

PROPERTY RIGHTS,  
INSTITUTIONS AND PRIVATE  
SECTOR DEVELOPMENT IN  
TRANSITION COUNTRIES

by

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A thesis submitted in partial fulfillment  
of the requirements for the degree of

National University of "Kyiv-Mohyla  
Academy"

2000

Approved by \_\_\_\_\_  
Chairperson of Supervisory Committee

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Date \_\_\_\_\_

National University of  
“Kyiv-Mohyla Academy”

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Chairperson of the Supervisory Committee: Professor Anatoliy Voychak  
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This study focuses on one of the factors that influences the private sector development and enterprises' decision to make domestic investment in the transition countries, reliability of the institutional framework, as it is perceived by potential investors – private entrepreneurs. We hypothesize that higher institutional credibility guaranteeing more secure property rights of the private entrepreneurs is associated with higher levels of private sector development in the transition countries. We test this hypothesis by conducting cross-country analysis using different institutional indexes to capture the impact of different sources of institutional uncertainty on entrepreneurs' decisions. Empirical findings show that total credibility of institutions and in particular lack of corruption and political stability are important explanatory factors of differences in private sector development and restructuring and investment enterprise activities. The results suggest that building reliable institutions promotes business development, enterprise restructuring and domestic investment, and thus economic growth in transition countries.

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## **ACKNOWLEDGMENTS**

The author would like to thank to my advisor Professor Charles Steele for his help in guiding this work, for his valuable advice and very helpful comments. I am grateful to Prof. Roy Gardner, Prof. Janusz Szyrmer and Prof. Gene Ellis for their assistance on this work. Also I would like to thank to Iryna Piontkivska, Oleg Korenyok, Arthur Sinko and Kateryna Fonkich for their help in this work.

## **INTRODUCTION**

Private business sector is one of the important elements of the free market economies because it forms a competitive environment and flexibility of the economy, makes a significant contribution to GDP, provides sources of employment and innovation, increases the total efficiency of the economy. Business sector also plays a key role in the restructuring of former centralized economies and deregulation processes acting as an engine of development and transition to a strong market economy. Private sector is a main source of domestic investment that is needed by the transition countries to modernize their economies and thus achieve recovery and economic growth. That is why one of the indicators of the outcome of market-oriented reforms is the share of the private business sector in the economy.

What factors influence private sector economic development and the level of domestic investment in the transition countries? Of course, the differences across transition countries can be partially explained by countries' initial conditions (such as the amount of available resources and income, the degree of monopolization, etc.) and macroeconomic factors (inflation, government spending, etc.). But they are also caused by the implemented economic policies on building reliable institutions that define clearly rules of doing business and guarantee investors' property rights. We want to study this aspect of differences.



Institutions are to “create order and reduce uncertainty in exchange” (North 1991, p.5). But they themselves can add to the uncertainty faced by private sector in doing restructuring and investment decisions. The examples of institutional uncertainty related to government regulations are observed in Ukraine and other poorly performing transition countries. The property rights in these countries are weak and not secure because businesses suffer from costly government inspections, unstable tax regimes, corruption of government officials, uncertain and arbitrary court system and weak contract enforcement. Such unfavorable conditions create high risk and high cost investment environment, reduce entrepreneurs’ confidence in the future returns on their investments.

Well-defined, secure property rights are very important for economic development and economic growth, since they reduce transaction costs in production, sales and transportation, facilitates productive, trade and financial activities, allow reducing risks and thus create incentive to invest. Further, lack of durable property rights prevent long-term investment, stimulate rent-seeking activity and eliminate incentive for innovation.

Our hypothesis is that higher institutional credibility guaranteeing more secure property rights of the private entrepreneurs is associated with higher levels of private sector development in transition countries. As indicators of private sector development we use: private sector share of GDP, enterprise restructuring activities and the level of gross domestic fixed investment in transition countries. We argue that differences in these indicators of private sector’s economic development among transition countries can be explained, along with other factors, by differences in the

institutional quality and security of property rights in these countries and we test this hypothesis by conducting comparative cross-country analysis.

## **SURVEY OF LITERATURE**

Institutions and their effect on economic performance and growth are being studied by the New Institutional Economics. Neoclassical standard theory simply assumes that the needed institutional environment has already set and economic agents make their decisions within it. New Institutional Economics rejects the assumption of Neoclassical standard theory of zero transaction costs and thus states that “institutions matter”. It says that institutions contribute to the transaction costs which are in turn included into the total production costs.

New Institutional Economics can be divided into two complementary parts (Williamson, 1995). The first one is about background conditions or institutional environment – the set of fundamental political, social and legal ground rules that establishes the basis for production, exchange and distribution. Examples are rules governing elections, property rights and the right of contract. (Davis and North, 1971). The second focuses on mechanisms of governance or institutional arrangement – arrangements between economic units that govern the ways in which these units can cooperate and compete. It provide a structure within which its members can cooperate and provide a mechanism that can effect a change in laws or property rights. (Davis and North, 1971).

New Institutional Economics emphasizes the importance of institutional framework of the economy for economic growth and investment. It states that economic growth will occur if property rights make it worthwhile to undertake socially productive activity (North and Thomas, 1973).

Until recently, empirical cross-country research on the role of institutions for growth and investment has been underdeveloped. The main problem is that it is not clear how to adequately measure the quality of institutions (Brunetti, Kisunko and Weder, 1997 a). All institutional variables used in the empirical investment-growth studies can be divided into two categories: objective and subjective variables. Early papers on empirical growth and investment analysis used indirect *objective* measures of institutional quality, that is, that can be easily observable and counted. Among the objective variables used were the number of wars, coups and revolutions as proxies for political instability, standard deviations of inflation or tax income as an indicator of the instability of macroeconomic variables, etc. But such measures are rather crude and incomplete proxies of the institutional uncertainties that affect private entrepreneurs (Steele 1998). The problem of objective variables is that they measure instability and not uncertainty (Brunetti, Kisunko and Weder, 1997 a).

*Subjective variables* measure subjectively perceived uncertainty about the institutions. They also can be divided into those based on opinions of external experts or directly affected local entrepreneurs. They include factors such as the extent of corruption, the rule of law, security of property rights, etc. Recent papers have shown that such subjective institutional variables can give a better explanation of differences in economic performance across countries than objective ones because they have a greater and a more significant impact on growth and investment. Moreover, objective variables generally turn to be insignificant in the presence of significant subjective ones (Levine and Renelt, 1992). Subjective experts' evaluations of institutions quality are presented by different country risk agencies. Knack and Keefer (1995) examined the

influence of property rights security using experts' evaluations from ICRG (International Country Risk Guide) and BERI (Business Environmental Risk Intelligence) agencies on such institutional issues as: rule of law, contract enforceability, corruption in government, expropriation risk, quality of government, infrastructure quality, repudiation of contracts by government. Their study detected a robust positive relationship between these institutional variables and both growth and private investment. Mauro's investigations (1995) also confirmed the hypotheses that good institutions caused investment. He found a robust positive relationship between «bureaucratic efficiency» constructed on subjective experts' evaluations from BI (Business International) and investment.

Barro (1996) studying determinants of economic growth found that the growth rate is enhanced along with other factors by better maintenance of the rule of law (Barro 1996). He used Rule-of-Law index based on local experts evaluations to show institutional differences. Hall and Jones (1998) continued studying institutional impact on economic growth when investigating why economic performance of the countries and in particular output per worker varies so dramatically throughout the world. Standard growth theory using an aggregate production function explains such differences in economic performance by differences in human and physical accumulation and productivity. Hall and Jones (1998) then ask: "why do some countries invest more than other in human and physical capital? And why are some countries more productive than others?" (Hall and Jones, 1998, p.2). They found that differences in capital and human accumulation, productivity and hence output per worker are caused by differences in institutions and government policies (they called them "social infrastructure") which determine economic

environment within which firms accumulate capital and produce output and individuals accumulate skills (Hall and Jones 1998). Moreover they state that “the primary, fundamental determinant of a country’s long-run economic performance is its infrastructure” (Hall and Jones 1998, p.14) They use a subjective GAGP index based on ICRG data.

However, the main drawback of expert’ evaluations of institutional quality is that they can be different from those of private entrepreneurs who make investment decisions, and therefore not to represent the real situation. That is why the most recent studies began using cross-country local private entrepreneurs surveys to construct reliable measures of institutional quality. The pioneers of such practice were Brunetti, Kisunko and Weder (1997 a) who used data from a private sector survey of the World Bank Development Report 1997 to build a total credibility index and its five subindicators: predictability of laws and policies, subjective perception of political stability, security of property and persons, reliability of judiciary enforcement and corruption. For a sample of 41 countries they found that credibility was significantly associated with cross-country differences in growth rates and even more in total investment as a share of GDP (Brunetti, Kisunko and Weder, 1997 a). This suggests that “incredible institutional framework affects growth mainly by lowering the accumulation of resources” (Brunetti, Kisunko and Weder, 1997a). In particular, such subindicators as security of property and persons and predictability of laws and policies are most important for growth while lack of corruption, judiciary reliability and perceived political stability for investment.

The studies on the impact of institutions on the economic performance of the *transition countries* are of the great importance. This is because “one of

the crucial preconditions for economic transition is to build institutions that support a market system” (Brunetti, Kisunko and Weder, 1997 b). There is a set of empirical studies on this topic. As for a large world sample of 41 countries, Brunetti, Kisunko and Weder (1997 b) conducted a similar separate analysis for 18 transition countries for the period 1993-1995 and still found strong robust positive relationship between credibility institutional index as perceived by private entrepreneurs and growth and, especially, foreign direct investment.

Unclear and unsecure property rights also prevent domestic firms from investing into their economies. Simon Johnson, Jonh McMilln and Chistopher Woodruff (1999) tried to answer such question: what constraints investment decision more – insecure property rights or limited external finance. For five transition countries they found that weak property rights limit investment more than access to credit (Johnson, McMilln and Woodruff, 1999).

Empirical studies analyzed above prove that institutions play substantial role in determining economic performance and growth.

## **THEORY**

“Institutions are the rules of the game of a society or more formally are the humanly-devised constraints that structure human interaction” (North, 1991, p. 5). Institutional constraints include both what individuals are prohibited from doing and also under what conditions some individuals are permitted to undertake certain activities (North, 1991, p.7). Institutions are composed of formal rules (statute law, common law, regulations etc.), informal constraints (conventions, norms of behavior, and self-imposed codes of conduct etc.), and the enforcement characteristics of both. Formal rules are to facilitate exchange and include:

- “*political and judicial rules* that define the hierarchical structure of the polity, determine how decision making is made and control is conducted;
- *economic rules* that define property rights and the ability to alienate an asset or a resource;
- *contracts* that define specific agreement in exchange” (North, 1991, p.8).

### ***Institutions and Transaction Costs***

Institutions affect the economic performance by influencing the costs of exchange and production (North, 1991). Total costs of production consist of the *transformation costs*, costs of inputs (land, labor, capital) involved in the production of a good, and *transaction costs*, costs of defining, protecting and enforcing property rights to a good. Transaction costs in turn consist of the



costs of measuring the valuable attributes of a commodity and the costs of protecting rights and enforcing agreements (North, 1991).

