BUSINESS ENVIRONMENT AND ENTREPRENEURIAL ACTIVITY

by

Dashkevich Volha

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

Master of Arts in Economics

National University "Kyiv-Mohyla Academy"
Economics Education and Research Consortium
Master's Program in Economics

2005

Approved by _____
Ms.Svitlana Budagovska (Head of the State Examination Committee)

_____

_____

_____

Program Authorized
to Offer Degree Master's Program in Economics, NaUKMA

Date _____

National University "Kyiv-Mohyla Academy"

Abstract

BUSINESS ENVIRONMENT AND ENTREPRENEURIAL ACTIVITY

by Dashkevich Volha

Head of the State Examination Committee: Ms.Svitlana Budagovska,
Economist, World Bank of Ukraine

Entrepreneurial activity is one of the main sources for economic growth, innovation and job creation. This thesis provides the analysis of the influence of government regulations on the entrepreneurial activity across countries around the world. The entrepreneurial activity is defined as the number of small and medium-sized enterprises across 31 countries and as the share of private sector in GDP across 24 transition countries. The impact of government regulations on the business activity is evaluated using indicators concerning the business registration process and the contract enforcement procedure. This work also investigates the entrepreneurial activity in the informal sector of the economy. The results of the study indicate that government regulations negatively influence on the development of small and medium-sized business. Stricter regulation of entry is led to higher level of corruption and a greater size of the informal economy.

TABLE OF CONTENTS

LIST OF TABLES

Number *Page*

LIST OF APPENDIXES

Number *Page*

ACKNOWLEDGMENTS

I would like to express the sincere gratitude and appreciation to my advisor Dr. Iryna Lykyanenko for her continuous encouragement and insightful supervision through the whole process of the thesis writing. I am also wants to thank the research workshop professors Tom Coupé, Polina Vlasenko and Volodymyr Bilotkach for their timely help and valuable comments.

Chapter 1

INTRODUCTION

The condition of the business environment plays an important role in shaping the nature of entrepreneurial activity and the dynamics of new enterprises. The burden of business regulation varies across countries in the world. Heavy business regulation promotes high levels of corruption and decreases the incentives to be an entrepreneur.

The main idea of this work is the analysis of the business environment in the world, in particular, the analysis of factors which determine the business environment, and how business environment favours the creation of new firms and the development of business.

I define the business environment as the number of factors, which are conducive to business development. The main factors that determine the business environment are government and bureaucratic regulation, capital constraints, investments, corruption, law, taxation and property rights.

In this paper I will use the following methodology. I would like to concentrate my attention on the impact of government regulations on the business development across countries around the world. I will define the entrepreneurial activity as the number of small and medium-sized enterprises (SMEs) across 31 countries, as the number of small and medium-sized enterprises per capita across 31 countries and as the share of private sector in GDP across 24 transition countries. Also I would like to analyze the interaction between business development and the informal sector of the economy across 106 countries

around the world. In the empirical part of my research I will evaluate the impact of government regulation on the business activity using the following determinants of business environment: costs of obtaining legal status to operate a firm as a share of per capita GNI; time that it takes to obtain legal status to operate a firm, in business days; number of procedures that a firm has to complete with in order to obtain a legal status; the minimum capital required as a percentage of income per capita; indicators of enforcing contracts (a number of procedures, time in calendar days and official costs as a percentage of the debt value); GDP per capita.

I am going to use the panel data for 2002 and 2003. Data sources are Doing Business Databases 2004/2005 of the World Bank, Transition report 2004 of European Bank for Reconstruction and Development and Statistical Agencies of different countries.

Entrepreneurial activity and regulation of entrepreneurial development have received considerable attention in the economic literature. The entrepreneurial activity is one of the main sources for economic growth, innovation and creation of jobs. Government regulations affect the development of small and medium-sized business. Stricter regulation of entry is led to higher levels of corruption and a greater relative size of the unofficial economy.

My contribution to existing research in this field will be the analysis of business environment and firm creation using the latest data and using the different definitions of business environment and entrepreneurial activity.

The structure of the paper is as follows. In Chapter 2, I analyze relevant literature for my research. Chapter 3 describes the methodology that I will use in further. The data, main results and their interpretation are presented in Chapter 4 and Chapter 5, and Chapter 6 includes conclusions and discussion.

Chapter 2

LITERATURE REVIEW

There is a broad literature concerning entrepreneurship, entrepreneurial activity and business regulations. I would like to structure all relevant papers to my topic in the following way: entrepreneurial development and economic growth, definition and determinants of entrepreneurial activity in the literature, costs and benefits of regulation, entrepreneurial activity and government regulations.

Analyzing the interaction of entrepreneurial activity and economic development, I would like to concentrate on transition countries. The entrepreneurial activity is very important for transition because it is a good source for economic growth and for creation of new products and jobs. McMillan and Woodruff (2002), analyzing such transition countries as Russia, China, Poland and Vietnam, confirm that enhancement of entrepreneurial development is responsible for the stable economic growth in Poland and China, while in Russia the slow development of entrepreneurial activity leads to stagnation. In related paper, Berkowitz and DeJong (2001) verify relationship between entrepreneurial activity and economic growth in post-soviet Russia. They measure entrepreneurial activity as the number of legally registered small private firm and they take the average annual growth in real per capita income observed between 1993-1997 and between 1993-2000. Their empirical results show that an additional 1.7 legally registered enterprises per 1000 inhabitants are associated with an increase in real economic growth of 2.5% annually over the period 1993-1997, and 1.5% annually between 1993-2000 (Berkowitz and DeJong, 2001:3).

In the economics literature entrepreneurial activity has a range of definitions. Some papers examine entry and exit of firms, others concentrate on the dynamics of firm growth. In such empirical works as Klapper, Laeven, and Rajan (2004) and Djankov et al. (2001), entrepreneurial activity is measured as firm's entry. Desai, Gompers, and Lerner (2003) determine it as the entry and exit rate, the average firm size, the industrial vintage (a weighed-average measure of firm age), and the skewness of the firm size distribution. Ovaska and Sobel (2004) define entrepreneurial activity as the number of new firms and the number of new patent and trademark applications. The last variable is associated with economic growth, wealth and with the high-tech entrepreneurial innovation that is generated by large firms. Kaya and Üçdogruk (2002) concentrate on rates of firm's entry and exit.

The substantial part of researches has focused on firm entry. The work done by Geroski (1995) is a summery of all present information about entry. The author points out some stylized facts about entry using data on entry and case studies. "Entry is common. Large numbers of firms enter most markets in most years, but entry rates are far higher than market penetration rates. Although there is a very large cross-section variation in entry, differences in entry between industries do not persist for very long. In fact, most of the total variation in entry across industries and over time is "within" industry variation rather than "between" industry variation. Entry and exit rates are highly positively correlated. The survival rate of most entrants is low, and even successful entrants may take more than a decade to achieve a size comparable to the average incumbent. De novo entry is more common but less successful than entry by diversification. Entry rates vary over time, coming in waves which often peak early in the life of many markets. Different waves tend to contain different types of entrant. Costs of adjustment seem to penalize large-scale initial entry and very rapid post-entry penetration rates" (Geroski, 1995).

Using empirical literature on entry Geroski (1995) receives eight stylized empirical results about entry. Entry seems to be slow to react to high profits. Econometric estimates of the height of entry barriers suggest that they are high. On the other hand, entry rates are hard to explain using conventional measures of profitability and entry barriers. Entry seems to have only modest effects on average industry price-cost margins. High rates of entry are often associated with high rates of innovation and increases in efficiency. The response by incumbents to entry is selective. Prices are not usually used by incumbents to block entry. Both firm size and age are correlated with the survival and growth of entrants (Geroski, 1995).

What all of this adds up to is a presumption that entry is generally a poor substitute for active rivalry among incumbent firms in a market. Entry can be an important influence on the evolution of industry structure and performance, also, it is so only selectively. Further, entry seems to play an important role in stimulating industry evolution at precisely those times when the current activities of incumbent firms are most out of line with exogenous changes in costs and demand. In short, not only is entry an imperfect mechanism for getting prices right in markets, it is a mechanism for getting product and process specifications right (Geroski, 1995:437).

