect is statistically significant at the 1 percent level. Distrust in civil servants and distrust in justice are also higher by 5.5 percentage points and 6.3 percentage points, respectively, in transition than in OECD countries. The same pattern holds for distrust in companies. In 1990, living in a transition economy increases the probability of distrusting business by 15.1 percentage points relative to OECD countries. The effect is statistically significant at the 1 percent level.

5.2 Corruption and demand for regulation in transition economies

What is the effect of transition on the perception of corruption and the demand for regulation? 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.

We start with suggestive evidence on the perceived change in corruption in transition economies. The LITS asks the following question: "*To what extent do you agree with the following statement: There is less corruption now than in 1989*". The answer can take on five values from 1 to 5, with 1 for "Strongly Agree", 2 for "Agree", 3 for "Neither agree or disagree", 4 for "Disagree" and 5 for "Strongly Disagree". To ease the interpretation of the results, we construct a 1-0 dummy variable *Increase in corruption* that takes on the value 1 if the respondent disagrees or strongly disagrees with the statement that there is less corruption in 2006 than in 1989, and 0 if the respondent strongly agrees or agrees with that statement. Figure 16 reports the country average value of the indicator *Increase in corruption*. The indicator measures the share of households who believe that the level of corruption is higher in 2006 than in 1989. The overwhelming majority of households report that corruption has increased. The average value of this indicator among the transition economies reaches 81 percent. Georgia and Belarus are the only two countries where the majority of households think that corruption has not increased over this period.

We then estimate the rise in corruption in transition economies by using the World Values Survey. This database reports two directly related questions: "*Do you think it can always be justified, never be justified, or something in between: Someone accepting bribes in the course of his duties? Cheating on taxes?*". The questions take on values ranging from 1 for never justifiable to 10 for always justifiable. To ease the interpretation of the results, we create dummy variables equal to 1 if the respondent thinks that bribing and cheating on taxes respectively is never justifiable, and zero otherwise. The results are

similar when we work with the original coding.

We compare attitudes towards corruption in the 1990 and 2000 waves by using an interaction term between the wave 2000 dummy and the transition economy dummy. We also include the wave 2000 dummy separately to measure the change in attitudes in OECD countries. The other baseline controls include age, education, gender, income category, political affiliation and country fixed effects.

Table 6 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 6.2 percentage points in transition economies. Similarly the share of people who consider that it can be justified to cheat on taxes has risen by 7.8 percentage points in these countries over the decade. The effect is statistically significant at the five percent level with robust standard errors. In contrast, acceptance of corruption or of cheating on taxes have dropped in other OECD countries over this period.

We next document the changes in attitudes toward regulation in transition economies and OECD countries in 1990 and in 2000 using the WVS. We look at two main questions. The first concerns attitudes toward competition. This 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 lower score indicating a preference for private ownership.

We measure the change in the demand for regulation in transition economies over the decade by looking at the effect of the dummy for transition economies interacted with the wave 2000. We also include the wave 2000 dummy without the interaction to capture the change in the demand for regulation in OECD countries. We control for age, gender, years of education, income, political affiliation and country fixed effects. Additional re-

gressions with religious affiliation and employment status yield similar results, but with fewer observations.

Table 7 reports the estimates. Column 1 shows the ordered probit 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 1 percent level. To get a sense of the economic impact, we rescale the variable between 1 and 0, 1 indicating that the respondent tends to consider competition harmful (score higher than 6 for the original 1-10 scale). The marginal probit estimates indicate that the probability of disliking competition has increased by 29.4 percentage points over the nineties in transition economies. The sign associated with the wave 2000 dummy, taken separately, is also positive, suggesting a rise in dislike of competition in OECD countries as well. Yet the effect is much smaller.

Column 2 shows the ordered probit estimates for government versus private ownership. The sign on the interaction term between the transition dummy and the wave 2000 dummy is positive, suggesting that individuals in transitions economies have become more opposed to private ownership. The effect is statistically significant at the 1 percent level. The effect is also economically sizeable. To ease the interpretation, we create a dummy variable equal to 1 if the respondent is more favorable to government than to private ownership (score higher than 6 on the original 1-10 scale). The marginal probit estimates suggest that the support for government ownership has increased by 34.7 percentage points in transition economies between 1990 and 2000. The sign of the wave 2000 dummy taken separately is positive but not statistically significant. The Wald test rejects the equality of coefficients.