Goods, services and the performance of agents have many attributes. The value of an exchange to the parties is the value of these different attributes (North 1991). But there is always asymmetric information among parties of an exchange (e.g. buyers and sellers) about different attributes of a commodity. This imperfect information requires devotion of resources and efforts to their measurement, defining rights that are transferred, enforcement of agreements and leads to positive transaction costs. Institutions through the property rights structure determine the magnitude of transaction costs. Institutional framework with well-defined property rights lessens transaction costs of production and thus lead to more productive economic outcomes.

### ***Institutions and Property Rights Structure***

The institutional framework is characterized by private property rights structure. It determines what kind of assets individual can hold, how they may exchange them and how the various rights are defended and enforced (Steele 1998).

Property rights are legally defensible claims that constitute ownership (Steinfeld 1999). Two concepts are central for the concept of property rights: “ownership” and “secure property rights”. *Ownership* implies three types of rights over an asset: rights of control, rights to income and rights of alienation.. Rights to residual income are rights to use the income generated by the property. Rights of alienation allow the owner to sell property for money, rent it or give it as a gift. Rights of control constitute the exclusivity of property (Steele 1998).

Ownership is the possession of the residual rights of control and rights to residual returns (Steinfeld 1999). Residual control means that the owner of the asset has the right to make any decisions as to that asset which are not prohibited by law or another party of contract. Residual rights to residual return means the right to any net income (income after paying taxes on returns) provided by using this asset. Property rights theory states that incentives are set optimally when residual control and rights to residual return flows are clearly specified and belong to a single individual – economic producer.

Secure property rights mean that they are clearly defined and contracts made to be enforceable (Steinfeld, 1999). On the other hand, when institutions define property rights poorly, this leads to distortion of incentives and inefficient behavior.

Property rights theory predicts also that subject to institutional constraints income and control rights to a productive asset will tend to go, through trade, to the agent most able to influence the income stream generated by an asset. However, the degree to which gains from reassigning ownership of asset can be achieved depends crucially on the institutional framework (Barzel,1989).

Property rights can be distinguished as “de jure” and “de facto” property rights. Entrepreneurs’ incentives and economic performance are determined by actual or “de facto” property rights but not by those that stated only on paper the “de jure” ones. Of course, “de facto” rights tend to be stronger when they are in agreement with “de jure” rights.

Private property rights mean exclusive control of an entrepreneur over an asset. Since property rights are not complete and defined perfectly even in the market system (Barzel, 1989, Coase, 1960), some of the dimensions or

attributes of the asset are under entrepreneur's exclusive control but others are not. Exclusivity of control implies that the asset lies in the private domain (Barzel, 1989) and holds when property rights are complete and well-defined. On the contrary, when they are incomplete and imperfectly defined there is no exclusivity any longer and asset lies in the public domain (not only one individual has access to the asset). Entrepreneurs act differently within the private and public domains. Within the private domain market processes occur and market entrepreneurship arises: entrepreneurs undertake productive activities and direct resources into uses which are most highly valued, while the public domain brings about extramarket entrepreneurship which may result in opportunistic unproductive behavior.

### ***Institutional Framework and Economic Performance***

Property rights structures differ across countries and explains differences in countries' economic performance. By defining property rights institutions form *incentives* of economic agents, in particular entrepreneurs. Incentives in turn determine entrepreneurs' behavior and their decision-making. Entrepreneurship, which is entrepreneurs' actions as to allocation of existing resources, is essential for economic growth and performance. Entrepreneurs respond systematically to incentives shaped by institutional environment within which they operate and make production and investment decisions. They decide how to employ physical and human capital and use existing level of technology for production activities.

The entrepreneurs' decision to invest or not to invest (it may be decision about creating new business or expanding and developing the existing one) usually base on cost-benefit analysis. When evaluating investment project

managers calculate and compare total costs and benefits of the project. If, for example, the project requires one-time setup cost  $C$  and it generates annual returns  $R_1, R_2, \dots, R_n$  for  $n$  years expected discounted value of which is  $\dot{I}$ , then standard neoclassical theory states the main rule for the investment decision-making - net present value (NPV) criterion: invest if the expected future cash flows from an investment ( $\dot{I}$ ) is larger than the cost of the investment ( $C$ ):  $\dot{I} > C$ ; to not invest if  $\dot{I} < C$ . That is:

$$NPV = -C + \frac{R_1}{1+r} + \frac{R_2}{(1+r)^2} + \dots + \frac{R_n}{(1+r)^n}$$

where  $r$  is the discount rate used to discount future flows of earnings. Firm should invest if  $NPR > 0$ .

The entrepreneurs' decision about investment depends on the magnitudes of  $C$  and  $\dot{I}$ , which are largely determined by institutional quality of the economy. To set up business businesses may be required by government to obtain various permits and licenses. This creates opportunity for bureaucrats to ask for additional fees and bribes which can substantially increase the costs of investment project ( $C$ ). If these costs are too high a rational manager decides not to invest at all.

Institutional arrangements also determine the magnitude of profits earned on investment. Institutions may favor productive or unproductive activities or "diversion" (Jones, 1998). Institutions that protect the output of individual assets encourage production and transaction of goods and services. Otherwise predatory behavior or diversion arises. It can be in the form of the illegal activities such as theft, corruption, rent-seeking or legal – confiscatory taxation by the government, lobbying of the government. In any case if a firm is

not protected from predation by well-defined property rights more resources will be excluded from production and directed to protection and avoidance of diversion (Jones 1998). Diversion affects business by acting like tax on the output and causes wasting of productive resources and by encouraging unproductive investment (hiring extra guards, lawyers, bribing bureaucrats) (Jones, 1998). On the contrary, effective social control and defensible property rights guarantee that productive units will receive full amount of outcome of their production. Entrepreneurs then devote more resources in physical capital (capital accumulation), in acquiring productive skills (human accumulation) and in developing new ideas and commodities (technology development) (Jones, 1998). That is, institutions that enforce property rights at a relatively low cost expands the economy's production possibility frontier (Eggertsson, 1990).

Taking into account the influence of institutional framework on the productivity of inputs, standard aggregate production function of an economy becomes:

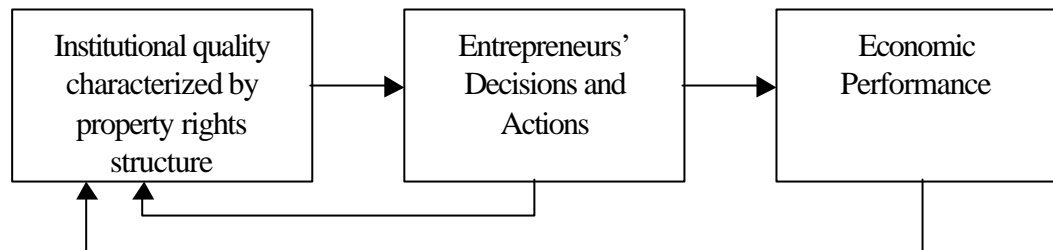
$$Y=I K^{\alpha}(h L)^{1-\alpha} ,$$

where I denotes the influence of an economy's institutional framework on the productivity of its inputs (Jones, 1998). From this formula even if economies have the same amount of K, L and h they may produce different amount of output because the institutional environment and thus incentives to produce output using those inputs is different.

To summarize, these are entrepreneurs' decisions and actions (entrepreneurship) ultimately determine the level of capital accumulation, output, and their changes in the economy, and thus economic performance

and growth. Micro-level incentive structure is crucial for economic growth and performance not the mere presence of inputs (Steele, 1998).

So we have this relationship:



The reverse relationship exists between economic performance and institutional quality signifying that institutions themselves depend on economic performance of the economies. The richer economies the better institutional quality they can afford and provide. While poor countries lack resources to build effective institutions. Also there is a reverse relationship between entrepreneurs' actions and institutions: when entrepreneurs in political and economic organization perceive that they could do better by altering the existing institutional framework then incremental institutional change occur (North 1991).

### ***The Role of Government Institutions***

Government institutions play a crucial role in establishing and enforcing the property rights structure. The quality of government institutions is determined by the efficiency and security in providing property rights. A good government provides the institutions that minimize the cost of investment project and maximize returns (Jones, 1998). At the same time government itself may be the source of diversion. Through various types of interventions into the production process and decision making of firms, government

institutions reduce private property rights exclusivity and thus reduce the private domain. For example, the investors' assets can be devalued by the government through seizure but also through a variety of control mechanisms such as taxation, input controls, operating requirements, price, output and effluent controls and other bureaucratic activities (Williamson, 1995). Because of such adverse government practices investors may adapt in different ways. They may replace more-durable assets by less-durable ones, non-mobile assets by more-mobile ones. Investors may also replace assets in more secure jurisdictions. That is, "nonredeployable investments that would be made in a secure investment regime will be supplanted by more redeployable assets and by capital flight and asset concealment. Productivity will be lost as a result" (Williamson, 1995).

The effect of uncertainty is even more important for investors if an investment is irreversible. Uncertainty makes waiting more valuable and discourages immediate investment (Dixit and Pindyck, 1994).

To summarize, the main point of our theoretical investigation is that institutional framework with well-defined and secure property rights encourage domestic investment by firms in physical and human productive capital, stimulates domestic entrepreneurship, induces innovative activities and thus improve the production possibilities of the economy.

**INSTITUTIONAL FRAMEWORK AND BUSINESS  
DEVELOPMENT IN TRANSITION COUNTRIES: DATA  
DESCRIPTION AND ANALYSIS**

Transition countries are now in the process of building new market institutions. Their quality is relatively low in all transition countries compared to developed market economies. But across transition countries themselves there are huge differences as to the implemented policies for building market-oriented institutions. Accordingly entrepreneurs' perception of the institutional framework within which they operate varies significantly across transition countries influencing their productive activities and business development.

Our analysis of impact of institutional quality on private sector development will be conducted for 16 transition countries which are on the road toward building market-based economic system and for which the data on all indicators are available in the period of 1995-1997 (see Appendix A). To overcome the problem of causality between institutional quality and



private sector activities we will focus on the average values of the private sector indicators for the period under consideration. Initial periods of transition are characterized by high macroeconomic instability and shocks that distort entrepreneurs' investment and productive incentives. So we choose the period of 1995-97 because of data availability and because most transition countries began achieving macroeconomic stability in it.

Institutional uncertainty is a broad concept and can arise from different sources of government activities. To capture different aspects of institutional quality following methodology of Brunetti, Kisunko and Weder (1997 a,b), we construct five subjective indicators of institutional quality in transition countries: Political Stability, Judiciary Predictability, Property Security, Lack of Corruption, Policy Predictability. Then to show the rate of institutional quality and security of property rights we calculate the Total Credibility Index as a simple average of five indicators.

