SMALL BUSINESS IN UKRAINE: MACROECONOMIC DETERMINANTS

by

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Abstract

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Using economic data from 1998 to 2001 I study macroeconomic determinants of small business in Ukraine. My research follows the Carree's (2002) approach to the analysis of the supply side of small business.

The empirical evidence suggests that important factors contributing to increased presence of small businesses in the economy in 1998-2001 were value added per person, human capital measured as a share of students in the population, and urbanization rate. As value added per person increases people become more engaged in entrepreneurial activities by launching registered firms or doing business on their own account. The marginal influence of value added is decreasing, however. The effect of human capital is positive and economically significant. More urbanized regions provide better economic environment for small business.

Unemployment was not found among the factors that influence the dynamic of small business formation process.

The index of reforms which approximates the change in the overall macroeconomic conditions is not significant suggesting that small business formation process is beyond the influence of traditional economic tools. Thus, the role of government in stimulating entrepreneurship is limited.

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LIST OF ABBREVIATIONS

EU	European Union
GDP	Gross domestic product
ILO	International labor organization
OECD	Organisation for economic cooperation and development
R&D	Research and development
SEED	Small enterprise development
SMEs	Small and medium enterprises
VA	Value added

GLOSSARY

Economic development is the process of the improving human lives. Three equally important aspects of development are 1) rising people's living standards; 2) creating conditions conducting to the growth of people's self-esteem, 3) increasing people' freedom (Todaro, 2000)

Enterprise is a legal entity whose primary goal is earning profits by producing and/or supplying goods and services in the market.

Entrepreneur is someone who assumes the financial risk of beginning and managing a new venture. The venture can be based on a totally new idea, a new way of doing something, a new location, or attempting something no one else has done before.

Entrepreneurship is "1) the dynamic process of creating incremental wealth, 2) owning and managing a business, or working on one's own account" (used in paper) (Audretsch, 2000) Self-employment rate is the most static indicator of entrepreneurship (Wennekers, 2002).

Family venture (business) is a small firm operated by and/or employing one or more family members.

Firm (see **enterprise**)

Home based business is a business whose primary office is in the owner's home.

Individual entrepreneur is someone who works on its own account without creating a legal entity. He/she however may hire other people for assistance (usually family members).

Region is an administrative territorial unit, called oblast, in Ukraine.

Regional value added is the value of gross output produced in a region less the value of intermediate product.

Self-employed is employer (small enterprise owner) or individual entrepreneur.

Small business is composite term indicating the set of small enterprise plus individual entrepreneurs.

Small entrepreneurship is activities by small enterprises and individual entrepreneurs (a legal term in Ukraine defined in the law "On the National Small Business Support Program").

SMEs – Small and medium-sized enterprises - are a heterogeneous group, which includes a wide variety of firms that possess a wide range of sophistication and skilled workers and operate in very different markets and institutional environments. The statistical definition of SMEs varies by county and is usually based on the number of employees or the value of assets. (Hallberg, 1999).

Chapter 1

1. INTRODUCTION

The history of small business is one of the most controversial stories of economic development in the world. The years following World War Two were a real challenge for small enterprises. They were believed to impede economic growth by stealing scarce resources from large enterprises and enjoying illusionary benefits at the expenses of unrealized alternative projects. No one would dare to take the side of small enterprises in the 60's let alone to promise an unprecedented boom of small entrepreneurship in the forthcoming decades. This tendency has reversed in the 80's (Audretsch, 2000).

Nowadays we can firmly state that the small businesses' story is not just much ado about nothing. Small businesses are no longer perceived as a luxury good that should be preserved for the sake of social and political goals at the cost of economic efficiency. They are widely recognized as an indispensable element of world economies that ensures dynamic and efficiency of economic processes[1].

Why did those drastic changes occurred in the perception of small businesses across the world? The explanations are diverse and together give a very comprehensive picture of the current role of small business in economy. Small and medium enterprises make up over 95 per cent of all enterprises and account for 60 to 70 per cent of jobs in most OECD countries. In some European countries small businesses produce up to 70% of GDP which is really an impressive statistics (European observatory for SMEs, 2002, #5)

[1] For a more complete discussion of the evolution of SMEs perception see Audretsch, 2002

Besides positive macroeconomic effects small business offers a number of other advantages for economy. Small firms are found to be highly market innovative immediately adjusting to consumers' needs and fully satisfying their desires(Jovanovich, 1993). Employees more and more find it a privilege to work for a small enterprise (Sato, 1996). It appears that workers at a small firm are more exposed to establishing long-lived friendly relationship among them. Managers of small enterprises are more loyal to their employees than their colleges from large corporations (Scott, 1991).