Table 7 also reports the effect of additional controls. Losers from transition might want more government regulation to help them. We address 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

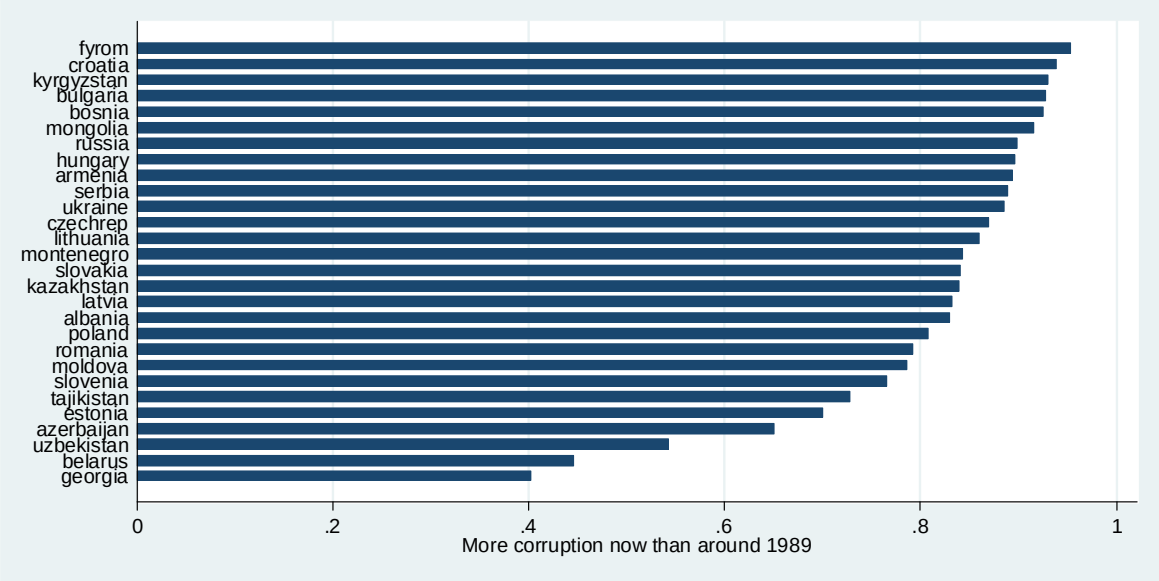

Figure 16: Country-average share of households who consider that there is more corruption now than around 1989. Source: LITS, 2006

educated people over this period. The effect is statistically significant at the 1 percent level.

The change in attitudes towards government regulation could also be driven by the economic decline and growth in inequality. We include 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 period 1990-94 and 1999-2000. The GINI indices correspond to the early 1990s and early 2000s and are taken from the World Bank. These variables are statistically much less significant than the interaction between the dummies transition economy and wave 2000.

5.3 Change in social capital in transition economies

We finally turn to the evolution of social capital in transition economies following liberalization. We begin with descriptive figures.

Figure 17 describes the evolution of distrust based on the LITS database. Respondents are asked to compare their current level of distrust in 2006 with that they used to have before 1989. We create a variable *Increase in distrust* defined as the difference between distrust in 2006 and the remembered level of distrust before 1989. The indicator potentially takes on values in the interval [-4,4], a higher score indicating an increase in distrust. Figure 17 reports the country average values for this indicator. Distrust has increased in all transition countries, as far as people remember.

One may worry that individuals have forgotten their true levels of distrust before 1989. Due to transition hardships, they might overestimate the extent of cooperation during the good old days. We thus also look at the changes in trust in transition economies across periods based on the WVS database, where trust levels are reported contemporaneously.

Figure 18 reports the change in the country-average level of distrust from the 1990 and 2000 wave. A positive value indicates a rise in distrust over the decade. The analysis focuses on all the Eastern European economies covered by the WVS for both 1990 and 2000. As it turns out, distrust in others has risen in all countries but Slovenia.

Table 8 estimates the effect of transition on social capital by comparing the evolution of distrust in OECD and transition countries between 1990 and 2000. We measure the change in distrust in transition economies with an interaction term between a wave 2000 dummy and a transition economy dummy. We also include a wave 2000 dummy separately to measure the change in distrust in OECD countries. Baseline controls include age, education, gender, income category, political affiliation and country fixed effects.

Table 8 - Column 1 shows that distrust in others has increased in both transition and OECD countries. But this rise is not statistically significant in OECD countries when we control for country fixed effects and individual characteristics. In contrast, the rise in distrust in transition economies is statistically significant at the 10 percent level. The effect is sizeable: the probability of distrusting others has increased by 6.3 percentage

points in transition economies, almost twice as much as in OECD countries.