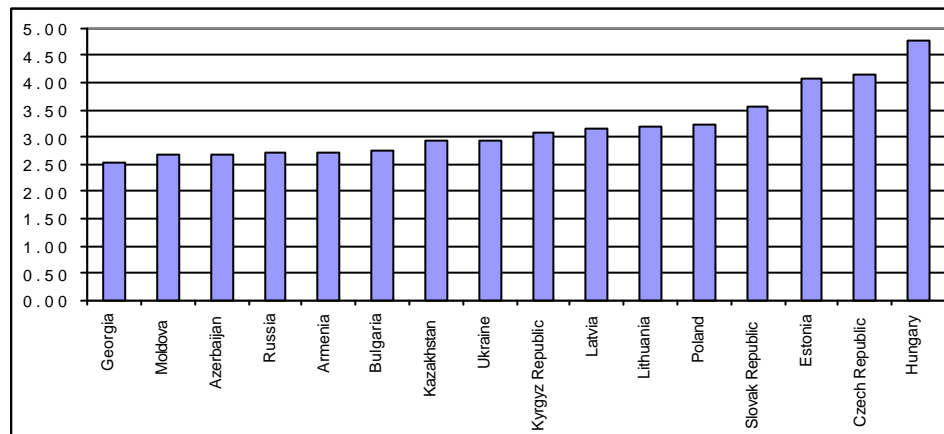
The data used for indexes are from World Development Report private sector survey which was conducted in 1997 for 69 countries and indented to capture all these kinds of institutional costs and uncertainties as they perceived by private entrepreneurs (WDR, 1997). Indexes range from 1 to 6 meaning 1 the worst state and 6 the best. Thus the more secure the institutional framework the greater the index value.

The authors of this survey point out on such possible problems as selection bias and measurement error with data collected. The local private entrepreneurs in the more advanced transition countries that have already established market institutions have stronger requirements for their quality and thus may value them lower than entrepreneurs from the less developed transition countries (WDR, 1997).

### ***Political Stability***

Changes in government may cause large administrative changes in policies that govern private sector activities and this constitutes source of institutional uncertainty. Political Stability index shows the problem faced by private enterprises with unpredictable constitutional and unconstitutional changes in government and their impact on business (WDR 1997).

Fig. 1. Political Stability Index.



Source: WDR 1997.

The greatest entrepreneurs' fear about political changes is observed in Georgia, Moldova, Azerbaijan and Russia and the least in Hungary, Czech Republic, Estonia and Slovak Republic.

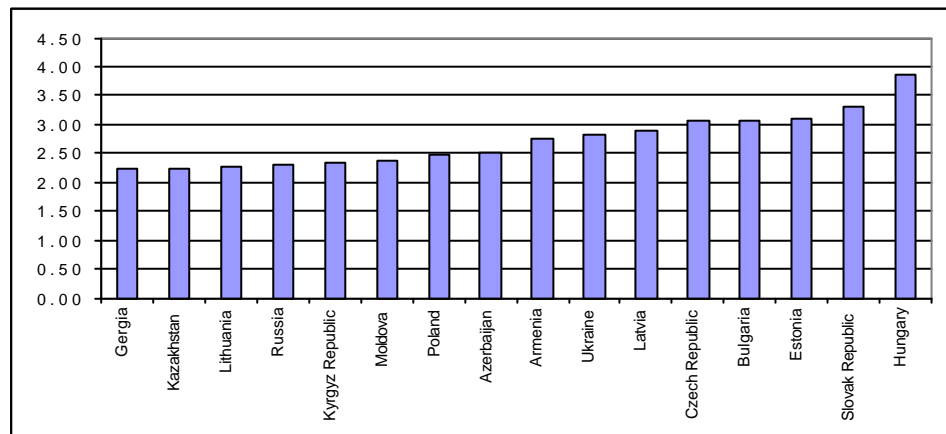
### ***Judiciary Reliability***

Many transition countries enacted legislation on private property, contracts, company organization, bankruptcy, competition, etc. But although many of these laws are legitimised, they are put only on the paper (de jure) but poorly applied and enforced in practice (WDR 1996). De facto property rights are

guaranteeing by effective reliable court system. The inability of courts to enforce contracts limits the scope of transactions, makes contracting more costly and even prevent some contracts. When entrepreneurs have little confidence in legal judiciary system they instead rely on choosing reliable partners who supply inputs and pay for their products quickly. They are suspicious of dealing with new customers and supplies and making long-term contracts which are very difficult to enforce. So lack of confidence in legal enforcement system limits firm's activities and prevent new firms from entering the market.

Judiciary Reliability index shows the uncertainty of contract rights because of arbitrary and unpredictable actions by the judiciary when enforcing their rights (WDR 1997).

Fig. 2. Judiciary Reliability.



Source: WDR 1997.

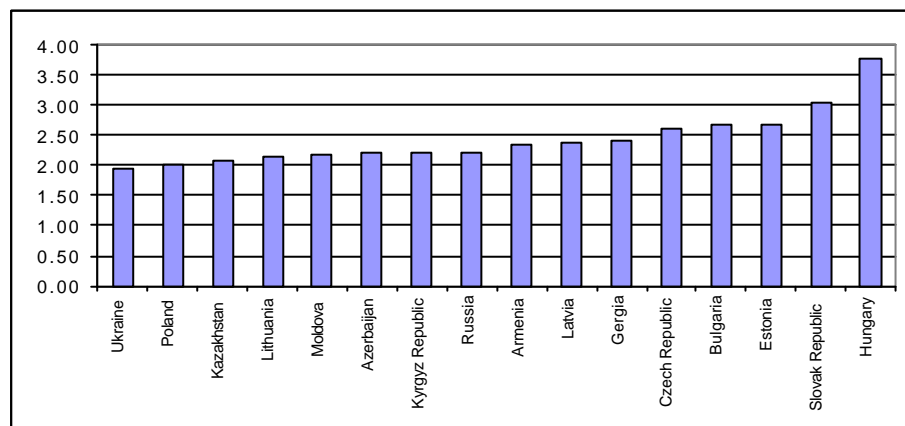
The Judiciary reliability is perceived as least available in Georgia, Kazakhstan, Lithuania and Russia while the entrepreneurs of Hungary, Estonia, Latvia and Czech Republic are less insecure in the court system.

### ***Property and Personal Security***

Private organized (mafia) and unorganized crime has grown dramatically during transition. It arose as a result of inability of corrupt police and courts to protect property and enforce contracts. Also it is a result of poorly-defined property rights and ineffective legal system create situation when the risk of punishment is low. Mafia imposes additional costs on doing business requiring protection payments from new firms and threat entrepreneurs' personal safety.

Property Security index shows how the businesses feel about security of their property because of crime and reflects entrepreneurs' confidence into the government ability to protect their business and property from criminals (WDR 1997).

Fig. 3. Property Security Index



Source: WDR 1997.

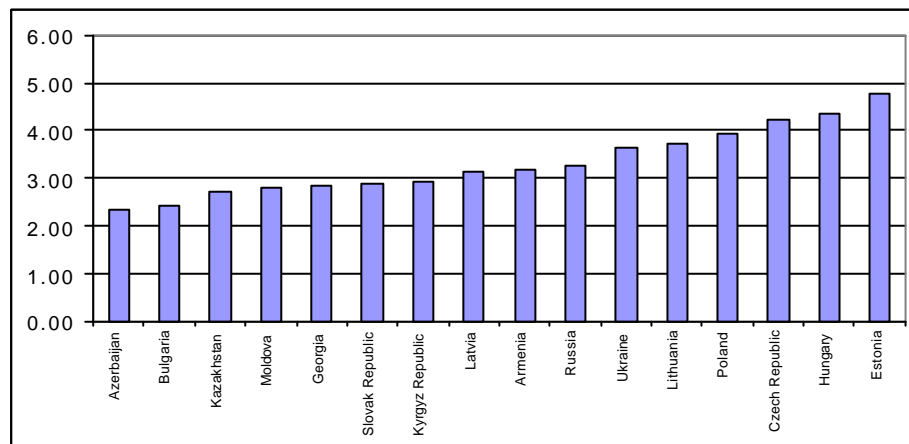
The worst situation as to perceived security of entrepreneurs' property is in Ukraine, Poland and Kazakhstan compared to Hungary, Slovak Republic and Estonia.

### ***Lack of Corruption***

Although private property rights and business may be legitimized they are subject to interference of government numerous agencies. Heavy regulation of private sector activity in transition countries gives government officials large power in influencing business performance. In addition, low official payments of government servants forces them to demand illegal payments from regulated businesses. Bribes paid to government officials can substantially increase costs of doing business and reduce rate of return on investment. This corruption burden pushes firms into shadow economy to avoid government regulations and payments.

Corruption index reflects to what extent corruption in forms of irregular “additional payments” to government officials is a problem for entrepreneurs across countries (WDR 1997).

Fig. 4. Lack of Corruption



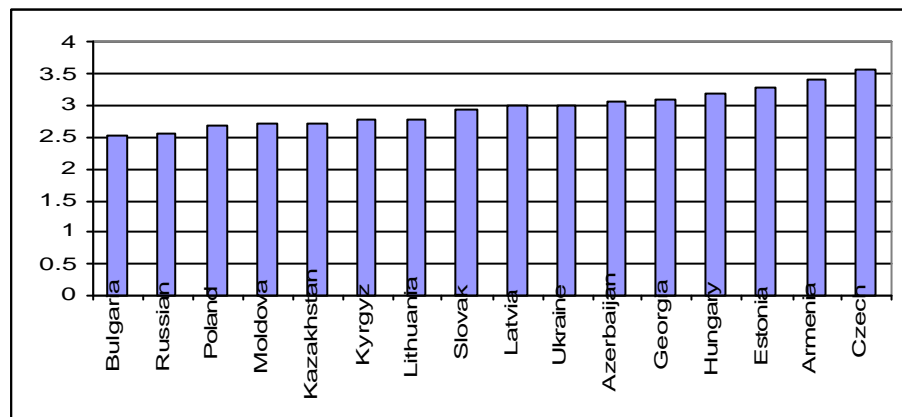
Source: WDR 1997.

Corruption in the form of paying bribes to government officials is a serious problem to the enterprises in Azerbaijan, Bulgaria, Kazakhstan and Moldova compared to Estonia, Hungary, Czech Republic and Poland.

### ***Predictability of Laws and Policies***

Government defines and enforces policies governing private sector activities. Predictability of policies index reflects uncertainty from policy and law making process of the government. It shows the extent of unexpected government changes faced by entrepreneurs (WDR 1997).

Fig. 5. Predictability of laws and policies.



Source: WDR 1997.

The results show that in the period under consideration unpredictable changes in the rules and policies were usual and severe for Bulgaria, Poland and Russia. The most favorable situation with predictability of policies across transition countries is in Czech Republic, Armenia Estonia Hungary.

### ***Total Institutional Credibility***

This index constructed as an arithmetic average of the above five indicators and represents assessment of the overall country's institutional quality as perceived by private businesses (WDR 1997).