In analyzing government regulation of business, it is very important to understand who is better off and worse off, consumers (the Public Interest theory) or government and incumbents (the Public Choice theory). Djankov et al. (2001) in their research find out that stricter regulation of entry is not associated with higher quality products, better regulation of environment's pollution, or competition. Stricter regulation of entry is associated with sharply higher levels of corruption, and a greater relative size of the unofficial economy. Therefore, the regulation of entry serves the Public Choice than the Public Interest (Djankov et

al., 2001 and Fisman and Sarria-Allende, 2004). Entry is regulated, because it is profitable for the regulators.

Before examination of the impact of government regulations on entrepreneurial development, it is important to view the classification of barriers to market entry. Robinson and Fairchild (2002) classify barriers as institutional and social. They define institutional barriers as formal, cultural and legitimacy. Government, laws, financial markets and lending institutions characterize formal institutional barriers. Such formal barriers can impede entry to a market if the market does not have the appropriate institutions to enhance entrepreneurial activity. Cultural entry barriers are the following: language, slang, dress and etiquette. Legitimacy is a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs and definitions (Robinson and Fairchild, 2002:11).

Djankov et al. (2001), using a data set of 85 countries, create the following indicators for their analysis of the impact of government regulation of entry: the number of procedures for starting business, the official time for completing the process, and its official cost. Klapper, Laeven, and Rajan (2004) and Desai, Gompers, and Lerner (2003) in their empirical papers use these variables for measuring of start-up business procedures. The World Bank uses the same methodology for constructing its Doing Business Databases.

Government regulations affect entrepreneurial activity. In related empirical works, Desai, Gompers, and Lerner (2003), Fisman and Sarria-Allende (2004) and Klapper, Laeven, and Rajan (2004), find out that regulations have a negative impact on firm entry. A study done by Klapper, Laeven, and Rajan (2004) investigates the interaction of business environment and firm entry on industry- and country- level. They use a database of firms across a number of developed and transition countries in Europe. They find that entry regulations hamper entry,

especially in industries that naturally should have high entry (Klapper, Laeven, and Rajan, 2004). In addition, they find out that those regulations, which are favorable for developing intellectual property rights and the financial sector enhance firm creation. As emphasized by Fisman and Sarria-Allende (2004) low entry regulation of industries has little impact on the quantity and average size of firms in this industry comparing with high entry regulation. Countries with low entry regulation have firm's growth by creation of new ones, while countries with high regulation of entry are associated with firm's growth by the expansion of existing firms.

Desai, Gompers, and Lerner (2003) analyze the impact of institutional environment (index of fairness, protection of property right, formalism index, index of the interference of courts, and a measure of start-up procedures) on entrepreneurial activity. They use a cross-country (33 European countries) approach. Greater fairness and stronger property rights leads to higher rates of entry and lower rates of exit, greater judicial interference and formalism lead to lower entry.

It is necessary to mention the work of Ovaska and Sobel (2004) that inspects the rates of entrepreneurial activity in post-socialist countries. Such factors as low government corruption, credit availability, sound monetary policy, high foreign direct investment, contract enforcement, low regulations and taxes are associated with the higher rates of entrepreneurial activity. They find out that different factors have less or more influence on such measures of entrepreneurial activity as creation of new firm and the patent and trademark development. Credit availability and government corruption affect firm's creation. Government corruption is more harmful for the creation of small firms than large ones. At the same time sound monetary policy, government corruption and credit availability have less influence on the patent and trademark activity. High foreign direct

investment is not so important for creation of firms, but has a positive impact on the patent and trademark activity.

It also worth to mention paper done by Kaya and Üçdogruk (2002), they analyze the determinants of entry and exit and their variation among Turkish manufacturing industries. They define entry and exit rates as proportions of entrants and exitors to total number of firms respectively. The determinants of entry and exit rates are profit margin, concentration rate, growth rate, labor productivity, wage and productivity differentials, average wage rate, advertisement intensity and capital intensity. Empirical results of this work show that profit margin, concentration ratio, growth rate and capital intensity are the main determinants of firm entry, while concentration ratio, growth rate and capital intensity influence on exit rate.

I would like to summaries the theoretical background of the relations between the business environment and the entrepreneurial activity. Government regulations affect the creation and the development of small and medium-sized enterprises. My contribution to existing research will be the following. I will use the latest data about entrepreneurial activity and business environment indicators. Djankov et al. (2001), Klapper, Laeven, and Rajan (2004) and Desai, Gompers, and Lerner (2003) define government regulations as indicators for measuring of start-up business procedures. In my research I will expand the definition of government regulations by adding the set of variables about the contract enforcement. Entrepreneurial activity I will define as the number of small and medium-sized enterprises and as the share of private sector in GDP. Also I will analyze the entrepreneurial activity in the informal economy.

Chapter 3

METHODOLOGY

I will explore the impact of business environment on an entrepreneurial activity across countries around the world.

The dependent variable is an entrepreneurial activity. I determine it as the number of small and medium-sized enterprises across 31 countries, as the number of small and medium-sized enterprises per capita across 31 countries and as a share of private sector in GDP around 24 transition countries. These datasets are panel. The number of SMEs is the total number of private enterprises registered in each country during the period of time 2002 and 2003. The scale of the country has a great influence on the number of SMEs as the dependent variable. To account this aspect I will use the number of SMEs per capita in each country. I receive this indicator dividing the total number of SMEs by the population.

Explanatory variables are factors of business environment that influence the entrepreneurial activity. I will define the business environment using indicators on starting a business and enforcing contracts. Starting a business includes a *number of procedures* required to register a firm; average *time* spent during each procedure; official *cost* of each procedure as a percentage of GNI and the *minimum capital* required as a percentage of income per capita.

The number of procedures reflects the business registration process. It is the number of steps that entrepreneur has to fulfil to start a business. Bribes can speed up this registration stage.

The number of days is the time that it takes to obtain legal status to operate a firm. The higher the official costs and the number of days associated with each procedure the less probability that many entrepreneurs will register.

The minimum capital requirement is the amount of capital that the entrepreneur needs to put into a bank account before registration process starts.

Enforcing contracts characterize the efficiency, formalism and corruptibility of court system in the country. Contract enforcement is very important for firms in their commercial transactions and for access to finance. Countries with higher costs of dispute resolution have larger informal sectors. Inefficient judicial system is an impediment to the conversion of informal enterprises into formal ones (Ayygari et al, 2003:14). Enforcing contracts include *a number of procedures*, *time* in calendar days and *official costs* as a percentage of the debt value.

The number of procedures is warranted by law or court regulations that claim interaction between the parties and the judge or a court officer. The time is the number of calendar days needed for dispute resolution, counted from the moment the plaintiff files the lawsuit in court until the moment of settlement or, when appropriate, payment (this measure includes the days when actions take place and the waiting periods between actions). The official costs are the costs of going through court procedures, including court costs and attorney fees (Doing Business 2005, World Bank).

I expect to receive negative influence of business registration and contract enforcement indicators on the entrepreneurial activity.

The level of economic development affects the attractiveness of becoming an entrepreneur. Greater gross domestic product (GDP) per capita provides a larger market potential and greater infrastructure for start-ups. In my analysis, GDP per capita is expressed in constant 1995 U.S. dollars. If the level of economic development plays a role in supporting entrepreneurial activity, then GDP per capita will have a positive effect on the entrepreneurial activity.

The econometric models are the following:

$$ENTERP_{i,t} = \beta_0 + \beta_1 PROCED_{i,t} + \beta_2 DAY_{i,t} + \beta_3 COST_{i,t} + \beta_4 CAPIT_{i,t} + \beta_5 EPROCED_{i,t} + \beta_6 EDAY_{i,t} + \beta_7 ECOST_{i,t} + \beta_8 GDPpc_{i,t} + u_{i,t}$$

$$ENTERPpc_{i,t} = \beta_0 + \beta_1 PROCED_{i,t} + \beta_2 DAY_{i,t} + \beta_3 COST_{i,t} + \beta_4 CAPIT_{i,t} + \beta_5 EPROCED_{i,t} + \beta_6 EDAY_{i,t} + \beta_7 ECOST_{i,t} + \beta_8 GDPpc_{i,t} + u_{i,t}$$

$$PRSECTOR_{i,t} = \beta_0 + \beta_1 PROCED_{i,t} + \beta_2 DAY_{i,t} + \beta_3 COST_{i,t} + \beta_4 CAPIT_{i,t} + \beta_5 EPROCED_{i,t} + \beta_6 EDAY_{i,t} + \beta_7 ECOST_{i,t} + u_{i,t}$$

$ENTERP_{i,t}$ - the number of small and medium-sized enterprises in country i during the period t;

$ENTERPpc_{i,t}$ - the number of small and medium-sized enterprises per capita in country i during the period t;

$PRSECTOR_{i,t}$ – the share of the private sector in GDP in country i during the period t;

PROCED i,t – the number of procedures required to register a firm in country *i* during the period *t*;

DAY i,t - average time spent during each procedure in country *i* during the period *t*;

COST i,t – the official cost of each procedure as a percentage of GNI in country *i* during the period *t*;

CAPIT i,t - the minimum capital required as a percentage of income per capita in country *i* during the period *t*;

EPROCED i,t - the number of procedures is warranted by law or court regulation, that claim interaction between the parties and the judge or a court officer in country *i* during the period *t*;

EDAY i,t – the number of calendar days needed for dispute resolution in country *i* during the period *t*;

ECOST i,t - the cost is incurred during dispute resolution as a share of income per capita in country *i* during the period *t*;

GDPpc i,t – GDP per capita in country *i* during the period *t*.