Table 8 - Column 2 shows a statistically significant increase in distrust of civil servants in transition economies. Individuals living in transition economies are 12.2 percentage points more likely to distrust civil servants in 2000 than in 1990. During the same period, distrust in civil servants has declined by 3.5 percentage points in OECD countries. The Wald test confirms this contrast. Columns 3 and 4 show that distrust in justice and in business have risen by 11.2 percentage points and 9.8 percentage points, respectively, in transition economies. The rise is statistically significant. Distrust in justice and in business has also increased slightly in OECD countries, but the effect is not statistically significant. The Wald test rejects the equality of coefficients between transition and OECD economies.

In summary, the findings of this section confirm all the predictions of the model concerning the transition from socialism, as illustrated in Figure 7. Liberalization of entrepreneurial activity starting from a low level of social capital 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 social capital accumulation.

6 Civic education, social capital and regulation

We finally go back to the central element of our model that accounts for the perpetuation of both culture and institutions, namely family values.[12] This section documents the relationship between family values on the one hand and distrust and regulation on the other. We then use transition economies to document changes in family values.

[12] Another natural candidate for this process of social capital accumulation is investment in education. As stressed by Almond and Verba (1989), Putnam (2001), Helliwell and Putnam (2007) and Glaeser et al. (2007), education is strongly associated with civic behaviors. Putnam (2001) 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 behaviors by using the geographical availibility of junior colleges as an instrument.

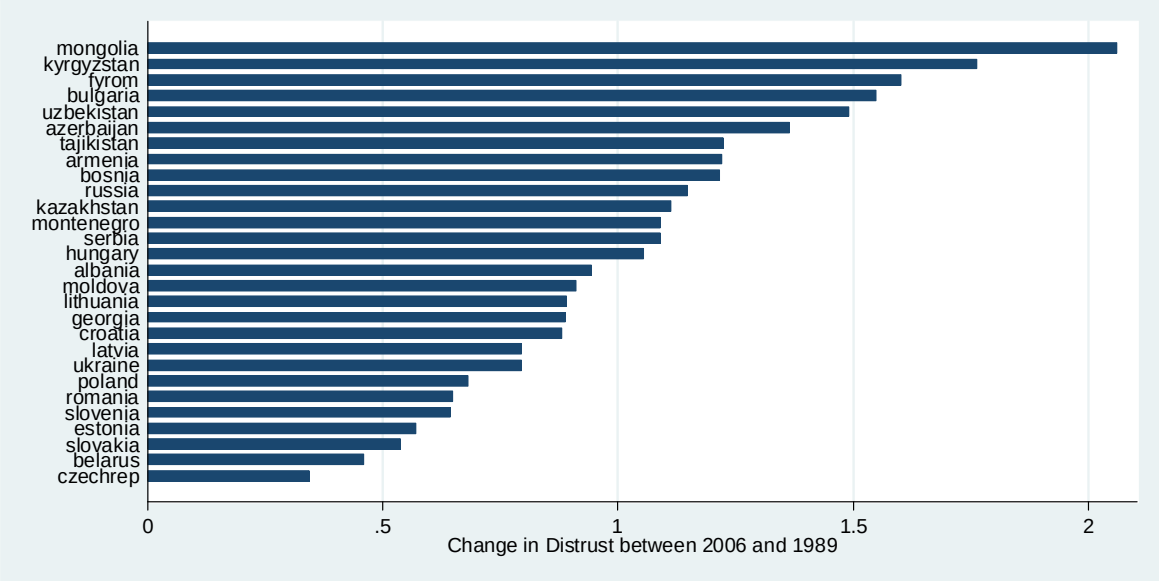

Figure 17: Change between distrust in 2006 and distrust before 1989. Source LITS 2006.