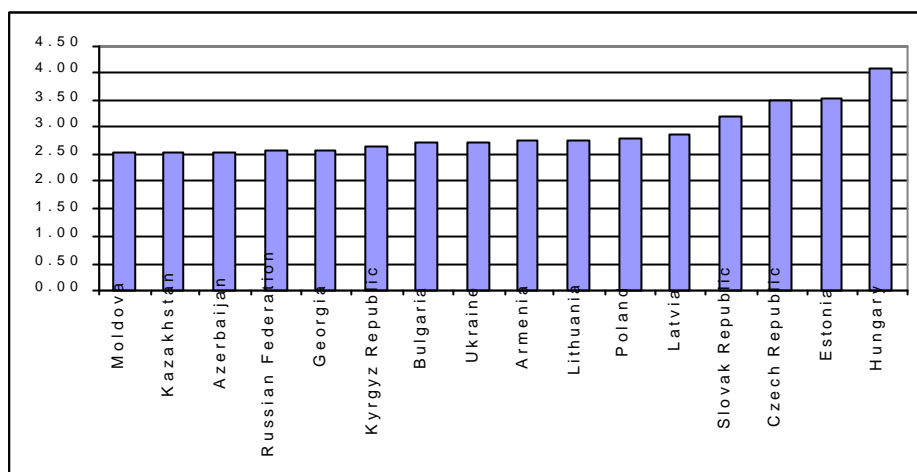


Fig. 6. Total Institutional Credibility.

Source: WDR 1997.

The firms in the transition countries as a whole do not see government and institutional environment such that can guarantee secure property rights. The most unsecure institutional framework is perceived in Moldova, Kazakhstan, Azerbaijan, Russia. The producers of Hungary, Czech Republic, Estonia and Slovak Republic feel most secure as to their property rights.

### **Private Sector Development in Transition Countries**

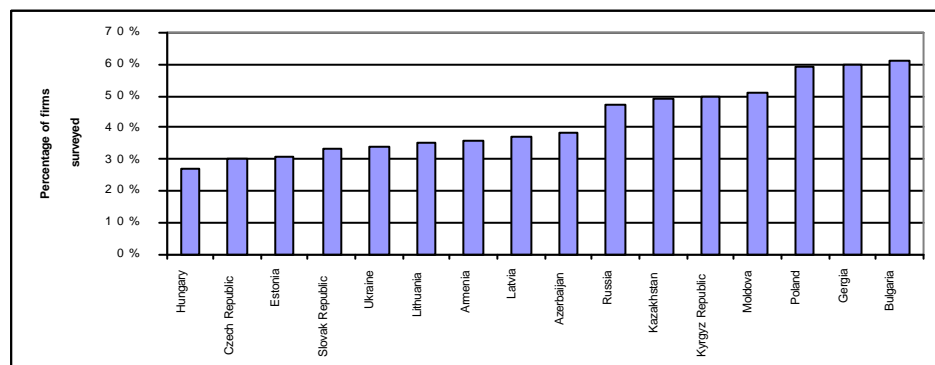
We use private sector share of GDP, enterprise restructuring activities, the level of gross domestic fixed investment and entrepreneurs' decisions on undertaking investment projects as indicators of private sector development and performance in transition countries.

#### ***Entrepreneurs' Decisions- Making on Investment Projects and Government Regulations***

Entrepreneurs will not invest if they can not keep future earnings of their investment. That is why they try to minimize costs and risk when deciding to invest or not. In addition to normal commercial risk and costs involved in the particular investment project investors take into account the total business institutional environment conditions within which they operate. Government regulations may create institutional uncertainties and costs for private investors.

By theory entrepreneurs' decisions and actions formed by quality of institutional framework are determinant for economic performance. The private sector WDR survey (1997) includes question which shows how institutional quality influence on entrepreneurs' decisions on undertaking investment projects. The question asks whether firms ever decided not to make a major investment because of problems relating to complying with government regulations.

Fig. 7. Percentage of surveyed entrepreneurs who decided not



to make investment because of government regulations

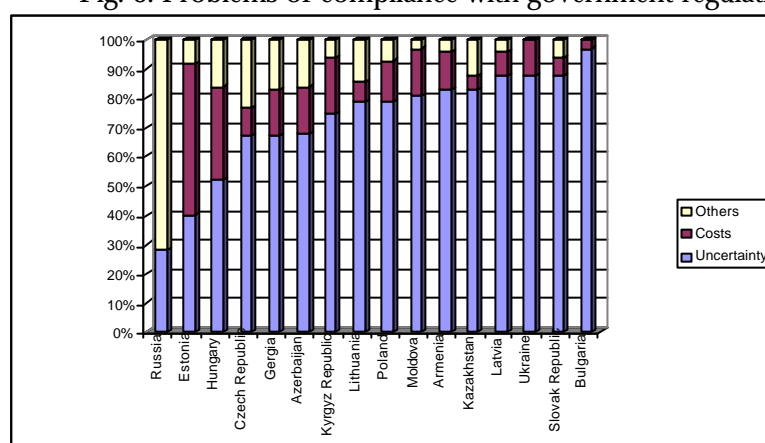
Source: WDR 1997.

As we can see the share of entrepreneurs who decided to reject investment projects because of government regulations varies notably



across countries. For example, in Bulgaria about 60 % of the surveyed entrepreneurs rejected investment while in Hungary only 30% of entrepreneurs did. Those entrepreneurs who said “yes” on this question were asked another question to detect what problems concerning compliance with government regulation hurt them the most: too high costs of compliance or too uncertain costs of compliance or other.

Fig. 8. Problems of compliance with government regulations



Source: WDR 1997.

The Fig.9 shows that on average uncertainty related to government institutions are severe problem for private sector in transition countries. The most uncertain as to government actions feel entrepreneurs from Bulgaria, Slovak Republic and Ukraine.

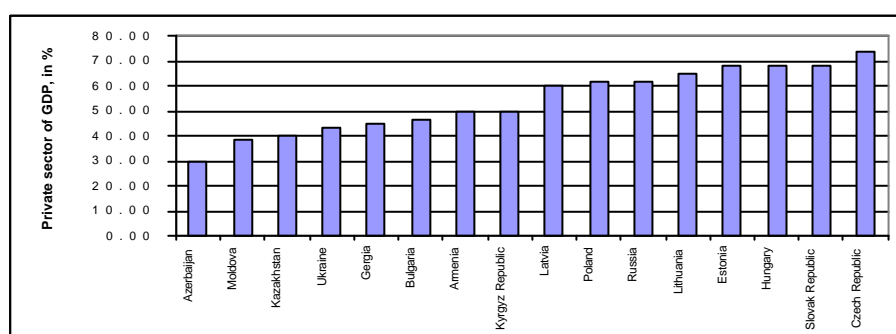
### **Private Sector Share of GDP**

The data on private sector share of GDP are taken from EBRD Transition Report (1999). These data on private sector value added include income generated by the activity of private registered companies and private firms involved in informal activity in those cases where reliable information on informal activity is available (EBRD Transition Report, 1999). They define

“private companies” as all enterprises in which a majority of the shares are owned by private individuals or entities. Because of data limitations (particularly as to the scale of informal activity) these estimates are rather rough.

Private sector share of GDP is created by privatized enterprises and new private businesses. The composition of the private sector can be different across countries as to the rate of creating of new private firms and the rate of privatization in the country. The magnitude of private sector share in the economy then can be a proxy for overall private sector development as a result of progress of market-oriented reforms in transition. New entrants are especially sensitive to the institutional environment because it may provide barriers to entry and restrict expansions of new firms, and thus constrain private sector development. Privatization reforms is also connected with institutional policies: better institutions are associated with more successful privatization progress.

Fig.9 Private sector share of GDP, average for 1995-1997.



Source: EBRD 1999.

As can be seen from the Fig. 9 private sector contribution to gross domestic product is most substantial in Czech and Slovak Republic, Hungary and Estonia during this period reflecting increasing private sector role in their

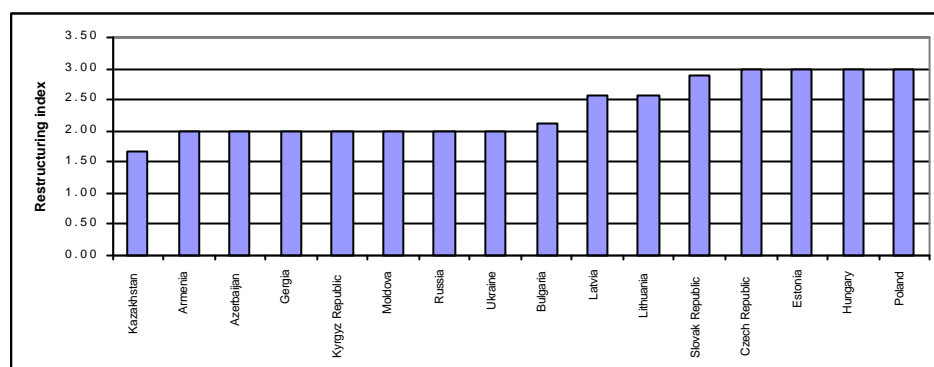
economies while in Azerbaijan, Moldova, Kazakhstan and Ukraine private sector is underdeveloped.

### ***Enterprise Restructuring***

EBRD Transition report (1999) constructs index of enterprise reform in transition countries which shows how they are proceeding in enterprise restructuring. Restructuring activities of enterprises include activities on directing resources to new uses, attracting new employees, investing in new plant and equipment and launching of new and improved products (EBRD, 1999). Restructuring reflects the results of firm's decision to take productive formal activities rather than unproductive informal ones. Firms are forced to restructure in order to survive in the market economy by attracting consumers and controlling costs. Institutional framework with well-defined property rights allow the firm feel confident about the future of their business and encourage them to conduct restructuring. On the contrary, as a response to poor institutions and in particular corruption of government officials, enterprises engage into informal activities to survive in the transition. So while formal restructuring activities require greater investment in physical and human capital to produce new goods, informal activities require greater investment in relation with local government officials (Ickes, 1999).

Enterprise restructuring index is constructed in a such way that the higher index the better private firms' performance in undertaken restructuring: it ranges from 1 (worst performance) to 4.33 (best performance).

Fig.10 Enterprise Restructuring, average for 1995-1997.



Source: EBRD 1999.

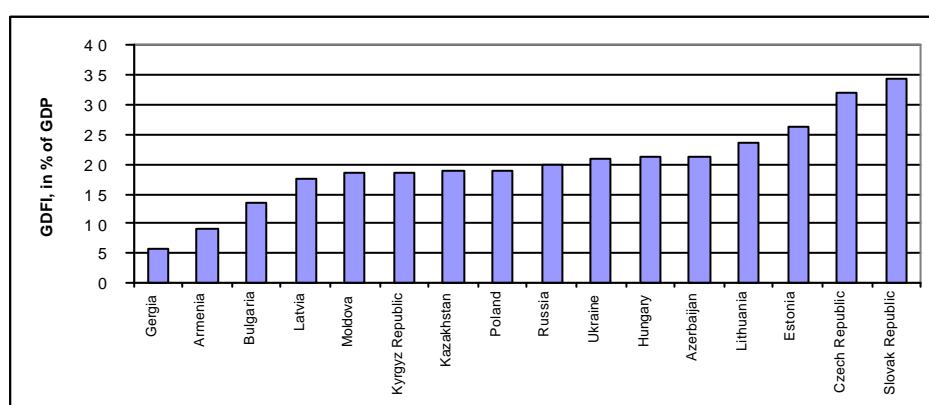
The most successful countries in restructuring are Poland, Hungary, Estonia and Czech Republic for which enterprise restructuring index is scored at 3 while for Kazakhstan it is 1.67, for Armenia, Azerbaijan, Georgia, Kyrgyz Republic, Moldova, Russia and Ukraine it equals 2.