I would like to analyze the interaction of entrepreneurial activity and the informal sector of the economy. Hard government regulations of business activity stimulate the development of the corruption and the informal economy. The high level of the informal economy means that it is the high level of the informal entrepreneurial activity in the country and weak development of the official one. That is why I would like to analyze the influence of business registration and

contract enforcement factors on the conversion of the official business activity to the informal one.

The economists measure the informal economy as a percentage of gross national income. Edgcomb and Thetford (2004) characterize the informal economy in the following way: *it is legal, but unregulated,* enterprises, employers and self-employed individuals do not engage in criminal activities, but do not comply with standard business practice and taxation regulations; *cash is the most common medium of exchange*; *work conditions for workers are inferior than in the formal economy,* environment protection, security and earnings are less protected than for workers in the formal economy; both *employed and self-employed workers* engage in the informal economy (Edgcomb and Thetford, 2004: 12-13).

The data about the informal economy as a share of GNI is available for 106 countries around the world for 2002. I will estimate this dependent variable using OLS. The econometric model is as follows:

$$INFECON_i = \beta_0 + \beta_1 PROCED_i + \beta_2 DAY_i + \beta_3 COST_i + \beta_4 CAPIT_i + \beta_5 EPROCED_i + \beta_6 EDAY_i + \beta_7 ECOST_i + u_i$$

INFECON i – the informal economy as a share of gross national income in the country *i*.

I expect to receive the positive dependence between the informal economy and starting business and contract enforcement indicators.

I will check this regression for the heteroscedasticity using Breusch-Pagan / Cook-Weisberg test. The null hypothesis states that there is a constant variance. For checking this econometric model on the omitted variables I will apply

Ramsey RESET omitted variable test. If the null hypothesis can not be rejected, than the model does not have omitted variables.

For the panel data databases it is important to employ econometric methodology for full investigation of panel data properties. For the beginning it is necessary to discriminate among the ordinary least squares and panel data techniques. If there is no difference across cross-sectional units, and that the individual effects can be ignored, then the ordinary least squares technique will provide consistent and efficient estimation of the parameters of the model (Greene, 2000, p.560). If the individual effects can not be ignored than the panel data model will be more appropriate.

F-test helps to test the significance of the individual effects. If the null hypotheses of common intercept can not be rejected, than the OLS estimators are efficient, otherwise techniques for the panel data are chosen.

To test the appropriateness of the random effects I will use Breusch and Pagan Lagrange multiplier test. The null hypothesis states that the individual specific disturbance does not vary across cross-sections. If the null hypothesis can be rejected, than the random effects model will be employed. The random effects approach establishes that the individual – specific effects randomly vary across cross-sections.

The fixed effects approach means that the difference across cross-units can be fixed by differences in the constant term.

The Hausman test distinguishes between random and fixed effects. Under the null hypothesis there is no correlation and the random effects gives consistent and efficient estimators. If estimators under both effects are significantly

different, than the null hypothesis is rejected. I will deal with the fixed effects, which gives consistent estimators.

It is necessary to check econometric regressions on the heteroscedasticity. Breusch-Pagan / Cook-Weisberg test with the null hypothesis about the constant variance can be applied.

Theoretically there is no problem of endogeneity of regressors in econometric models due to the data construction.

The software that is used for analysis is Stata 8.0.

Having discussed the basics of the econometric methodology, I will proceed to the empirical part of my study.

Chapter 4

DATA DESCRIPTION

The initial dataset consists of statistics for 125 countries and covers the period from 2002 to 2003. Main databases for the analysis of business environment and entrepreneurial activity are Doing Business in 2004 and Doing Business in 2005. The Doing Business Database offers a comprehensive survey of private sector regulations in 145 countries. It consists of such projects as Starting a Business, Hiring and Firing Workers, Enforcing Contracts, Getting Credit, Closing a Business. The data for all sets of indicators in these databases are for January 2003 and January 2004 respectively.

To make the business comparable across countries, The Doing Business Database employed 10 assumptions. These assumptions are represented in Appendix 1.

With these assumptions the following indicators were constructed: a number of procedures that a firm has to complete to obtain a legal status; costs of obtaining legal status as a share of per capita GNI; time that it takes to obtain legal status to operate a firm, in business days; minimum capital required for starting a business as a percentage of income per capita.

For example, for starting business in Belarus entrepreneur needs 79 days, he/she has to complete 16 procedures, the official costs of these procedures are 25,3% of per capita GNI and minimum capital required is 44,3% of per capita GNI or €1600 (Doing Business Database, 2005). It seems like the government is not

interested in the development of small and medium-sized business. Appendix 2 represents the precise procedure of business registration in Belarus in 2003.

Analysis of data on entry regulation around the world leads to the following conclusions. The number of procedures required to start up a firm varies from the low of 2 in Canada and Australia to the high of 19 in Chad with the world average of around 10. The minimum official time for such a startup varies from the low of 2 business days in Australia to the high of 215 in Congo (Dem. Rep.) in 2002 and 203 business days in Haiti in 2003, with the world average of 55 business days in 2002 and 49 in 2003. The official cost of following these procedures for a simple firm ranges from 0% of per capita GNI in Denmark to 1268,4% per capita GNI in Sierra Leone in 2003, with the world-wide average of 93% in 2002 and 81,06% of annual per capita income in 2003. Minimum capital requirements vary from the 0% of per capita GNI in Azerbaijan, Australia, Bangladesh and Brazil to 5053,9% of per capita GNI in Syrian Arab Republic in 2003 with world-wide average of 289,6% in 2002 and 170,54% of per capita GNI in 2003.

On average it takes 6 (7) procedures, 25 (31) days, 8% (10,1%) of the income per capita to start a business and needed 44,1% (61,2%) of per capita GNI as the minimum capital requirements in OECD countries in 2003 (2002) and 11 (11) procedures, 64 (74) days, 212% (292,8%) of the income per capita as the official costs and 213,7% (300,4%) of per capita GNI as capital requirements to do so in Sub-Saharan Africa in 2003 (2002).

For an entrepreneur, legal entry is extremely cumbersome, time-consuming, and expensive in most countries in the world. Appendix 3 represents descriptive statistics of starting business indicators.

To make the data about contracts enforcement comparable across countries, several assumptions were made. Appendix 1 represents these assumptions.

The dataset illustrates the differences in the efficiency of contract enforcement across countries. At best the creditor must complete 11 procedures in Australia and spend 1 day to be get paid in Poland, it will cost 4,2% of the claim amount in attorney and court fees in Norway. Otherwise, the creditor needs to complete 58 procedures in Sierra Leone and spent 1459 days to be get paid in Guatemala, it will cost 256,8% of debt value in Congo (Dem. Rep.). Appendix 4 represents descriptive statistics of enforcing contracts.