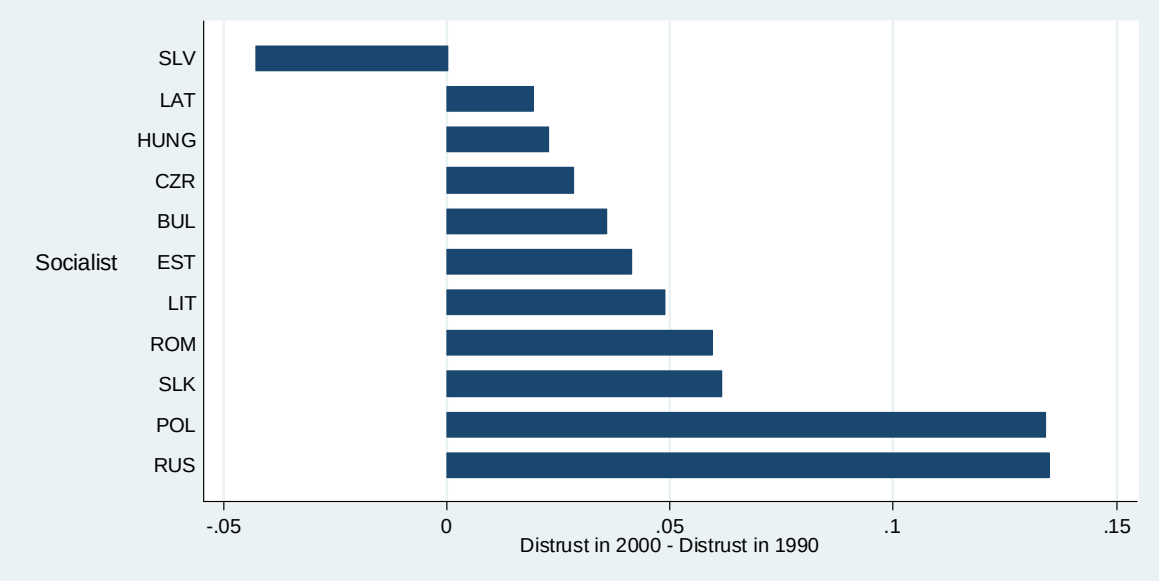

Figure 18: Change in distrust between the waves 2000 and 1990 of the WVS database.

6.1 Macro evidence

We measure civic education by using the following question in the World Values Survey: *"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?".* The variable takes on the value 1 if the respondent mentions the quality and 0 otherwise. This question covers 50 countries for which we also have indicators of distrust and regulation.

Figure 19 reports the relationship between the country share of individuals who mention tolerance as a key quality and the country average level of distrust. The correlation is negative, and the R^2 is .22. Figure 20 documents the other side of the relationship between regulation and civic education. There is a strong negative correlation between the regulation of entry and the country share of individuals who believe in transmitting tolerance and respect of others to children. The relationship is also significant, the R^2 reaching .33. The same negative correlations show up if we consider teaching unselfishness and independence or if we use other indicators of regulation, but these correlations are statistically less significant.

Table 9 confirms these findings with regressions with 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 ethno-linguistic fractionalization based on Alesina et al. (2003). These data, along with the family values indicator, are available for 40 countries.

Column 1 reports the stripped down regression of distrust on civic education, defined as the country average share of households who mention tolerance and respect among the key values to transmit to children in the WVS. Civic education is negatively correlated with distrust and statistically significant at the 1 percent level. Other variables likely to influence social capital such as ethnic fractionalization are no longer statistically significant once civic education is controlled for. Column 2 reports a strong negative correlation

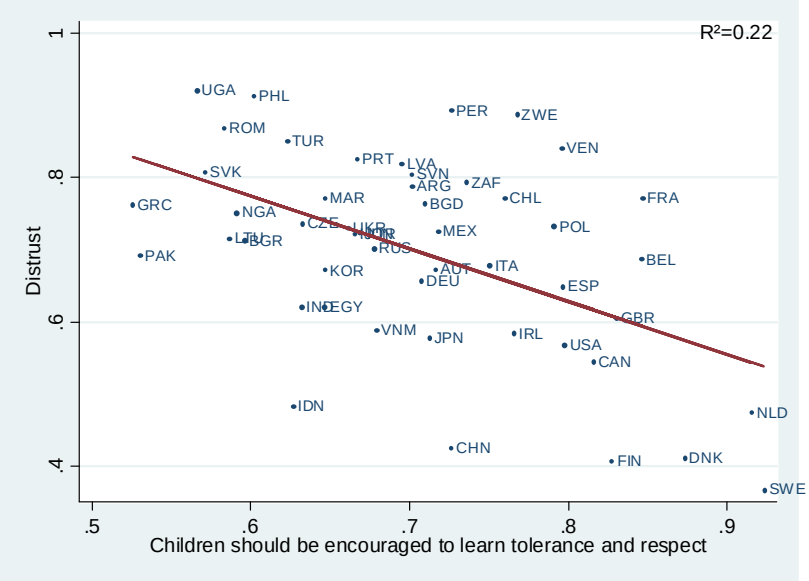

Figure 19: Correlation between the country-share of distrust and the share of parents in favor of teaching tolerance to children. Source: World Values Survey.

between regulation of entry and civic education. The correlation is statistically significant at the 1 percent level.