### **Gross Domestic Fixed Investment**

The data on gross domestic fixed investment (GDFI), GDP, inflation rate, government consumption and import, export share are from World Bank Indicators (1999), which contain data till 1997 year. WDI (1999) defines gross domestic fixed investment (GDFI) as such that includes land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including commercial and industrial buildings, offices, schools, hospitals, and private residential dwellings. It contains private domestic investment and public investment (central government investment and state enterprise). Our aim is to estimate how institutional factors influence private entrepreneurs' decision to invest in their country and how these decisions are performed. So the data on private domestic investment are the most appropriate for this analysis.

Because of lack of accurate data on investment made by the emerging private sector in the transition countries we use gross fixed investment data. This creates the problem that the obtained results may be underestimated because of the differences in public investment across countries. In the low developed countries with strong role of the government the share of public investment may be larger than in less regulated advanced countries with better institutional quality. The incentives for public investment differ from private ones that are sensitive to institutional quality. Though including public investment may weaken the relationship we assume that the real trend is retained. Also these data on fixed investment contain investment into commercial and industrial buildings, offices, schools, hospitals, and private residential dwellings that is, non-productive investment. Such investment purchases are less sensitive to institutional uncertainties than productive activities. Taking into account the above we suggest that our results are qualitative showing the direction of the phenomena rather than its quantitative characteristics. The real relationship may be even stronger.

Fig.11. Gross Domestic Fixed Investment in % of GDP, averages for 1995-97



As can be seen from the Fig.11 showing GDFI as an average for 1995-97, level of domestic investment in the transition countries as a whole is rather low. In Georgia, Armenia, Bulgaria domestic investment is lowest among countries under consideration. The most successful countries in attracting domestic investors are Czech and Slovak Republic, Estonia and Lithuania.

### ***Correlation Analysis***

Our preliminary analysis of the data and correlation analysis suggest that there is rather strong correlation between the institutional quality and different indicators of economic performance in the transition countries. In fact, relatively high magnitudes of the institutional indexes usually match with greater willingness of entrepreneurs to invest domestically, higher levels of private sector development, enterprise restructuring and domestic investment in the countries such as Czech and Slovak Republic, Estonia, Lithuania, Hungary (CEE countries) while low institutional reliability in such countries as Bulgaria, Moldova, Russia relates to worse economic performance in them.

Correlation between the share of surveyed entrepreneurs who ever decided not to invest and constructed credibility index is  $-0.66$  (see Appendix C, Fig.C1) confirming rather strong negative relationship between institutional credibility and entrepreneurs' willing to make major investment projects. The correlation between private sector share and credibility index is positive and significant:  $0.74$  (see Fig. C2). It is even stronger between enterprise restructuring and institutional credibility:  $0.80$  (see Fig. C3). Correlation between domestic fixed investment and credibility index is smaller  $0.52$  (see Fig. C4). It can be explained by the fact that it consists of both private and public investment incentives for which are quite different (as we discussed

above). In two countries – Armenia and Georgia the level of investment are rather low relatively to other transition countries from the sample, but the institutional indexes are not comparatively so low. This can be explained by the fact in that period other factors (macroeconomic instability, poor external conditions) were very important in determining how much they are willing to invest and lessened the impact of institutional framework.

The correlation between actual levels of GDFI and entrepreneurs' decisions not to invest because of government regulation is negative and equals  $-0.61$  (see Fig. C5). Again Armenia and Georgia are out of general trend.

## **METHODOLOGY OF EMPIRICAL RESEARCH**

Our hypothesis is: higher institutional credibility guaranteeing security of property rights is associated with higher development and better economic performance of the private sector in the transition countries. As indicators of private sector development we use: private sector share of GDP, enterprise restructuring and the level of gross domestic investment in transition countries.

We test our hypothesis following the approach of Brunetti, Kisunko and Weder (1997). We use the similar specifications for all economic indicators: private sector share of GDP, enterprise restructuring and the level of gross domestic investment. First, we estimate regression of each private sector performance indicator on each of the five institutional indexes and total credibility index in turn. Then we add one by one other control variables that are potentially important by theory and studies, and check for robustness of the results. Because of the small sample (16 observations) we can not simultaneously control for several additional factors so to preserve degrees of freedom we include them one by one (Brunetti, Kisunko and Weder 1997, p.16).

As control variables we use: GDP per capita in the initial year (1994); Inflation rate; Openness of the economy; Government consumption in % of GDP. The data on Inflation rate, Openness of the economy, Government consumption are averages of annual aggregate national data of the three years 1995-1997. All data on control variables are taken from WDI (1999).

Including these control variables are standard for investment regressions and can be explained by investment and growth theory (Barro



1996, Levine and Renelt 1992, Brunetti, Kisunko and Weder 1997). To control for initial conditions in transition countries we include *Gross domestic product per capita* in PPP adjusted international dollars in 1994 which is a proxy for the initial income and reflects endowments of physical capital and natural resources. It is used in logarithmic form for ease of interpretation and comparability of results (because all other variables are in percentage form).

Openness, Government Consumption and Inflation Rate control for differences in the macroeconomic government policies and reflect macroeconomic conditions for private sector development. *Openness of the economy* shows the degree of openness to international trade and is calculated as a sum of import and export in % of GDP. *Government Consumption* shows the share of government spending in gross domestic product. *Inflation Rate* is a GDP deflator.

The returns on investment are also determined by stability (macroeconomic and institutional) of the economic environment within which firms operate. Instability increases risk faced by enterprises, raise discount rate on investment and thus limit investment and business development. Price variability and uncertainty creates risk for investors. Inflation is costly because business perform poorly when it is high and unpredictable (Barro, 1996). So we expect negative sign of the inflation coefficient.

The business profits and development positively depend also on the market size determined by openness of the economy to international trade. So we expect positive sign of coefficient on openness.

Government consumption effect on economic performance is ambiguous. It may constitute nonproductive outlays that do not enhance productivity and thus reduce economic performance and growth. But greater

government spending partly may be directed on enforcement of property rights and business-served infrastructure which serves private sector needs: business-incubators, municipal management centers, SMEs' unions, business consulting, training and information centers, micro-credit lines.

### **I. Private Sector Share of GDP and Institutional Quality**

Specification:

$$PRIVSHARE = a_0 + b_1 II + b_2 C + e_i \quad (1)$$

Where, *PRIVSHARE* – private sector share of GDP, which is the countries' average for 1995-1997; *II* – institutional index; *C* – a set of control variables;  $\varepsilon_i$  - random error. Control variables are: *LNGDP94* – logarithm of GDP per capita in the initial year (1994) as a proxy for initial income; Inflation rate; Openness of the economy; Government consumption in % of GDP, averages for 1995-97.

We expect positive relationship between the size of private sector share and institutional quality:  $b_1 > 0$ .

### **II. Enterprise Restructuring and Institutional Quality**

Specification:

$$RERTR = a_0 + b_1 II + b_2 C + e_i \quad (2)$$

Where *RESTR* – restructuring index, which is the countries' average of three years 1995-1997; *II* – institutional index, *C* – set of control variables;  $\varepsilon_i$  - random error. Control variables are: *LNGDP94* - logarithm of GDP per capita in the initial year (1994); Inflation rate; Openness of the economy; Government consumption, averages for 1995-97.

We expect positive relationship between restructuring of enterprises and institutional quality:  $b_1 > 0$ .

### III. Gross Domestic Fixed Investment (GDFI) and Institutional Quality

Specification:

$$GDFI = a_0 + b_1 II + b_2 C + b_3 DUM + e_i \quad (3)$$

Where, *GDFI* – Gross domestic fixed investment as % of GDP, which is the countries' averages for 1995-1997 ; *II* – institutional index, *C* – set of control variables; *DUM* – dummy variable (1 – if country is Armenia or Georgia, 0 - otherwise);  $\varepsilon_i$  - random error. Control variables: *LNGDP94* – logarithm of GDP per capita in the initial year (1994); Inflation rate; Openness of the economy; Government Consumption, averages for 1995-97.

We expect positive relationship between the size of private sector share and institutional quality:  $b_1 > 0$ .

### IV. Entrepreneurs' Investment Decisions and Institutional Quality

Specification:

$$IDEC = a_0 + b_1 II + b_2 C + e_i \quad (4)$$

where *IDEC* – percentage of surveyed entrepreneurs that ever decided not to make investment because of problems with government regulations, *II* – institutional indicator of government-created uncertainty; *C* - control variable,  $\varepsilon_i$  - random error. As a control variable we use index that measures the amount of management's time spent on negotiation with government officials, that is, "time tax" that constitutes the cost of government regulations. This index is from WDR survey (1997) (question 21) and it ranges from 1 (worst) to 6 (best): the greater the index the less time tax is. We expect negative

relationship between institutional indexes and regulation cost index with the amount of firms that rejected investment:  $\beta_1 < 0$ ,  $\beta_2 < 0$ .

By using the above methodology of empirical analysis such problems arise:

- small sample size – we cannot rely on asymptotic properties of estimators;
- data on institutional quality are subjective estimates implying possible measurement errors;
- dependent variables are proportions, that is limited dependent variables so using OLS in this case involves problem of heteroscedasticity that makes coefficients inefficient. To overcome this problem in the model (4) we use weighted least squares procedure<sup>1</sup>. But for other models we can not use this technique because of unavailability of the necessary data for construction the weight.
- the problem of endogeneity between institutional quality and economic performance. To lessen this problem we use average values of the dependent and control variables for 1995-97. The survey questions ask about present situation and situation 5 years ago in transition countries. So we construct institutional indexes by taking averages of present and earlier values of indicators.
- the problem of multicollinearity between income (GDP per capita) and institutional variables because initially higher-income transition countries had possibility better institutions.

In the end, according to our theoretical question: relation between institutional quality and private sector activity we want to see using

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<sup>1</sup> We use as a weight  $\frac{1}{n_i \hat{P}_i (1 - \hat{P}_i)}$ , where  $n_i$  – number of surveyed firms in country  $i$ .

econometric analysis whether there is measurable effect of institutions on entrepreneurship and if it exist what is the direction of this effect. That is, our aim is to identify broad qualitative patterns of this relation but not precisely quantify it. Because to do the latter we would need much disaggregated micro data and more complicated models. We are trying to see whether our findings support theoretical arguments that “institutions matter” for private sector development.