I collected data about the number of SMEs across countries from the official statistical agencies:

- Institute of Statistics of Albania;
- National Statistical Service of Armenia;
- State Statistical Committee of Azerbaijan;
- Ministry of Statistics and Analysis of the Republic of Belarus;
- National Institute of Statistics of Belgium;
- Agency for Statistics of Bosnia and Herzegovina;
- Central Bureau of Statistics of Croatia;
- Czech Statistical Office;
- Statistics Denmark;
- Statistics Finland;
- National Institute of Statistics and Economic Studies of France;
- State Department for Statistics of Georgia;

- Federal Statistical Office of Germany;
- Census and Statistics Department of Hong Kong, China;
- Hungarian Central Statistical Office;
- Central Statistics Office of Ireland;
- National Statistical Office of Korea;
- Central Statistical Bureau of Latvia;
- Statistics Lithuania;
- State Statistical Office of Macedonia;
- Statistics Netherlands;
- Statistics New Zealand;
- Statistics Norway;
- National Institute of Statistics of Romania;
- Russian State Committee for Statistics;
- Statistical Office of the Republic of Slovenia;
- National Institute of Statistics of Spain;
- Statistics Sweden;
- State Statistics Committee of Ukraine;
- National Statistics of United Kingdom
- Bureau of Statistics of USA.

The database consists of the information about the number of SMEs across 31 countries for the period of 2002 and 2003.

The number of SMEs varies from the minimum of 7622 in 2002 and 7795 in 2003 in Albania to the maximum of 8 million in 2002 and 8,441 thousand in 2003

in Russian Federation with the average of 1 093 804 in 2002 to 1 142 067 in 2003. The descriptive statistics of SMEs is represented in Appendix 5, Table 1.

The data concerning the informal economy as a share of gross national income is available for 106 countries around the world for the period 2002. This data was taken from Doing Business in 2004. Switzerland shows the lowest level of the shadow economy – 8, 8% of GNI. Georgia has the highest indicator of the unofficial economy. It is 67, 3% of gross national income. The world-wide average is 32, 7% of GNI. Descriptive statistics of the informal economy in GNI is represented in Table 3, Appendix 5.

Transition report 2004 of European Bank for Reconstruction and Development is the source of the data of the share of private sector in GDP (%). The data is collected for 24 transition countries and available for 2002 and 2003. The average share of private business in GDP is 64%. The minimum indicator of the share of private business in GDP is in Belarus – 25%. Czech Republic and Slovak Republic show the highest level of business sector – 80% in GDP (Table 2, Appendix 5).

In the process of the data collection I had some problems. It was very difficult to find out the systematic dataset with the number of enterprises across 125 countries. That is why I used data from statistical agencies of different countries. In some sites of statistical agencies English version was not available or data was old, therefore I found information about number of SMEs only for 31 countries among 125. It also was difficult to collect data across all dependent and explanatory variables among 125 countries. That is why I have information about private sector for 24 transition countries for 2002 -2003 and information about the informal economy as the share of GNI only for 106 countries for 2002.

C h a p t e r 5

EMPIRICAL ANALYSIS AND RESULTS

This section presents the results of the empirical estimation of the influence of factors of business environment on the entrepreneurial activity. The entrepreneurial activity is measured as the number of enterprises, as the number of enterprises per capita and as the share of private sector in GDP. Also I would like to analyze the entrepreneurial activity in the informal sector of the economy.

Entrepreneurial activity as the number of enterprises.

I estimate the described earlier model using OLS and panel data techniques. F-test rejects the hypothesis of common intercept that is why the techniques for panel data are more appropriate. The Breush-Pagan Lagrange Multiplier test rejects the hypotheses of zero variance of the individual effects disturbance term, thus I choose the random effects. P-value of the Hausman test is equal to 1 and estimators of both fixed and random effects are not significantly different from each other; that is why I reject the null hypotheses and select the random effects model as more appropriate for the data. The Hausman test is represented in Appendix 6, Table 2. The estimators will be consistent and efficient under the random effects. Table 1 represents the specification tests with p-value and decision rules.

Table 1: Specification Tests for the Model with the Dependent Variable as the number of SMEs

Specification tests	p-value	Decision
Common vs Different effects: F test	0,0000	Different effects
Fixed vs Random effects: Breush-Pagan test	0,0000	Random effects
Random vs Fixed effects: the Hausman test	1,0000	**Random effects**

Table 3 in Appendix 6 represents the estimation of the initial econometric model with the number of enterprises as the dependent variable. Such variables as the average time spent during each procedure, official cost of each procedure, minimum capital requirements as the percentage of GNI and GDP per capita are insignificant, but have expected signs. I can not neglect these indicators, because they serve as control variables. The insignificance of these coefficients can be explained by the insufficient size of the sample.

Variable the official costs of going through court procedures is significant, but has the unexpected sign. I can not neglect this variable, because its influence on the entrepreneurial activity is ambiguous. If the firm does not have money for speeding up the dispute resolution process by bribes, than increasing in the sum of costs will confirm the inefficiency of the court system. As a result the contract enforcement depresses the business development. But if the firm has money or can borrow from some financial institutions and use them for acceleration of the court process, than the contract enforcement favours the development of business and stimulate the corruption.

The number of procedures required to register a firm is significant and has the expected sign (Appendix 6, Table 3). If the number of procedures increases by 1 procedure, than the number of enterprises will decrease in 28957. The interpretation of this variable is not quite correct, because in some countries from

the database, for example in Albania and Belarus, the total number of enterprises is 7 795 and 30987 respectively. I find the logarithm of the dependent variable the number of SMEs for more correct interpretation of the results. I can not find logarithm of all explanatory variables, because some of them, for example the official costs as a percentage of GNI and minimum capital requirements as a percentage of income per capita, have zero meanings.

Table 2 presents specification tests for justification between OLS and panel data techniques of the regression with the logarithmic dependent variable as the number of SMEs. The random effects model is more appropriate for this regression.

Table 2: Specification Tests for the Model with the Logarithmic Dependent Variable as the Number of SMEs

Specification tests	p-value	Decision
Common vs Different effects: F test	0,0000	Different effects
Fixed vs Random effects: Breush-Pagan test	0,0000	Random effects
Random vs Fixed effects: the Hausman test	0.9801	**Random effects**

The estimation of the initial regression is in the Appendix 7, Table 2. The number of procedures required for business registration process and the number of calendar days needed for dispute resolution are significant, but have unexpected signs. As in the previous case I can not neglect these variables, because they can enhance the entrepreneurial activity if firms can borrow money for speeding up the registration and dispute resolution processes by bribes. The official costs, the average time needed for business registration process, minimum capital requirements and the number of procedures needed for contract enforcement are insignificant, but have expected signs. The insignificance of these variables can be explained by the insufficient size of the sample.

The correlation matrix shows that PROCED and DAY have correlation coefficient 0,6276 (Appendix 7, Table 1). Increasing in the number of procedures can increase the number of days needed for firm to start operate legally.

Entrepreneurial activity as the number of enterprises per capita.

The insignificance of some estimators in previous regressions can be explained by the influence of country scale. The scale of the country has a great influence on the total number of enterprises in the country. For accounting this dependence I represent the new dependent variable as the number of enterprises per capita.

This regression is estimated using the same algorithm as in the previous case. F-test do not confirm the hypothesis of the significance of the individual effects, thus I proceed with the panel data. The Breush-Pagan Lagrange Multiplier test rejects the hypothesis that the individual specific disturbance does not vary across cross-sections, therefore the random effect is more plausible in this situation. The Hausman test establishes the efficiency and consistency of estimators. As a result I deal with the random effect model. Specification tests are represented in Table 3.

Table 3: Specification Tests for the Model with the Dependent Variable as the Number of SMEs per Capita

Specification tests	p-value	Decision
Common vs Different effects: F test	0,0000	Different effects
Fixed vs Random effects: Breush-Pagan test	0,0000	Random effects
Random vs Fixed effects: the Hausman test	0.3825	**Random effects**

Estimation of the initial econometric model with the number of enterprises per capita as the dependent variable shows the insignificance of all explanatory variables (Table 2, Appendix 8). It can be explained by the correlation between

some explanatory variables. The correlation matrix shows that such variable as the number of procedures required to register a firm (PROCED) is highly correlated with the average time spent during each procedures. This variable is highly insignificant with unexpected sign and small meaning. After running the initial regression without PROCED the situation has improved (Appendix 8, Table 3). The number of days needed for registration is significant and has the expected sign. The number of enterprises per capita will decrease by 89 enterprises per million of the population, if the average time needed for registration proceed is increased by 1 day. Such variables as the official cost of each procedure, the minimum capital requirements as a percentage of income per capita and GDP per capita have expected signs, but insignificant. The indicators of the contract enforcement are insignificant with unexpected sighs. I can not disregard these variables because their served as control ones. The insignificance can be explained by the insufficient size of the sample.