6.2 Change in civic education in transition economies

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

Table 10 documents the evolution of parental values in transition economies between the 1990 and 2000 waves of the WVS. We focus on two potential qualities that the parents should teach their children: "*Tolerance and Respect for others*" and "*Unselfishness*". We capture the change in parental values in transition economies by including an interaction term between the wave 2000 dummy and the transition economy dummy. We include separately a wave 2000 dummy to capture the evolution of parental values in OECD

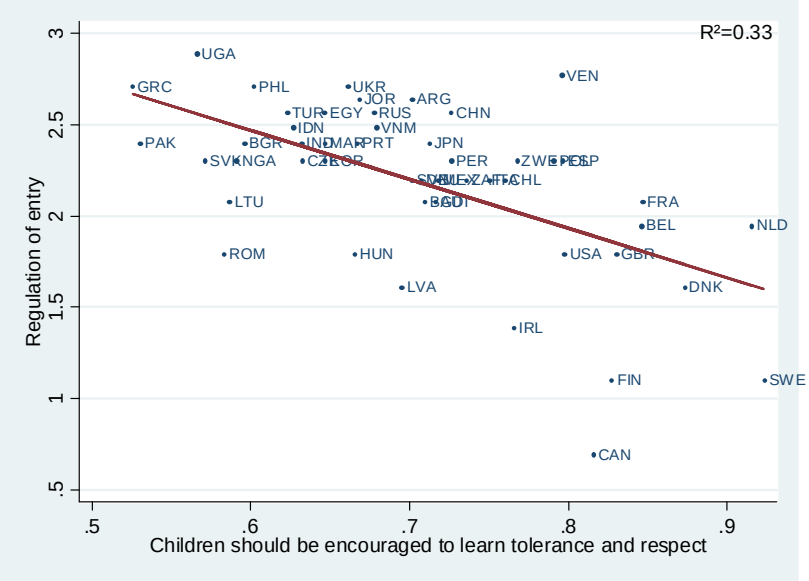

Figure 20: Correlation between the Regulation of entry and the share of parents in favor of teaching tolerance to children. Source: Djankov et al. (2002) and World Values Survey.

countries compared to that in transition economies. Baseline controls include age, age squared, education, gender, income category, and political affiliation.

Table 10 shows that the probability of mentioning tolerance or unselfishness as a key value to teach children has decreased in transition economies between 1990 and 2000. The drop is statistically significant at the 1 percent level. In contrast, the likelihood of mentioning tolerance and unselfishness has steadily increased in OECD countries, the coefficient being statistically significant at the 1 percent level. These results suggest that people have reduced investment in social capital in transition economies.

We next evaluate the consequences of this change in civic education on the level of social capital of younger generations in transition economies. If the transition experiment was capturing the effect of chaos or poor law enforcement on social capital, then the effect should be more pronounced among the older people longing for the good old days. If social capital is the result of family values being directly affected by the change in the economic environment, we should see that trust has changed among the young people but

not among the old, whose investment in social capital is already sunk. We distinguish five different cohorts: 18-35 years old, 35-44 years old, 45-54 years old, 55-64 years old and individuals older than 65 years. We capture the evolution of distrust across cohorts by interacting the cohort effect and the wave 2000. We also include the level of education, gender, and income. The cohort 65 years and older is the reference group.

Table 11 reports regressions of distrust on the different cohorts. The effect of wave 2000 on younger cohorts is negative and statistically significant in transition economies. Since 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 the stock of social capital. In contrast, this result is at odds with the "good old days" hypothesis.

7 Conclusion

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 et al. (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, 2008). 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 accumulation of social capital 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 raises the level of social capital, 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 social capital (Glaeser et al. 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 social capital, 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 open question of what are the possibilities and the limits of public education in raising the level of social capital, especially in environments where parents do not share an interest in civicness.