So we will use linear models to test this our hypothesis. According to Johnston and Dinardo (1997) a linear approach to estimating coefficients is adequate if one is simply interested in their signs. (Johnston and Dinardo, 1997).

## RESULTS DISCUSSION

The model specifications (1), (2), (3), (4) have been estimated for 16 transition countries for period of 1995-1997. The estimation results are presented in Appendixes D, E, F, G respectively.

### ***I. The effect of Institutional Quality on Private Sector Share***

The signs of all institutional variables in each specification are positive as they were expected signifying positive relationship between institutional reliability and private sector development (see Appendix D).

The coefficients of total credibility index in all specifications turned out to be statistically significant on the conventional levels of significance (see Tab. D1). It is highly significant (at 1%) in the single regression (1) when we regress private sector share of GDP on Credibility index. Then when we check for robustness the coefficient of credibility index become smaller but still significant. For example, in specification (2) when controlling for GDP per capita coefficient number and its significance lessens (significant at 10%) and this can be explained by the existence of multicollinearity between the income and institutional variables. Specification with both credibility index and initial income explains percent of cross-country variation in Private sector share.

Institutional subindicators also turned out to be significant in almost all specifications. The most significant (at 1%) are Political Stability and Lack of corruption indexes reflecting strong positive relation between these institutional indicators and the level of private sector activities. The coefficients of Judiciary Reliability and Property Security are less statistically significant (at 5 and 10%) and even become insignificant when controlling for

GDP per capita. Only Predictability of Laws and Policies index although has a positive sign but is statistically insignificant at conventional levels. These results show that the predictability of policies is not closely associated with private sector share.

## ***II. The effect of Institutional Quality on Enterprise Restructuring***

The signs of all institutional variables in each specification are positive as they were expected signifying positive relationship between institutional quality and enterprise restructuring (see Appendix E).

The total credibility index is highly statistically significant (at 1 or 5%) in all specifications estimated reflecting robust relationship.

Other institutional variables also turned out to be highly statistically significant. Political Stability, Lack of Corruption and Judiciary Reliability are very closely positively associated with enterprise restructuring activities (at 1 and 5 %). Property Security is also statistically significant, but to less extent. Predictability of laws and policies index is again not statistically significant.

## ***III. The effect of Institutional Quality on the level of Gross Domestic Fixed Investment***

The signs of all institutional variables in each specification are positive as they were expected signifying positive relationship between institutional quality and Gross Domestic Fixed Investment (see Appendix F).

We found statistically significant positive impact of total credibility index on the level of GDFI in most specifications used as it is predicted by the theory (see Tab. F1). It has the greatest explanatory power in explaining differences in the levels of GDFI across countries.

It appears that both Predictability of laws and policies variable (see Table F6) and Political Stability (see Table F2) have positive significant impact on domestic investment in the countries under consideration. Lack of Corruption indicator are less significant and Judiciary Reliability and Property Security turned out to be statistically insignificant at the conventional levels, they are not closely associated with the levels of domestic investment in the countries under consideration.

As to the control variables the initial per capita income in all specifications has the positive sign and tends to be most significant among all control variables used indicating the importance of initial conditions (higher private sector development is closely associated with higher initial income). Inflation has the expected negative sign and tends to be significant at the conventional levels (at 5 and 10%) in the private sector and restructuring regressions meaning that price instability distort private sector economic performance and has great impact on economic performance of transition countries in considered period. Government consumption variable has the positive sign in all specifications and tends to be significant in enterprise restructuring and domestic investment regressions. Openness of the economy has the expected positive sign but is mostly insignificant in specifications used.

The coefficients of dummy variable (1 - when the country is Armenia or Georgia, 0 – otherwise) in all specifications have negative sign and are highly significant. This justifies our hypothesis that for these countries other factors along with institutional ones have significant impact on their levels of domestic investment.



#### ***IV. The effect of Institutional Quality on Entrepreneurs' Decisions to Make Investment Projects***

In all specifications used the signs of all institutional variables are negative as they were expected signifying negative relationship between institutional reliability and share of surveyed firms that rejected investment projects because of government regulations (see Appendix D). The coefficients of total credibility index and institutional subindicators: Policy Stability, Judiciary Reliability, Lack of Corruption and Predictability of laws and policies appear to be highly significant at the 1 percent level in the single regressions. Only Property Security index is significant at 10 % level in the single regression.

When controlling for regulation time costs the credibility index is still significant (at 10%), Predictability of Policies is significant at 5% level. Political Stability becomes less significant (p-value=11%). Lack of corruption index becomes insignificant. This can be explained by multicollinearity between corruption of government officials and time spent in negotiating with them.

## **CONCLUSION**

The purpose of this work is to study the relationship between institutional quality and property rights structure as they are perceived by private entrepreneurs and private sector development in transition countries.

On the basis of WDR private sector survey data we constructed five different subjective institutional indicators that characterize different dimensions of institutional quality as it is perceived by private entrepreneurs: Political Stability, Judiciary Reliability, Property Security, Lack of Corruption and Predictability of laws and policies. Then we construct total credibility index which shows the degree of perceived property rights security in transition countries under consideration. The data analysis that on average in CEE countries with more successful private sector development entrepreneurs feel more secure as to their property rights compared to CIS countries. Empirical findings of this work confirm the hypothesis that institutional quality, and especially institutional reliability, helps to explain the differences in private sector development, enterprise restructuring and investment activities in the sample of 16 transition countries for which

comparable data were available, in particular differences in private sector share in GDP as an indicator of transition progress and private sector development; enterprise restructuring as an indicator of willingness of private firms to undertake productive activities and domestic investment across transition countries; gross domestic fixed investment as a share of GDP. We found that credibility index is closely positively associated with all indicators of economic performance used. Specifically, we found that political stability and lack of corruption have strong explanatory power of countries' differences in private sector development and enterprise restructuring. For domestic investors, our results suggest that Predictability of laws and policies and Political Stability are essential in their decision-making. Our results proved to be robust to the inclusion of control variables, among them initial income has the greatest impact on economic performance.

From our findings such policy recommendations can be made: if the government aims to encourage private firms undertake productive restructuring activities and to attract domestic investors to make investment into their country and thus promote private sector development and economic growth then private investors should be given well-defined and secure property rights. Good institutions implying secure property rights can be achieved by such policies:

First of all, government should guarantee to domestic investors that political changes will not induce large administrative changes which would affect significantly policies toward; heavy government intervention into business activities should be reduced to reduce the harmful impact of corruption on investment decision; government should be predictable and stick in implementing policies and laws which determine the rules for doing

business; entrepreneurs should be confident that courts have the power and capacity to judge objectively in enforcing their contracts; government should guarantee property and personal security of businesses.

To sum up, our main results are consistent with our hypothesis and can be represented by such statements:

- This work provides another piece of evidence that “institutions matter” for private sector development in transition countries;
- Perceived institutional credibility measures help to explain differences in private sector development across transition countries;
- Differences in the success in building reliable institutions contribute to differences in private sector development in transition countries;
- Better institutional quality which implies more secure property rights of private firms along with other factors (initial income and macroeconomic policies) is strong determinant of better economic performance of private sector in transition countries under consideration. An unreliable institutional framework that causes insecurity of property and contract rights is a big obstacle for doing business and making investment.



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## APPENDICES

### Appendix A. List of Surveyed Countries

Country Name	Number of firms surveyed in WDR 1997
<b>Commonwealth of Independent States (CIS)</b>	
Armenia	83
Azerbaijan	50
Georgia	91
Kazakhstan	91
Kyrgyz Republic	80
Moldova	63
Russia	60
Ukraine	51
<b>Central and Eastern Europe (CEE)</b>	
Bulgaria	49
Czech Republic	75
Estonia	82
Hungary	102
Latvia	71
Lithuania	46
Poland	53
Slovak Republic	49
Mean	68
Total	1096

Appendix B. Data

Table B 1. Institutional Indexes

Country name	Predictability of Policies	Political Stability	Judiciary Reliability	Property Security	Lack of Corruption	Credibility Index
Armenia	3.42	2.73	2.93	2.33	3.16	2.77
Azerbaijan	3.06	2.69	2.52	2.2	2.36	2.53
Bulgaria	2.51	2.77	2.39	2.68	2.44	2.70
Czech Republic	3.56	4.16	2.96	2.59	4.25	3.48
Estonia	3.29	4.08	3.27	2.68	4.77	3.52
Gergia	3.07	2.52	2.66	2.41	2.83	2.57
Hungary	3.17	4.76	3.65	3.77	4.37	4.07
Kazakhstan	2.73	2.92	2.03	2.06	2.71	2.52
Kyrgyz Republic	2.76	3.07	2.16	2.21	2.91	2.65
Latvia	3	3.2	2.28	2.16	3.71	2.87
Lithuania	2.76	3.16	3.08	2.38	3.14	2.78
Moldova	2.71	2.68	2.15	2.16	2.79	2.51
Poland	2.7	3.21	2.44	2.03	3.94	2.80
Russia	2.53	2.72	2.22	2.22	3.25	2.57
Slovak Republic	2.92	3.57	2.92	3.05	2.9	3.19
Ukraine	3	2.92	2.68	1.93	3.65	2.74

Source: WDR 1997.

Notes to the table Institutional subindicators are arithmetic averages of their values in 1997 and 1992 (5 years before). Credibility index is an arithmetic average of all institutional subindicators.

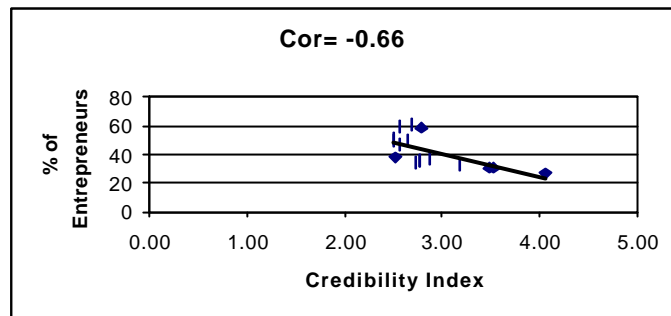
Table B 2. Indicators of private sector economic performance, averages for  
1995-1997

	Entrepreneurs' Decision	Private Sector Share	Enterprise Restructuring	GDFI
<b>Unit of measurement</b>	% of firms	% of GDP	Index	% of GDP
Armenia	36.00	50.00	2.00	9.09
Azerbaijan	38.00	30.00	2.00	21.21
Bulgaria	61.00	46.67	2.11	13.39
Czech Republic	30.00	73.33	3.00	32.17
Estonia	31.00	68.33	3.00	26.39
Gergia	60.00	45.00	2.00	5.72
Hungary	27.00	68.33	3.00	21.17
Kazakhstan	49.00	40.00	1.67	18.84
Kyrgyz Republic	50.00	50.00	2.00	18.64
Latvia	37.00	60.00	2.56	17.53
Lithuania	35.00	65.00	2.56	23.47
Moldova	51.00	38.33	2.00	18.45
Poland	59.00	61.67	3.00	18.86
Russia	47.00	61.67	2.00	20.06
Slovak Republic	33.00	68.33	2.89	34.32
Ukraine	34.00	43.33	2.00	20.76
<b>Source</b>	WDR 1997	EBRD Transition Report 1999	EBRD Transition Report 1999	WDI 1999

*Notes to the table* all numbers are arithmetic averages for years 1995-1997.