Entrepreneurial activity as a share of private sector in GDP (%)

Table 4 represents specification tests for detecting between OLS and panel techniques. F-test rejects the null hypothesis of common effects, thus I deal with fixed effects. The Breush-Pagan Lagrange Multiplier test points in favor of the random effects. The Hausman test refuses the hypotheses of the validity of the random effects; therefore the fixed effects model is more appropriate.

Table 4: Specification Tests for the Model with the Dependent Variable as the Share of Private Sector in GDP (%)

Specification tests	p-value	Decision
Common vs Different effects: F test	0,0000	Different effects
Fixed vs Random effects: Breush-Pagan test	0,0000	Random effects
Random vs Fixed effects; the Hausman test	0,0141	**Fixed effects**

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity does not reject the null hypothesis of constant variance. P-value is equal to 0.3684. Variances of regression disturbances are constant across observations.

Running the initial regression with the share of private business as the dependent variable, I received the following results (Appendix 9, Table 2). The minimum capital required as a percentage of income per capita is significant and correctly signed. If minimum capital requirements increase by 1%, the share of private sector in GDP will decrease by 0,007%. The time needed for dispute resolution is insignificant, but this coefficient has the expected sign. Such variables as the number of days, procedures and official costs concerning business registration process and the number of procedures and official costs concerning dispute resolution process are insignificant with unexpected signs. These variables are control ones, that is why I can not neglect them. The insignificance and unexpected signs can be explained by the insufficient size of the sample.

Entrepreneurial activity and the informal sector of the economy.

The informal economy in GNI (%) is available only for 2002. I estimate this model using OLS techniques. Results are presented in Appendix 10, Table 2.

I checked this regression for the heteroscedasticity. Breusch-Pagan / Cook-Weisberg test for heteroscedasticity does not reject the null hypothesis of constant variance. P-value is equal to 0.9352

The p-value of the Ramsey RESET omitted variable test is 0.0344. The initial econometric model is misspecified. Such variables as the number of days and official costs concerning the contract enforcement process are highly insignificant, but have expected signs. The average time spent during each procedure is insignificant with unexpected sign. The coefficient of capital

requirements is significant, but has unexpected sign. The interpretation of the coefficient of this estimator is not logic, because the increase in minimum capital requirements needed for business registration process will lead to decrease in the informal economy. In fact, the dependence should be inverse. After running the initial regression without all these variables the p-value of the Ramsey RESET omitted variable test is 0.1232. I do not reject the null hypotheses about model misspesification.

The number of procedures required to register a firm and the official cost of each procedure are highly significant and correctly signing. If the number of procedures increments in 1 procedure, it will lead to increase in the share of the informal economy in GNI by 1, 19%. Increase in the official cost will expand the shadow economy by 0, 04% in GNI. The number of procedures is warranted by law or court regulations that claim interaction between the parties and the judge is significance. If the number of these procedures increases by 1, than the informal economy as a share of GNI will grow by 0, 27% (Appendix 10, Table 3).

The p-value of Breusch-Pagan / Cook-Weisberg test for heteroscedasticity is 0.9598. The null hypotheses about constant variance can not be rejected.

As a result indicators of business registration process and dispute resolution procedure enhance the development of the informal economy. Strict government regulations of the business development lead to increase of the transformation of legal business enterprises to informal ones. That is why high levels of the informal economy indicate about considerable levels of the informal business activity.

Chapter 6

CONCLUSIONS

In this work I investigate the impact of government regulations on the entrepreneurial activity across countries around the world.

I characterize the entrepreneurial activity as the number of small and medium-sized enterprises across 31 countries, as the number of small and medium-sized enterprises per capita across 31 countries and as the share of private sector in GDP across 24 transition countries. All this panel datasets are available for 2002-2003. Also I analyze the entrepreneurial activity in the informal sector of the economy. The share of the informal economy in GNI (%) is available for 2002 across 106 countries around the world. I choose this variable for my analysis because harder government regulations of business development lead to higher levels of corruption and a greater relative size of the informal economy.

Main data sources are Doing Business Databases 2004/2005 of the World Bank, Transition report 2004 of European Bank for Reconstruction and Development and Statistical Agencies of different countries.

In this analysis I use the following determinants of the business environment: costs of obtaining legal status to operate a firm as a share of per capita GNI; time that it takes to obtain legal status to operate a firm, in business days; number of procedures that a firm has to complete with in order to obtain a legal status; the minimum capital required as a percentage of income per capita; indicators of enforcing contracts (a number of procedures, time in calendar days and official costs as a percentage of the debt value); GDP per capita.

Empirical analysis confirms the theoretical expectations about negative influence of government regulations on the business development. If the number of days needed for business registration process increases by 1 day than the number of small and medium-sized enterprises will decrease by 89 enterprises per million of the population. Increase in minimum capital requirements by 1% leads to decrease of the share of private sector in GDP by 0.007%. If the number of procedures that a firm has to complete to start operate legally increments in 1 procedure, it will lead to increase in the share of the informal economy in GNI by 1, 19%. Increase in official costs concerning business registration process will expand the shadow economy by 0, 04% in GNI. If the number of procedures is warranted by law or court regulations necessary for dispute resolution process expands by 1, than the informal economy as a share of GNI will grow by 0, 27%. Such positive influence of indicators of the business registration procedure and the contract enforcement process on the development of the informal sector means the expansion of the informal business activity and the reduction of formal one.

During the empirical analysis was found the unexpected positive influence of some determinants of the business environment on the entrepreneurial development. These variables are the official costs of going through court procedures, the number of calendar days needed for dispute resolution process and the number of procedures concerning the business registration process. I can not neglect this influence, because if firms have money for speeding-up the business registration process and the contract enforcement procedure by bribes, than said factors stimulate the development of business activity and, of course, enhance the corruption.

The main conclusion of this research work is that government regulations have the negative impact on the entrepreneurial activity. Strict government regulations

of the business force enterprises work unofficially, thus stimulate the development of the informal economy. The government should adjust the regulations of small and medium-sized business, because it is one of the main sources for the economic growth, innovations and job creation.

BIBLIOGRAPHY

Ayygari, M., Beck, T. and Demirgüç-Kunt, A., *Small and Medium Enterprises across the Globe: A New Database,* Policy Research Working Paper Series from the World Bank, No 3127, August 2003

Berkowitz, D. and DeJong, N. D., *Entrepreneurship and Post-Socialist Growth,* William Davidson Working Paper Number 406, October 2001

Daneiko, P., Lynova, T., Pelipasya, I. and Rakova, E., *Belarusian business: the condition, tendencies and prospect*, Analytical report, Belarusian University of Privatization and Management, 2003.

Desai, M.., Gompers, P. and Lerner, J., *Institutions, Capital Constraints and Entrepreneurial Firm Dynamics: Evidence from Europe*, Harvard NOM Research Paper No. 03-59, Harvard University and National Bureau of Economic Research, 2003.

Djankov, S., La Porta, R., Lopez de Silanes, F. And Shleifer, A., *The Regulation of Entry*, Quarterly Journal of Economics 117, 1-35,2001.

Djankov, S., La Porta, R., Lopez de Silanes, F. And Shleifer, A., *Courts,* NBER Working Paper # W8890.

Edgcomb, E.E. and Thetford T., *The Informal Economy. Making It in Rural America,* FIELD, The Aspen Institute, February 2004.

Fisman, R. and Sarria-Allende, V., *Regulation of Entry and the Distortion of Industrial Organization,* Working Paper 10929, National Bureau of Economic Research, Cambridge, November 2004.

Geroski, P., *What Do We Know about Entry?* International Journal of Industrial Organization, Vol.13, 421-440, 1995.

Green W. H., *Econometric Analysis,* 4th edition, New York University, 2000.

Kaya, S. and Üçdogruk, Y., *The Dynamics of Entry and Exit in Turkish Manufacturing Industry*, Working paper of Economic Research Center, Middle East Technical University, September 2002.

Klapper, L., Laeven, L. and Rajan, R., *Business Environment and Firm Entry: Evidence from International Data,* This draft: June 2004.

McMillan, J. and Woodruff, C., *The Central Role of Entrepreneurs in Transition Economies,* Journal of Economic Perspectives, Volume 16, #3, 153 –170, 2002.

Ovaska, T. and S. Sobel R.S., *Entrepreneurship in Post-Socialist Economies,* No 04-06 Working Papers from the Department of Economics, West Virginia University, October 2004

Robinson, J. and Fairchild, G.B., *Social and Institutional Barriers to Market Entry,* 2002

Doing business in 2004, Report of the World Bank, 2003.