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

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Table 1: Distrust and Regulation: OLS estimates

Dependent variable	Regulation of entry (1)	Regulation of labor market (2)	Court formalism index (3)
Distrust in others	1.431***	.297*	2.525***
	(.380)	(.177)	(.866)
Ln (GDP per capita)	-.039	.002	.078
	(.028)	(.023)	(.115)
Education	-.046	-.009	.005
	(.031)	(.012)	(.065)
Ln (Population)	.085***	-.015	.032
	(.037)	(.017)	(.082)
Observations	57	57	53
R^2	.55	.135	.162

Source: World Values Survey, Djankov et al. (2002, 2003a) and Botero et al. (2004)

Table 2: Distrust in Business, Institutions and Regulation: OLS estimates

	Regulation of entry				
Uncivicness	.772**				
	(.329)				
Distrust Justice		3.216***			
		(1.004)			
Distrust Civil Servants			1.746***		
			(.575)		
Distrust Parliament				1.055**	
				(.445)	
Distrust Companies					1.542***
					(.496)
R^2	.45	.52	.48	.45	.55
Observations	57	41	57	57	57

Controls: Education, GDP, Population. Uncivicness: cheating on unemployment benefits
Source: World Values Survey and Djankov et al. (2002)

Table 3: Distrust and demand for regulation: Micro estimates - Ordered probit

Explanatory variables (Columns) Dependent variables (Rows)	Distrust others	Distrust justice	Distrust civil servants	Distrust companies
(1) Competition is harmful	.027***	.035***	.024***	.172***
	(.010)	(.008)	(.008)	(.008)
N	73607	69523	71779	60611
(2) Government should take more responsibility	.051***	.018**	.015**	.088***
	(.001)	(.006)	(.006)	(.006)
N	73389	69523	71779	60611
(3) In democracies the economic system runs badly	.134***	.081***	.082***	.053***
	(.009)	(.010)	(.008)	(.009)
N	76061	47542	74288	65011

Source: WVS - Controls: country fixed effects, gender, age, education, income, political affiliation
Robust standard error clustered at the country level. ***:1%, **: 5%, *: 10.

Table 4: Distrust and Demand for Regulation in Transition economies- Marginal Probit estimates

Dependent variable	Preference for a planned rather than a market economy				
	(1)	(2)	(3)	(4)	
Distrust others	.040***				
	(.012)				
Distrust government		.032**			
		(.015)			
Distrust courts			.036***		
			(.012)		
Distrust banks				.057***	
				(.016)	
Distrust foreign companies					.078***
					(.014)
Household life better now than before 1989	-.047***	-.048***	-.044***	-.042***	-.040***
	(.006)	(.007)	(.007)	(.007)	(.008)
Inequality should be reduced	.016	.014*	.014**	.010	.013*
	(.031)	(.008)	(.007)	(.007)	(.007)
R^2	.062	.059	.054	.058	.058
Observations	9808	9971	9584	9345	7982

Controls: gender, age, education, income, occupation, income scale, country fixed effects.
Source: LITS. Robust standard errors clustered at country level: ***:1%, **: 5%, *: 10.

Table 5: Initial distrust in transition economies relative to OECD countries - Marginal Probit estimates

Dependent variable	Distrust others (1)	Distrust civil servants (2)	Distrust justice (3)	Distrust companies (4)
Transition economies in 1990	.169***	.055*	.063**	.151***
	(.033)	(.033)	(.032)	(.046)
R^2	.054	.011	.015	.020
Observations	17028	17794	17854	17615

Controls: gender, age, education, income, political affiliation. Source: WVS survey. Robust standard errors clustered at country level: ***:1%, **: 5%, *: 10.

Table 6: Rise in Corruption in Transition economies: Micro estimates

Dependent variable	Justifiable to accept bribes	Justifiable to cheat on taxes
Wave 2000	-.012	-.035**
	(.015)	(.014)
Transition economies x Wave 2000	.062**	.078**
	(.030)	(.035)
Wald test : Wave 2000 - Transition x Wave 2000	Prob>$\chi^2(1)$ = 0 .060	Prob>$\chi^2(1)$ = 0.008
R^2	.069	.062
Observations	63344	61928

WVS 1990 and 2000. Controls: Country fixed effects, age, gender, education, political affiliation, income. Robust standard errors clustered at country level: ***:1%, **: 5%, *: 10.