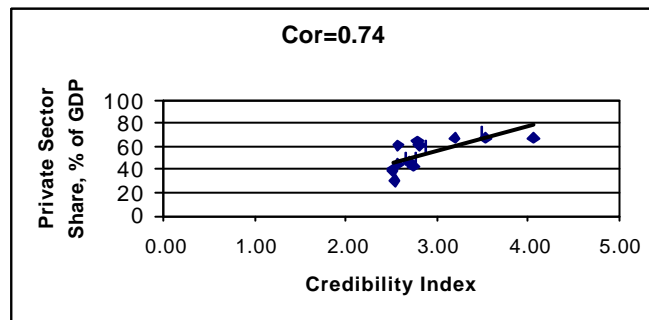
**Appendix C** Institutional Quality and Private Sector Performance: Correlation Analysis.

Fig. C 1. Entrepreneurs' Decision not to Make Investment and Institutional Credibility.



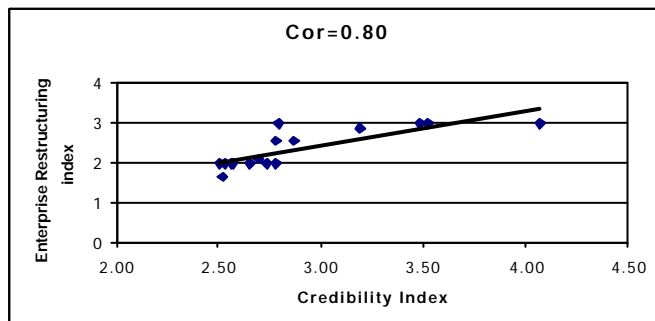
Source: WDR 1997.

Fig. C 2. Private Sector Share of GDP and Institutional Credibility.



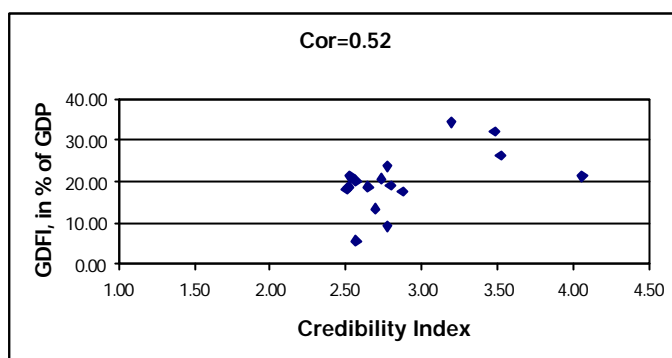
Source: WDR 1997 and EBRD Transition Report 1999.

Fig. C 3. Enterprise Restructuring and Institutional Credibility.



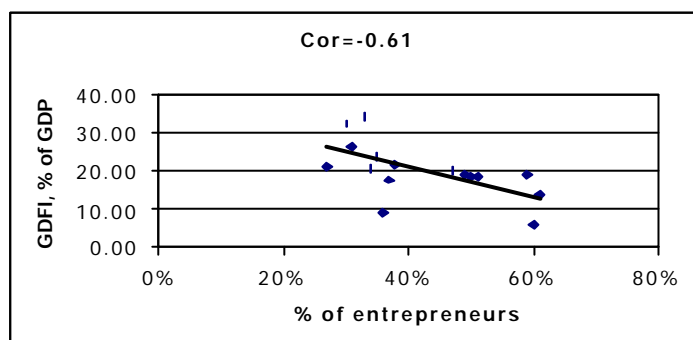
Source: WDR 1997 and EBRD Transition Report 1999.

Fig. C 4. Gross Domestic Fixed Investment as a Share of GDP and Institutional Credibility.



Source: WDR 1997 and WDI 1999.

Fig. C 5. Gross Domestic Fixed Investment as a Share of GDP and Entrepreneurs' Decision not to Make Investment



Source: WDR 1997 and WDI 1999.

## Appendix E. Estimated Regressions Results: Private sector share as a share of GDP

Table E1. Private sector share and Total Credibility Index

OLS regression;

Dependent variable: Private sector share in % of GDP;

Number of observations: 16.

	1	2	3	4	5
<b>Credibility</b>	<b>21.54</b>	<b>10.74</b>	<b>18.25</b>	<b>20.96</b>	<b>20.34</b>
	<i>4.12</i>	<i>1.86</i>	<i>3.54</i>	<i>3.53</i>	<i>3.97</i>
LNGDP94		13.24			
		<i>2.79</i>			
Inflation			-0.04		
			<i>-1.85</i>		
Openness				0.02	
				<i>0.24</i>	
Gov. Consumption					0.51
					<i>1.41</i>
Constant	-7.93	-84.23	4.88	-8.00	-12.84
	<i>-0.52</i>	<i>-2.80</i>	<i>0.31</i>	<i>-0.51</i>	<i>-0.85</i>
R squared	0.55	0.72	0.64	0.55	0.61
F-statistic	16.96	16.47	11.64	7.94	10.07

Note: t-statistic in italics.

Table E2. . Private sector share and Political Stability.

OLS regression;

Dependent variable: Private sector share in % of GDP;

Number of observations: 16.

	1	2	3	4	5
<b>Political Stability</b>	<b>15.50</b>	<b>7.54</b>	<b>13.11</b>	<b>15.26</b>	<b>14.55</b>
	<i>4.29</i>	<i>1.69</i>	<i>3.41</i>	<i>3.69</i>	<i>3.99</i>
LNGDP94		12.83			
		<i>2.48</i>			
Inflation			-0.04		
			<i>-1.45</i>		
Openness				0.01	
				<i>0.14</i>	
Gov. Consumption					0.43
					<i>1.18</i>
Constant	4.86	-73.94	15.19	4.64	0.80
	<i>0.41</i>	<i>-2.22</i>	<i>1.13</i>	<i>0.38</i>	<i>0.07</i>
R squared	0.57	0.71	0.63	0.57	0.61
F-statistic	18.41	15.65	10.97	8.57	10.16

Note: t-statistic in italics.

Table E3. Private sector share and Judiciary Reliability.  
 OLS regression;  
 Dependent variable: Private sector share in % of GDP;  
 Number of observations: 16.

	1	2	3	4	5
<b>Judiciary</b>	<b>14.35</b>	<b>1.61</b>	<b>14.43</b>	<b>12.55</b>	<b>12.90</b>
<b>Reliability</b>	<b>2.25</b>	<b>0.28</b>	<b>2.83</b>	<b>1.74</b>	<b>2.04</b>
LNGDP94		18.32 3.72			
Inflation			-0.07 -2.98		
Openness				0.06 0.59	
Gov. Consumption					0.58 1.25
Constant	15.27 0.87	-98.86 -2.98	20.53 1.44	14.71 0.81	9.35 0.52
R squared	0.26	0.64	0.56	0.28	0.34
F-statistic	5.04	11.76	8.39	2.57	3.40

Note: t-statistic in italics.

Table E4. Private sector share and Property Security.  
 OLS regression;  
 Dependent variable: Private sector share in % of GDP;  
 Number of observations: 16.

	1	2	3	4	5
<b>Property Security</b>	<b>14.66</b>	<b>4.19</b>	<b>13.10</b>	<b>13.07</b>	<b>15.51</b>
	<b>2.26</b>	<b>0.79</b>	<b>2.35</b>	<b>1.95</b>	<b>2.61</b>
LNGDP94		17.35 0.00			
Inflation			-0.06 -2.51		
Openness				0.09 0.98	
Gov. Consumption					0.83 1.93
Constant	18.79 1.17	-96.75 -3.02	27.52 1.95	14.33 0.86	3.02 0.18
R squared	0.27	0.66	0.51	0.32	0.43
F-statistic	5.10	12.52	6.67	3.02	4.91

Note: t-statistic in italics.

Table E5. Private sector share and Lack of Corruption.

OLS regression;

Dependent variable: Private sector share in % of GDP;

Number of observations: 16.

	1	2	3	4	5
<b>Lack of</b>	<b>13.58</b>	<b>7.88</b>	<b>11.49</b>	<b>12.91</b>	<b>12.83</b>
<b>Corruption</b>	<b>4.18</b>	<b>2.70</b>	<b>3.10</b>	<b>3.67</b>	<b>3.61</b>
LNGDP94		13.37 <i>3.49</i>			
Inflation			-0.03 <i>-1.14</i>		
Openness				0.04 <i>0.58</i>	
Gov. Consumption					0.24 <i>0.60</i>
Constant	9.25 <i>0.84</i>	-80.43 <i>-2.98</i>	18.51 <i>1.36</i>	7.42 <i>0.63</i>	7.80 <i>0.68</i>
R squared	0.56	0.77	0.60	0.57	0.57
F-statistic	17.47	21.83	9.57	8.49	8.52

Note: t-statistic in italics.

Table E6. Private sector share and Predictability of Laws and Policies

OLS regression;

Dependent variable: Private sector share in % of GDP;

Number of observations: 16.

	1
<b>Predictability</b>	<b>12.12</b> <b>1.12</b>
Constant	18.24 <i>0.56</i>
R squared	0.08
F-statistic	1.25

Note: t-statistic in italics.



## Appendix F. Estimated Regression Results: Enterprise Restructuring

Table F1. Enterprise Restructuring and Total Credibility

OLS regression;

Dependent variable: Enterprise Restructuring index;

Number of observations: 16.

	1	2	3	4	5
<b>Credibility</b>	<b>0.86</b>	<b>0.62</b>	<b>0.79</b>	<b>0.81</b>	<b>0.80</b>
	<b>5.06</b>	<b>2.87</b>	<b>4.41</b>	<b>4.27</b>	<b>5.26</b>
LNGDP94		0.29			
		1.67			
Inflation			-0.01		
			-1.19		
Openness				0.01	
				0.60	
Gov.					0.02
Consumption					2.18
Constant	-0.12	-1.82	0.16	-0.13	-0.35
	<i>-0.24</i>	<i>-1.62</i>	<i>0.30</i>	<i>-0.25</i>	<i>-0.77</i>
R squared	0.65	0.71	0.68	0.66	0.74
F-statistic	25.65	15.82	13.89	12.4	18.62

Note: t-statistic in italics.

Table F2. Enterprise Restructuring and Political Stability.

OLS regression;

Dependent variable: Enterprise Restructuring index;

Number of observations: 16.

	1	2	3	4	5
<b>Political Stability</b>	<b>0.62</b>	<b>0.48</b>	<b>0.58</b>	<b>0.60</b>	<b>0.58</b>
	<b>5.49</b>	<b>2.98</b>	<b>4.57</b>	<b>4.63</b>	<b>5.41</b>
LNGDP94		0.23			
		1.25			
Inflation			-0.01		
			-0.71		
Openness				0.01	
				0.47	
Gov. Consumption					0.02
					1.90
Constant	0.37	-1.07	0.54	0.35	0.18
	<i>1.00</i>	<i>-0.89</i>	<i>1.21</i>	<i>0.91</i>	<i>0.51</i>
R squared	0.68	0.72	0.69	0.69	0.75
F-statistic	30.11	16.45	14.78	14.31	19.64

Note: t-statistic in italics.