Doing business in 2005, Report of the World Bank, 2004.

Improving the Business Environment, Report of the World Bank, Belarus, January 2003.

Appendix 1: Assumptions about the Business and Contract Enforcement

To make the business comparable across countries, the following assumptions were employed (Doing Business 2004, World Bank).

The business

• Is a limited-liability company (If there is more than one type of limited-liability company in the country, the type most popular among domestic firms is chosen.);

• Operates in the country's most populous city;
• Is 100 percent domestically owned and has five founders, none of whom is a legal entity;
• Has start-up capital of 10 times income per capita, paid in cash;
• Performs general industrial or commercial activities, such as the production and sale of products or services to the public;
• Leases the commercial plant and offices;
• Does not qualify for investment incentives or any special benefits;
• Has up to 50 employees one month after the start of operations, all of them nationals;
• Has turnover of at least 100 times income per capita;
• Has a company deed 10 pages long.

To make the data about enforcing contracts comparable across the countries, the next assumptions were made (Doing Business 2004, World Bank):

• The debt value equals 50 percent of the country's income per capita.
• The plaintiff has fully complied with the contract (the plaintiff is 100 percent right).

• The case presents a lawful transaction between businesses residing in the country's most populous city.

• The bank refuses payment for lack of funds in the borrower's account.

• The plaintiff files a lawsuit to collect the debt.

• The debtor attempts to delay service of process but it is finally accomplished.

• The debtor opposes the complaint (default judgment is not an option).

• The judge decides every motion for the plaintiff.

• The plaintiff attempts to introduce documentary evidence and to call one witness. The debtor attempts to call one witness. Neither party presents objections.

• The judgment is in favor of the plaintiff.

• No appeals or post-judgment motions are filed by either party to the case.

• The debt is successfully collected.

Appendix 2: Procedure of business registration in Belarus in 2003

STANDARDIZED COMPANY **Legal Form: Private Limited Company** **Minimum capital requirements: €1600.** **City: Minsk**	
Procedure 1. Obtain an approval of the company name with the Ministry of Justice.	
Time to complete	1 day
Cost to complete	1 "base rate" (as of Jan. 12, 2004, 1 "base rate"=BR 17,500, ≈ $8)
Procedure 2. Open a temporary bank account	
Time to complete	1 day
Cost to complete	No charge
Procedure 3. Notarize documents and pay a registry fee.	
Time to complete	1 day
Cost to complete	BR 332,500 (≈ $150)
Procedure 4. Business registration with the State Registry.	
Time to complete	40 days
Cost to complete	Euro 60
Procedure 5. Obtain the approval of the company seal draft from the Registry.	
Time to complete	3 days
Cost to complete	No charge
Procedure 6. Obtain the approval of the company seal draft from the local police department.	
Time to complete	8 days
Cost to complete	1-2 base rates
Procedure 7. Prepare a business seal.	
Time to complete	1 day
Cost to complete	BR 50,000 (≈ $23)
Procedure 8. Receive a Management Certificate for the CEO.	
Time to complete	7 days
Cost to complete	1 base rate
Procedure 9. Notarize the received company documents.	
Time to complete	1 day
Cost to complete	BR 180,000 (≈ $82)
Procedure 10. Register the company in the Tax Office.	
Time to complete	6 days (for getting the account number of payer)
Cost to complete	none
Procedure 11. Apply for a Statistical Number.	
Time to complete	1 day
Cost to complete	none

Procedure 12. Apply for duplicates of a Company's taxpayer ID.	
Time to complete	4 days
Cost to complete	3 "base rates" per 1 duplicate.
Procedure 13. Apply for a certificate for opening a bank account from the Social Security Office; register the company with the Social Security Office	
Time to complete	2 days
Cost to complete	none
Procedure 14. Notarize a card with signatures of a Company's Director and Chief Accountant and a sample of the Company seal.	
Time to complete	1 day
Cost to complete	BR 140,000 (four base rates for each signature)
Procedure 15. Register the company in the Belgosstrakh (state insurance company).	
Time to complete	1 day
Cost to complete	depending on the bank, there is either no charge for opening a regular bank account, or it could be up to 10 base rates.
Procedure 16. Open a regular bank account.	
Time to complete	1 day
Cost to complete	no charge

Appendix 3: Descriptive Statistics of Starting Business Indicators

Means

Countries and regions	# of procedures		days		cost		min capital	
	2003	2004	2003	2004	2003	2004	2003	2004
All countries	10	10	55	49	93	81,06	289,6	170,54
East Asia & Pacific	10	10	64	55	72,8	76,2	844,3	115,1
Europe & Central Asia	11	10	47	40	22	15,9	100,4	53,3
Latin America & Caribbean	12	12	78	73	73,8	62,6	89,9	29,9
Middle East & North Africa	11	10	54	38	63,2	65	1385	341
OECD: High income	7	6	31	25	10,1	8	61,2	44,1
South Asia	9	9	45	44	76,3	52,3	86,1	0
Sub-Saharan Africa	11	11	75	64	292,8	212	300,4	213,7

Standard deviations

	# of procedures		days		cost		min capital	
	2003	2004	2003	2004	2003	2004	2003	2004
All countries	4	3	40	37	180,6	164,8	717,2	516,7
East Asia & Pacific	2	2	57	40	169,3	146	1313	156,2
Europe & Central Asia	3	3	28	23	16,8	9,6	111,6	54,5
Latin America & Caribbean	4	3	45	46	85	62,7	193,4	61,6
Middle East & North Africa	3	3	25	17	85	86,2	1767,4	348,7
OECD: High income	4	4	29	25	14,9	8,6	87,4	71,8
South Asia	1	2	28	28	67,3	31,5	192,5	0
Sub-Saharan Africa	3	3	46	41	301,7	196,5	394,2	228,1

Maximum

All countries	# of procedures		days		cost		min capital	
	2003	2004	2003	2004	2003	2004	2003	2004
All countries	19	19	215	203	1297,6	1268,4	5627,2	5053,9
East Asia & Pacific	12	12	168	151	553,8	480,1	3855,9	394
Europe & Central Asia	19	16	118	123	65	46,2	450,8	237,9
Latin America & Caribbean	19	17	203	203	337,8	176,1	699	182,4
Middle East & North Africa	14	13	98	63	264,1	269,2	5627,2	815,6
OECD: High income	16	15	115	108	69,6	35,2	402,5	332
South Asia	10	11	88	89	191	91	430,4	0
Sub-Saharan Africa	19	19	215	155	1297,6	884,6	1756,1	744,7

Minimum

All countries	# of procedures		days		cost		min capital	
	2003	2004	2003	2004	2003	2004	2003	2004
All countries	2	2	2	2	0	0	0	0
East Asia & Pacific	7	8	31	20	7,3	6,7	0	0
Europe & Central Asia	5	5	11	9	6,3	3,7	0	0
Latin America & Caribbean	7	7	19	19	8	10	0	0
Middle East & North Africa	6	5	34	11	5,3	4,9	7,4	2,1
OECD: High income	2	2	2	2	0	0	0	0
South Asia	7	7	22	21	18,3	10,7	0	0
Sub-Saharan Africa	6	6	26	26	8,7	9,1	0	0

Appendix 4: Descriptive Statistics of Enforcing Contracts

Mean

All countries	# of procedures		days		cost	
	2003	2004	2003	2004	2003	2004
All countries	26	31	309	383	36,4	25,2
East Asia & Pacific	24	29	195	337	77,8	52,6
Europe & Central Asia	26	30	317	357	28,9	18
Latin America & Caribbean	32	35	363	472	38,8	20,3
Middle East & North Africa	28	35	278	419	15,7	16,7
OECD: High income	18	20	233	230	7,1	10,7
South Asia	22	32	358	395	48,2	29,3
Sub-Saharan Africa	31	35	233	457	7,1	42,8

Standard deviations

All countries	# of procedures		days		cost	
	2003	2004	2003	2004	2003	2004
All countries	11	11	230	235	73,6	30,7
East Asia & Pacific	4	5	62	129	104,7	47,7
Europe & Central Asia	9	8	257	188	51,5	9,5
Latin America & Caribbean	11	8	286	268	95,3	10,1
Middle East & North Africa	12	14	229	214	18,8	8,7
OECD: High income	4	5	160	277	6,1	5
South Asia	6	11	60	38	31,1	9,6
Sub-Saharan Africa	13	13	239	204	103,1	52,5