Table 7: Rise in the Demand for Regulation in Transition economies: Micro estimates

	Competition is harmful (1-10)	Government should own the businesses (1-10)
	(1)	(2)
Wave 2000	.128***	.087
	(.038)	(.069)
Transition x wave 2000	.975***	1.009***
	(.141)	(.219)
Education x transition x wave 2000	-.032***	-.027***
	(.004)	(.008)
Gini Index	1.552*	2.835*
	(1.379)	(1.563)
GDP Growth	-.011	-.036**
	(.014)	(.017)
Unemployment	-.000	-.020*
	(.000)	(.011)
R^2	.022	.025
Wald test : Wave 2000 - Transitions x Wave 2000	Prob>$\chi^2(1)$ = 0 .062	Prob>$\chi^2(1)$ = 0 .008
Observations	44689	44098

WVS 1990 and 2000. Controls: Country fixed effects, age, gender, education, political affiliation, income. Robust standard errors clustered at country level: ***:1%, **: 5%, *: 10.

Table 8: Rise in Distrust : Micro estimates

Dependent variable	Distrust others	Distrust civil servants	Distrust justice	Distrust companies
Wave 2000	.038	-.035**	.021	.028
	(.027)	(.014)	(.025)	(.022)
Transition economies x Wave 2000	.063*	.122***	.112***	.098***
	(.033)	(.035)	(.038)	(.015)
Wald test : Wave 2000 - Transition x Wave 2000	Prob>$\chi^2(1)$ = .65	Prob>$\chi^2(1)$ = .00	Prob>$\chi^2(1)$ = .09	Prob>$\chi^2(1)$ = .002
R^2	.081	.031	.046	.049
Observations	55015	49526	45341	45524

WVS 1990 and 2000. Controls: country fixed effects, gender, age, education, income, political affiliation. Robust standard errors clustered at country level. ***:1%, **: 5%, *: 10.

Table 9: Civic education, Distrust and Regulation: OLS macro estimates

Dependent variable	Distrust in others	Regulation
Civic education:	-.697***	-2.14***
Tolerance and Respect	(.171)	(.780)
Ln (GDP	-.004	-.116
per capita)	(.026)	(.076)
Democracy	-.000	.010
	(.001)	(.029)
Fractionalization	.035	-.171
	(.096)	(.271)
Observations	40	40
R^2	.30	.44

Table 10: Change in Civic Education in Transition economies

Dependent variable	Parental Values Respect and Tolerance (1)	Parental Values Unselfishness (2)
Wave 2000	.041***	.027***
	(.001)	(.005)
Transition economies x Wave 2000	-.045***	-.059***
	(.009)	(.008)
Wald test : Wave 2000 - Transition x Wave 2000	Prob>$\chi^2(1)$ = 0 .000	Prob>$\chi^2(1)$ = 0.000
R^2	.045	.098
Observations	55900	55898

WVS 1990 and 2000. Controls: country fixed effects, gender, age, education, income, political affiliation. Robust standard errors clustered at country level: ***:1%, **: 5%, *: 10.

Table 11: Distrust among young generations in Transition economies: Micro estimates

Dependent variable	Distrust				
	Coeff	Std Error		Coeff	Std Error
Age 65 + x Wave 2000	Reference		Age 65+ x Wave 2000 x Transition	Reference	
Age 18-35 x Wave 2000	.006	(.017)	Age 18-34 x Wave 2000 x Transition	.040**	(.019)
Age 35-44 x Wave 2000	-.020	(.016)	Age 35-44 x Wave 2000 x Transition	.038*	(.021)
Age 45-54 x Wave 2000	-.014	(.013)	Age 45-54 x Wave 2000 x Transition	.013	(.020)
Age 55-64 x Wave 2000	-.018	(.013)	Age 45-54 x Wave 2000 x Transition	.019	(.021)
R^2			.074		
Observations			69561		

WVS 1990 and 2000. Controls: country fixed effects, gender, age, education, income, political affiliation. Robust standard errors clustered at country level.

Table 12: Variable definition

Variables	Description	N Countries
	Other variables	
Log of GNP per capita	Natural logarithm of GNP per capita in 2000, Atlas method, expressed in current US dollars. Source: World Bank, World Development Indicators	57
Democracy Index	Average score for the period 1980-200 Source: Polity IV	57
Average years of schooling	Years of schooling of the total population aged over 25, average of 1995 and 2000. Source: Barro and Lee (2000) <http://www.cid.harvard.edu/ciddata/ciddata.htm>.	57
Ethnolinguistic fractionalization	The index measures the probability that two randomly selected people from a given country will not belong to the same ethnolinguistic group. The index is based on the number and size distinguished by their ethnic and linguistic status. Source: Easterly and Levine (1997).	47
Regulation of good market	The index measures the (ln) number of steps in order to open a business. Source: Djankov et al. (2002).	57
Regulation of labor market	The index measures the rigidity of employment contracts in 1999, based on i) difficulty of hiring, ii) rigidity of hours, iii) difficulty of firing. Source: Botero et al. (2004).	57
Court formalism index	The index measures substantive and procedural statutory intervention in a case for evicting a tenant that has not paid rent or to collect a bounced check. Source: Djankov et al. (2003).	53