Table F3. Enterprise Restructuring and Judiciary Reliability.

OLS regression;

Dependent variable: Enterprise Restructuring index;

Number of observations: 16.

	1	2	3	4	5
<b>Judiciary</b>	<b>0.66</b>	<b>0.34</b>	<b>0.66</b>	<b>0.58</b>	<b>0.60</b>
<b>Reliability</b>	<b>3.14</b>	<b>1.49</b>	<b>3.78</b>	<b>2.48</b>	<b>3.01</b>
LNGDP94		0.46 <i>2.40</i>			
Inflation			-0.01 <i>-2.67</i>		
Openness				0.01 <i>0.77</i>	
Gov. Consumption					0.03 <i>1.73</i>
Constant	0.57 <i>0.99</i>	-2.31 <i>-1.78</i>	0.73 <i>1.50</i>	0.55 <i>0.93</i>	0.31 <i>0.56</i>
R squared	0.41	0.59	0.62	0.44	0.52
F-statistic	9.85	9.47	10.66	5.04	7.13

Note: t-statistic in italics.

Table F4. Enterprise Restructuring and Property Security.

OLS regression;

Dependent variable: Enterprise Restructuring index;

Number of observations: 16.

	1	2	3	4	5
<b>Property</b>	<b>0.59</b>	<b>0.28</b>	<b>0.54</b>	<b>0.52</b>	<b>0.63</b>
<b>Security</b>	<b>2.57</b>	<b>1.28</b>	<b>2.59</b>	<b>2.24</b>	<b>3.24</b>
LNGDP94		0.51 <i>2.81</i>			
Inflation			0.01 <i>-1.95</i>		
Openness				0.01 <i>1.35</i>	
Gov. Consumption					0.04 <i>2.59</i>
Constant	0.93 <i>1.64</i>	-2.50 <i>-1.91</i>	1.19 <i>2.23</i>	0.72 <i>1.26</i>	0.24 <i>0.44</i>
R squared	0.32	0.58	0.47	0.40	0.55
F-statistic	6.63	8.88	5.88	4.41	8.02

Note: t-statistic in italics.

Table F5. Enterprise Restructuring and Lack of Corruption  
 OLS regression;  
 Dependent variable: Enterprise Restructuring index;  
 Number of observations: 16.

	1	2	3	4	5
<b>Lack of Corruption</b>	<b>0.50</b>	<b>0.34</b>	<b>0.47</b>	<b>0.46</b>	<b>0.46</b>
	<b>4.27</b>	<b>2.76</b>	<b>3.36</b>	<b>3.71</b>	<b>3.64</b>
LNGDP94		0.39			
		<i>2.41</i>			
Inflation			0.01		
			<i>-0.51</i>		
Openness				0.01	
				<i>1.04</i>	
Gov. Consumption					0.01
					<i>1.05</i>
Constant	0.69	-1.90	0.85	0.58	0.60
	<i>1.73</i>	<i>-1.68</i>	<i>1.65</i>	<i>1.39</i>	<i>1.48</i>
R squared	0.57	0.70	0.57	0.60	0.60
F-statistic	18.23	15.14	8.76	9.7	9.73

Note: t-statistic in italics.

Table F6. Enterprise Restructuring and Predictability.  
 OLS regression;  
 Dependent variable: Enterprise Restructuring index;  
 Number of observations: 16.

	1
<b>Predictability</b>	<b>0.60</b>
	<b>1.55</b>
Constant	0.59
	<i>0.51</i>
R squared	0.15
F-statistic	2.41

Note: t-statistic in italics.

## Appendix G. Estimated Regression Results: Gross Domestic Fixed Investment.

Table G1. Gross Domestic Fixed Investment as a Share of GDP and Total Credibility.  
 OLS regression;  
 Dependent variable Gross Domestic Fixed Investment as a Share of GDP;  
 Number of observations: 16.

	1	2	3	4	5
<b>Credibility</b>	<b>6.60</b>	<b>4.39</b>	<b>5.16</b>	<b>5.44</b>	<b>6.24</b>
	<i>2.34</i>	<i>1.15</i>	<i>1.77</i>	<i>1.80</i>	<i>2.24</i>
LNGDP94		3.02			
		<i>0.86</i>			
Inflation			-0.02		
			<i>-1.37</i>		
Openness				0.04	
				<i>1.04</i>	
Gov. Consumption					0.25
					<i>1.22</i>
Dummy	-12.73	-10.97	-13.26	-11.32	-11.10
	<i>-3.44</i>	<i>-2.58</i>	<i>-3.68</i>	<i>-2.88</i>	<i>-2.87</i>
Constant	2.52	-15.84	8.10	1.57	-0.80
	<i>0.30</i>	<i>-0.69</i>	<i>0.90</i>	<i>0.19</i>	<i>-0.09</i>
R squared	0.62	0.64	0.67	0.65	0.66
F-statistic	10.61	7.17	8.17	7.47	7.84

Note: t-statistic in italics.

Table G2. Gross Domestic Fixed Investment as a Share of GDP and Political Stability.  
 OLS regression;  
 Dependent variable: Gross Domestic Fixed Investment as a Share of GDP;  
 Number of observations: 16.

	1	2	3	4	5
<b>Political Stability</b>	<b>4.93</b>	<b>3.34</b>	<b>3.72</b>	<b>4.13</b>	<b>4.67</b>
	<i>2.38</i>	<i>1.18</i>	<i>1.60</i>	<i>1.89</i>	<i>2.28</i>
LNGDP94		2.93			
		<i>0.84</i>			
Inflation			-0.02		
			<i>-1.11</i>		
Openness				0.05	
				<i>1.11</i>	
Gov. Consumption					0.25
					<i>1.23</i>
Dummy	-11.17	-9.96	-12.11	-9.92	-9.62
	<i>-2.89</i>	<i>-2.39</i>	<i>-3.09</i>	<i>-2.49</i>	<i>-2.41</i>
Constant	5.63	-13.27	10.82	3.77	2.13
	<i>0.81</i>	<i>-0.56</i>	<i>1.30</i>	<i>0.53</i>	<i>0.29</i>
R squared	0.62	0.64	0.66	0.66	0.67
F-statistic	10.76	7.24	7.71	7.72	7.95

Note: t-statistic in italics.  
 Dummy variable: 1 – if country is Armenia or Georgia, 0 – otherwise.

Table G3. Gross Domestic Fixed Investment as a Share of GDP and Judiciary Reliability.  
 OLS regression;  
 Dependent variable: Gross Domestic Fixed Investment as a Share of GDP;  
 Number of observations: 16.

	1	2	3	4	5
<b>Judiciary Reliability</b>	<b>4.30</b>	<b>1.24</b>	<b>4.28</b>	<b>2.82</b>	<b>3.92</b>
	<i>1.43</i>	<i>0.35</i>	<i>1.61</i>	<i>0.88</i>	<i>1.32</i>
LNGDP94		5.03			
		<i>1.50</i>			
Inflation			-0.03		
			<i>-2.11</i>		
Openness				0.06	
				<i>1.21</i>	
Gov. Consumption					0.27
					<i>1.16</i>
Dummy	-13.22	-10.20	-13.47	-11.45	-11.50
	<i>-3.22</i>	<i>-2.31</i>	<i>-3.69</i>	<i>-2.67</i>	<i>-2.67</i>
Constant	9.95	-22.96	12.00	8.50	6.36
	<i>1.19</i>	<i>-0.98</i>	<i>1.60</i>	<i>1.02</i>	<i>0.72</i>
R squared	0.62	0.64	0.66	0.66	0.67
F-statistic	7.42	6.17	7.73	5.61	5.54

Note: t-statistic in italics.  
 Dummy variable: 1 – if country is Armenia or Georgia, 0 – otherwise.

Table G4. Gross Domestic Fixed Investment as a Share of GDP and Property Security.  
 OLS regression;  
 Dependent variable: Gross Domestic Fixed Investment as a Share of GDP;  
 Number of observations: 16.

	1
<b>Property Security</b>	<b>3.83</b>
	<i>1.26</i>
Dummy	-14.13
	<i>-3.45</i>
Constant	12.49
	<i>1.66</i>
R squared	0.52
F-statistic	7.00

Note: t-statistic in italics.  
 Dummy variable: 1 – if country is Armenia or Georgia, 0 – otherwise.

Table G5. Gross Domestic Fixed Investment as a Share of GDP and Lack of Corruption.  
 OLS regression;  
 Dependent variable: Gross Domestic Fixed Investment as a Share of GDP;  
 Number of observations: 16.

	1	2	3	4	5
<b>Lack of Corruption</b>	<b>3.10</b>	<b>1.39</b>	<b>1.67</b>	<b>2.39</b>	<b>2.56</b>
	<b>1.62</b>	<b>0.63</b>	<b>0.77</b>	<b>1.23</b>	<b>1.26</b>
LNGDP94		4.60			
		1.42			
Inflation			-0.02		
			-1.29		
Openness				0.06	
				1.30	
Gov. Consumption					0.20
					0.85
Dummy	-13.23	-10.35	-13.96	-11.30	-12.04
	-3.30	-2.37	-3.53	-2.70	-2.80
Constant	11.35	-20.69	17.71	8.15	9.62
	1.72	-0.89	2.19	1.19	1.38
R squared	0.55	0.62	0.61	0.61	0.58
F-statistic	7.97	6.41	6.14	5.61	5.54

Note: t-statistic in italics.

Dummy variable: 1 – if country is Armenia or Georgia, 0 – otherwise.

Table G6. Gross Domestic Fixed Investment as a Share of GDP and Predictability.  
 OLS regression;  
 Dependent variable: Gross Domestic Fixed Investment as a Share of GDP;  
 Number of observations: 16.

	1	2	3	4	5
<b>Predictability</b>	<b>13.30</b>	<b>11.27</b>	<b>11.55</b>	<b>12.16</b>	<b>12.52</b>
	<b>3.59</b>	<b>2.97</b>	<b>3.06</b>	<b>2.86</b>	<b>3.28</b>
LNGDP94		3.34			
		1.49			
Inflation			-0.02		
			-1.41		
Openness				0.02	
				0.60	
Gov. Consumption					0.17
					0.93
Dummy	-18.89	-15.65	-18.45	-17.62	-17.48
	-5.70	-4.08	-5.75	-4.40	-4.77
Constant	-16.86	-38.40	-10.61	-15.81	-17.51
	-1.56	-2.16	-0.94	-1.41	-1.61
R squared	0.73	0.77	0.77	0.74	0.75
F-statistic	17.47	13.49	13.18	11.19	11.80

Note: t-statistic in italics.

Dummy variable: 1 – if country is Armenia or Georgia, 0 – otherwise.