Maximum

All countries	# of procedures		days		cost	
	2003	2004	2003	2004	2003	2004
All countries	55	58	1460	1459	520,6	256,8
East Asia & Pacific	29	37	270	570	269	126,5
Europe & Central Asia	44	46	1028	1028	254,7	47,9
Latin America & Caribbean	47	47	1460	1459	440,5	41,2
Middle East & North Africa	54	55	721	721	54,3	34,3
OECD: High income	23	29	645	1390	28	21,1
South Asia	30	46	440	440	95	43,1
Sub-Saharan Africa	55	58	895	1011	520,6	256,8

Minimum

All countries	# of procedures		days		cost	
	2003	2004	2003	2004	2003	2004
All countries	11	11	7	1	0,3	4,2
East Asia & Pacific	19	22	75	75	1,8	5,4
Europe & Central Asia	16	17	65	1	2,1	8,1
Latin America & Caribbean	14	18	76	155	2,4	4,2
Middle East & North Africa	14	14	7	27	0,3	8,8
OECD: High income	11	11	39	48	0,4	4,2
South Asia	15	17	270	350	7,6	21,3
Sub-Saharan Africa	13	16	90	200	3,8	9,2

Appendix 5: Descriptive Statistics of SMEs, the Private Sector and the Informal Economy

Table 1: Descriptive Statistics of SMEs

	Number of SMEs	
	2002	2003
Mean	1 093 804	1 142 067
Standard deviation	1 880 061	1 960 399
Maximum	8 000 000	8 441 000
Minimum	7 622	7 795

Table 2: Descriptive Statistics of the Share of Private Sector in GDP (%)

	Share of private sector in GDP (%)	
	2002	2003
Mean	63.5	64
Standard deviation	13.4	13.3
Maximum	80	80
Minimum	25	25

Table 3: Descriptive Statistics of the Share of Informal Economy in GNI (%)

	Share of Informal Economy in GNI (%) 2002
Mean	32,7
Standard deviation	14
Maximum	67,3
Minimum	8,8

Appendix 6: Empirical Estimation of the Model with the Dependent Variable as the Number of Enterprises

Table 1: Correlation Matrix

	ENTERP	PROCED	DAY	COST	CAPIT	EPROCED	EDAY	ECOST
ENTERP	1.0000							
PROCED	-0.0236	1.0000						
DAY	-0.0776	**0.6276**	1.0000					
COST	-0.2110	0.4494	0.4316	1.0000				
CAPIT	-0.0639	0.3881	0.1071	0.4773	1.0000			
EPROCED	-0.1639	0.3537	0.2411	0.4494	0.1153	1.0000		
EDAY	-0.0696	0.2451	0.2696	0.2646	0.0984	0.2902	1.0000	
ECOST	-0.1520	0.3922	0.2344	0.4800	0.0644	0.3034	0.1406	1.0000
GDPpc	0.0894	-0.6781	-0.4243	-0.5403	-0.2549	-0.4367	-0.3008	-0.4650
	GDPpc							
GDPpc	1.0000							

Table 2: Random versus Fixed Effects: The Hausman Test

	---- Coefficients ----			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	fixed	random	Difference	S.E.
PROCED	-28941.41	-28957.09	15.67346	5138.129
DAY	-523.4268	-538.7161	15.28927	436.8473
COST	-683.2311	-786.2578	103.0267	685.5631
CAPIT	-44.42186	-43.98051	-.4413515	86.37763
EPROCED	4227.291	4344.794	-117.5031	2021.672
EDAY	264.5148	263.553	.9618483	62.75202
ECOST	2487.123	2519.588	-32.46561	540.4738
GDPpc	22.10944	11.15881	10.95063	57.56707
b = consistent under Ho and Ha; obtained from xtreg				
B = inconsistent under Ha, efficient under Ho; obtained from xtreg				
Test: Ho: difference in coefficients not systematic				
chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)				
= 0.09				
Prob>chi2 = 1.0000				

Table 3: Initial Regression

Dependent Variable: the Number of Enterprises

Random-effects GLS regression				Number of obs	=	62
Group variable (i): ID				Number of groups	=	31
R-sq: **within = 0.4762**				Obs per group: min	=	2
between = 0.0009				avg	=	2.0
overall = 0.0011				max	=	2
Random effects u_i ~ Gaussian				Wald chi2(8)	=	23.30
corr(u_i, X) = 0 (assumed)				Prob > chi2	=	0.0030
ENTERP	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
PROCED	**-28957.09**	**13248.8**	**-2.19**	**0.029**	**-54924.25**	**-2989.92**
DAY	-538.7161	1218.351	-0.44	0.658	-2926.64	1849.208
COST	-786.2578	1932.283	-0.41	0.684	-4573.463	3000.947
CAPIT	-43.98051	238.07	-0.18	0.853	-510.5892	422.6281
EPROCED	4344.794	4533.109	0.96	0.338	-4539.935	13229.52
EDAY	263.553	167.2049	1.58	0.115	-64.16251	591.2685
ECOST	**2519.588**	**1367.804**	**1.84**	**0.065**	**-161.2587**	**5200.436**
GDPpc	11.15881	23.95486	0.47	0.641	-35.79185	58.10948
_cons	1020245	562948	1.81	0.070	-83112.71	2123603
sigma_u	2144850					
sigma_e	63116.768					

Appendix 7: Empirical Estimation of the Model with the Logarithmic Dependent Variable as the Number of Enterprises

Table 1: Correlation Matrix

	logENT~P	PROCED	DAY	COST	CAPIT	EPROCED	EDAY	ECOST
logENTERP	1.0000							
PROCED	0.9673	1.0000						
DAY	0.5874	0.6276	1.0000					
COST	0.4506	0.4494	0.4316	1.0000				
CAPIT	0.3765	0.3881	0.1071	0.4773	1.0000			
EPROCED	0.3498	0.3537	0.2411	0.4494	0.1153	1.0000		
EDAY	0.2820	0.2451	0.2696	0.2646	0.0984	0.2902	1.0000	
ECOST	0.3807	0.3922	0.2344	0.4800	0.0644	0.3034	0.1406	1.0000
GDPpc	-0.6825	-0.6781	-0.4243	-0.5403	-0.2549	-0.4367	-0.3008	-0.4650
	GDPpc							
GDPpc	1.0000							

Table 2: Initial Regression

Logarithmic Dependent Variable: the Number of Enterprises

Random-effects GLS regression				Number of obs	= 62
Group variable (i): ID				Number of groups	= 31
R-sq: within = 0.8522				Obs per group: min	= 2
between = 0.9424				avg	= 2.0
overall = 0.9387				max	= 2
Random effects u_i ~ Gaussian				Wald chi2(8)	= 578.51
corr(u_i, X) = 0 (assumed)				Prob > chi2	= 0.0000
logENTERP	Coef.	Std. Err.	z	P>|z|	[95% Conf. Interval]
PROCED	**.1284903**	**.0077787**	**16.52**	**0.000**	**.1132443 .1437363**
DAY	-.0008979	.0008202	-1.09	0.274	-.0025055 .0007096
COST	-.0000311	.0015634	-0.02	0.984	-.0030953 .0030332
CAPIT	-.0000351	.0001765	-0.20	0.843	-.000381 .0003108
EPROCED	-.0017768	.0028584	-0.62	0.534	-.0073791 .0038254
EDAY	**.0002048**	**.0001068**	**1.92**	**0.055**	**-4.65e-06 .0004142**
ECOST	.0006097	.0011824	0.52	0.606	-.0017079 .0029272
GDPpc	-1.33e-06	2.36e-06	-0.56	0.573	-5.96e-06 3.30e-06
_cons	.9662773	.1202702	8.03	0.000	.730552 1.202003
sigma_u	.13316436				
sigma_e	.06379726				
rho	.81332291	(fraction of variance due to u_i)			

Appendix 8: Empirical Estimation of the Model with the Dependent Variable as the Number of Enterprises Per Capita