Table 13: Variable definitions

Variables	Description	Mean	Std error
Distrust	Share of people who answer "need to very careful in dealing with people" to the question: "Generally speaking, would you say thatmost people can be trusted or that you need to be very careful in dealing with people?". We measure the average country level of distrust over the four waves of the WVS.	.70	.47
Uncivic	Share of people who do not answer "never justifiable" to the question: "Do you think it is unjustifiable or not to cheat on government benefits". The answers ranges from 1 for never justifiable to 10 for always justifiable. We calculate the country-share of respondents who answers never justifiable averaged over the four waves of the WVS.	2.32	2.28
Distrust in companies	Share of people who answer "no confidence" to the question: "Do you have confidence in major companies". The answers range from 1 for a lot of confidence to 4 for no confidence. We calculate the average country-share of respondents who answers no confidence over the four waves of the WVS	.54	.50
Distrust in legal system	Share of people who answer "no confidence" to the question: "Do you have confidence in the legal system". The answers range from 1 for a lot of confidence to 4 for no confidence. We calculate the average country share of respondents who answers no confidence over the four waves of the WVS	.49	.49
Distrust in parliament	Share of people who answer "no confidence" to the question: "Do you have confidence in the parliament". The answers range from 1 for a lot of confidence to 4 for no confidence. We calculate the average country share of respondents who answers no confidence over the four waves of the WVS	.52	.49
Distrust in civil servants	Share of people who answer "no confidence" to the question: "Do you have confidence in civil servants". The answers range from 1 for a lot of confidence to 4 for no confidence. We calculate the average country share of respondents who answers no confidence over the four waves of the WVS	.55	.50

Table 14: Variable definition

Variables	Description	Mean	Std Error
State should control firms	Country average score to the question: "Do you think that the state should give complete freedom to the firm or that the state should control firm". The answers range from 1 for complete freedom to 10 for complete control. The score is averaged over the four waves of the WVS.	5.41	2.90
Competition is harmful	Country average score to the question: "Do you think that competition is good and yield new ideas, or competition is harmful and brings the worst from humain being". The answers range from 1 for complete freedom to 10 for complete control. The score is averaged over the four waves of the WVS.	3.55	2.49
Economic system runs badly under a democracy	Share of respondents who answer yes to the question: "Do you think that the economic system runs necessarily badly under a democracy". The indicator equal one if the respondent answers yes and 0 if the answer is no. The indicator is averaged over the four waves of the WVS.	.33	.47
Education: tolerance and respect for other people	Share of respondents who answer "especially important" 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 for other people". The indicator equal 1 if the answer is "especially important", and 0 if the answer is "not important". The indicator is averaged over the four waves of the WVS.	.66	.47
Education: Unselfishness	Share of respondents who answer "especially important" 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 indicator equal 1 if the answer is "especially important", and 0 if the answer is "not important". The indicator is averaged over the four waves of the WVS.	.26	.44

Table 15: Variable definitions: LITS database

Beliefs	Description	Mean	Std Dev
Distrust in 2006	Dummy variable equal 1 if the respondent has complete or some distrust	.60	.48
Distrust before 1989	Dummy variable equal 1 if the respondent has complete or some distrust	.20	.40
Rise in corruption	Dummy variable equal 1 if the respondent strongly agree or agree that there is more corruption now than before 1989	.81	.38
Planned economy	Dummy variable equal 1 if the respondent prefers a planned economy to a free market economy under some circunstances	.37	.48
Inequality	1 if support for state intervention to reduce the gap between the rich and the poor	.93	.25
Life better now	1 if the respondent considers that the household is better now compared to 1989	.41	.49

Table 16: Sample characteristics: LITS database

Characteristics	Mean	Std Dev
Men	.48	.50
Age	46.94	16.98
Self-employed	0.08	0.28
Education		
No education	.05	.22
Compulsory education	.16	.37
Secondary education	.22	.41
Professional education	.37	.48
University degree	.19	.39
Post-graduate education	.01	.09
Occupation		
Unemployed	.09	.29
White collar	.17	.38
Blue collar	.18	.38
Student	.03	.16
Housewife	.06	.25
Retired	.21	.41