Table 1: Correlation Matrix

	ENTERPpc	PROCED	DAY	COST	CAPIT	EPROCED	EDAY	ECOST
ENTERPpc	1.0000							
PROCED	-0.1558	1.0000						
DAY	0.0786	**0.6276**	1.0000					
COST	-0.1155	0.4494	0.4316	1.0000				
CAPIT	0.0249	0.3881	0.1071	0.4773	1.0000			
EPROCED	-0.2459	0.3537	0.2411	0.4494	0.1153	1.0000		
EDAY	0.1327	0.2451	0.2696	0.2646	0.0984	0.2902	1.0000	
ECOST	-0.1961	0.3922	0.2344	0.4800	0.0644	0.3034	0.1406	1.0000
GDPpc	0.0511	-0.6781	-0.4243	-0.5403	-0.2549	-0.4367	-0.3008	-0.4650
	GDPpc							
GDPpc	1.0000							

Table 2: Initial Regression

Dependent Variable: the Number of Enterprises Per Capita

Random-effects GLS regression		Number of obs	= 62
Group variable (i): ID		Number of groups	= 31
R-sq: within = 0.2386		Obs per group: min	= 2
between = 0.0002		avg	= 2.0
overall = 0.0001		max	= 2
Random effects u_i ~ Gaussian		Wald chi2(8)	= 6.69
corr(u_i, X) = 0 (assumed)		Prob > chi2	= 0.5707

ENTERPpc	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
PROCED	5.12e-06	.0005843	0.01	0.993	-.0011402	.0011504
DAY	-.0000887	.0000542	-1.64	0.102	-.0001949	.0000176
COST	-.0000221	.0000863	-0.26	0.798	-.0001913	.0001471
CAPIT	-2.16e-07	.0000106	-0.02	0.984	-.000021	.0000205
EPROCED	.0000802	.0001996	0.40	0.688	-.0003109	.0004713
EDAY	6.65e-06	7.42e-06	0.90	0.370	-7.89e-06	.0000212
ECOST	.000026	.0000611	0.43	0.670	-.0000937	.0001458
GDPpc	2.21e-07	5.79e-07	0.38	0.702	-9.14e-07	1.36e-06
_cons	.0390585	.0154204	2.53	0.011	.0088352	.0692819
sigma_u	.04381293					
sigma_e	.00261036					
rho	.99646281	(fraction of variance due to u_i)				

Table 3: Initial Regression without Variable PROCED

Dependent Variable: the Number of Enterprises Per Capita

Random-effects GLS regression				Number of obs =	62
Group variable (i): ID				Number of groups =	31
R-sq: within = 0.2390				Obs per group: min =	2
between = 0.0002				avg =	2.0
overall = 0.0001				max =	2
Random effects u_i ~ Gaussian				Wald chi2(7) =	7.42
corr(u_i, X) = 0 (assumed)				Prob > chi2 =	0.3866

ENTERPpc	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
DAY	**-.000089**	**.0000485**	**-1.84**	**0.066**	**-.0001839**	**6.02e-06**
COST	-.0000222	.0000817	-0.27	0.786	-.0001824	.000138
CAPIT	-1.17e-07	9.67e-06	-0.01	0.990	-.0000191	.0000188
EPROCED	.0000827	.0001706	0.48	0.628	-.0002516	.0004171
EDAY	6.55e-06	7.04e-06	0.93	0.352	-7.25e-06	.0000204
ECOST	.0000267	.0000582	0.46	0.647	-.0000874	.0001407
GDPpc	2.33e-07	5.74e-07	0.41	0.685	-8.92e-07	1.36e-06
_cons	.0388854	.0131222	2.96	0.003	.0131664	.0646045
sigma_u	.04618406					
sigma_e	.00256568					
rho	.99692332	(fraction of variance due to u_i)				

Appendix 9: Empirical Estimation of the Model with the Dependent Variable as the Share of Private Sector in GDP (%)

Table 1: Correlation Matrix

	PRSECTOR	PROCED	DAY	COST	CAPIT	EPROCED	EDAY	ECOST
PRSECTOR	1.0000							
PROCED	−0.5326	1.0000						
DAY	−0.2793	**0.5449**	1.0000					
OST	−0.1348	0.1128	0.2232	1.0000				
CAPIT	−0.0091	0.1644	0.0674	0.4268	1.0000			
EPROCED	−0.2448	−0.1230	−0.2120	0.0458	−0.1448	1.0000		
EDAY	−0.1108	−0.0125	0.0777	−0.0422	−0.0257	0.1203	1.0000	
ECOST	−0.0442	0.0117	−0.0798	0.0776	−0.0119	0.2894	−0.0098	1.0000

Table 2: Initial Regression

Dependent Variable: the Share of Private Sector in GDP

R-sq: within = 0.2964				Obs per group: min =		2
between = 0.1486				avg =		2.0
overall = 0.1019				max =		2
				F(7,17) =		1.02
corr(u_i, Xb) = −0.3726				Prob > F =		0.4504
PRSECTOR	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
PROCED	.063616	.4122386	0.15	0.879	−.8061314	.9333633
DAY	.0110234	.0200569	0.55	0.590	−.031293	.0533398
COST	.0188905	.030205	0.63	0.540	−.0448364	.0826174
CAPIT	**−.006645**	**.0031649**	**−2.10**	**0.051**	**−.0133224**	**.0000324**
EPROCED	.0408503	.0716434	0.57	0.576	−.110304	.1920046
EDAY	−.0011913	.0016502	−0.72	0.480	−.004673	.0022904
ECOST	.0011962	.0070374	0.17	0.867	−.0136514	.0160439
_cons	62.0396	6.377985	9.73	0.000	48.58323	75.49598
sigma_u	13.59706					
sigma_e	1.0171835					
rho	.99443475	(fraction of variance due to u_i)				
F test that all u_i=0:		F(23, 17) = 205.37			Prob > F =	0.0000

Appendix 10: Empirical Estimation of the Model with the Dependent Variable as the Share of the Informal Economy in GNI (%)

Table 1: Correlation Matrix

	INFECON	PROCED	DAY	COST	CAPIT	EPROCED	EDAY	ECOST
INFECON	1.0000							
PROCED	0.4129	1.0000						
DAY	0.2256	0.5715	1.0000					
COST	0.3521	0.2464	0.2333	1.0000				
CAPIT	-0.1504	0.1017	0.0390	0.1530	1.0000			
EPROCED	0.2831	0.2667	0.1270	0.1191	0.1427	1.0000		
EDAY	0.1171	0.1091	0.0676	0.1453	0.0771	0.1898	1.0000	
ECOST	0.1073	0.1065	0.1968	0.1539	-0.0286	0.0506	-0.0002	1.0000

Table 2: Initial Regression

Dependent Variable: the Share of the Informal Economy in GNI

Source	SS	df	MS	Number of obs =	106
Model	6638.10429	7	948.300613	F(7, 98) =	6.89
Residual	13479.6811	98	137.547766	Prob > F =	0.0000
				R-squared =	0.3300
				Adj R-squared =	0.2821
Total	20117.7853	105	191.597956	Root MSE =	11.728

INFECON	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
PROCED	**1.354094**	**.4117764**	**3.29**	**0.001**	**.536937**	**2.171251**
DAY	-.023929	.0413736	-0.58	0.564	-.1060336	.0581757
COST	**.046042**	**.0139454**	**3.30**	**0.001**	**.0183677**	**.0737162**
CAPIT	-.0047158	.0015553	-3.03	0.003	-.0078022	-.0016294
EPROCED	**.3128295**	**.1405463**	**2.23**	**0.028**	**.0339199**	**.5917391**
EDAY	.0014208	.0050281	0.28	0.778	-.0085574	.0113989
ECOST	.0037359	.0156219	0.24	0.811	-.0272652	.034737
_cons	10.97582	4.259043	2.58	0.011	2.523883	19.42775

Table 3: Regression of the Model with the Dependent Variable as the Share of the Informal Economy in GNI

Source	SS	df	MS	Number of obs =	106
Model	5319.90306	3	1773.30102	F(3, 102) =	12.22
Residual	14797.8823	102	145.077277	Prob > F =	0.0000
Total	20117.7853	105	191.597956	R-squared =	0.2644
				Adj R-squared =	0.2428
				Root MSE =	12.045

INFECON	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
PROCED	**1.194281**	**.3553767**	**3.36**	**0.001**	**.4893931**	**1.899169**
COST	**.0407081**	**.0139093**	**2.93**	**0.004**	**.013119**	**.0682972**
EPROCED	**.2747924**	**.1414469**	**1.94**	**0.055**	**-.005767**	**.5553517**
_cons	11.81826	4.288197	2.76	0.007	3.312637	20.32387