Small businesses are essential agents of change in the process of transition. They introduce new products and services needed in economies which for long concentrated on industrial and military production rather than on needs of consumer markets1 (OECD observer, 1999)

Many researchers point out that small businesses are the source of the fourth ingredient of economic growth (besides capital, labour, and technological progress) which is not discussed in the framework of neoclassical theory but which is empirically proved to be very important - entrepreneurial activity (Thurik, 2001).

Thus, the prevailing world tendency in is not just to let entrepreneurs do their job but to encourage and stimulate small business activities by all means. International Labor Organization puts small enterprises at the heart of the job creation process. By launching a Program on Boosting Employment through Small Enterprise Development (SEED) the ILO has explicitly recognized the increasing importance of small businesses in extending the employment opportunities in the member countries. ILO recommendation #189 on small and medium-sized enterprises suggests that "countries should develop an enterprise

culture, foster effective services, remove discrimination against smaller businesses and improve the representation of small enterprises and their workers"[1].

Small enterprises development is also the essence of the development strategy launched by the European Council in Lisbon in March 2000. The strategy outline states that a country's "reaching the objective of becoming the most competitive and dynamic knowledge-based economy in the world, capable of sustainable economic growth, more and better jobs and greater social cohesion will ultimately depend on how successful enterprises, especially small- and medium-sized ones, are"[2].

Small business prospects are of great concern for many Ukrainians since it is perceived not only as an economic phenomenon. It is also an important factor for creation and stabilization of democracy. It is widely believed that prospering small business is fundamental to the creation of a middle class and avoidance of the polarization between rich and poor[3].

Thus the Ukrainian society has learnt to blame government for not sufficiently supporting small businesses and not creating the necessary preconditions for expansion of entrepreneurship. The general belief is that the dynamic of the small business sector evolution is completely at the discretion of the authorities and their sincere desire is enough to guarantee the boom of entrepreneurship. Politicians in turn have learnt to include praises for small business in their speeches assuring the public that it is their programme priority.

Once we have recognized the exceptional role of small business we recall the basic economic axiom of no free lunch and pose a question: is this axiom relevant to small business? Can we have the optimum level of small business in any

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[1] The citation is from the SEED Program brochure available at www.ilo.org/seed.

[2] The citation is from Observatory of European SMEs, 2002, #5

[3] This is true for inhabitants of other counties in transition, see OECD observer, 2002

country? What is the cost of the prosperity of small enterprises? It might be also the case that the small business formation process is beyond the influence of traditional economic instruments and therefore government policy employing these instruments will be ineffective in affecting the development of the small business sector.

The goal of this study is to determine the factors that influence the dynamic of small business sector formation in Ukraine. Knowledge of the key factors and their qualitative impact may be of use for policy-making purposes. If tools under control of the government are crucial for the formation of small business the government should take advantage of this fact by creating the preconditions for small businesses' prospering. If not, we might still be interested in the results since they can be used for forecasting of economic and social consequences of the small sector evolvement.

The remainder of this paper is organized as follows. Chapter 2 addresses the definition of small business. Chapter 3 provides review of previous studies of small business sector. It contains a review of the literature on entrepreneurship and concentrates on the macro approach which is of special interest for my research. Chapter 4 discusses the state of small business in Ukraine by providing a detailed description of the small business sector evolution and presenting the statistical evidence. Chapter 5 contains the discussion of the models to be estimated. The objective of this modelling is to find what determines the presence of small business at the macro level. The equations for my research are designed using the framework developed by Carree (2002). I try four alternative specifications of equations and choose the one that works better in explaining the reality. The econometric methodology used for estimation is also thoroughly described in Chapter 5, and this is accompanied by the results of the empirical estimation and discussion of the major findings from this estimation.

Chapter 2

2. DEFINITION OF SMALL BUSINESS

A researcher who starts to study small business inevitably encounters problem of definitions. To be consistent in my analysis I choose to clarify some of them.

The broadest definition capturing the essence of small business is self-employment. The self- employed are those who owning small enterprises provide working places for others plus individual entrepreneurs. (van Stel, 2000). Following the OECD definition, the self-employed is everybody from the active labor force except wage earners, salaried employees, and unpaid family workers[1]. The perfect synonym to self-employment frequently encountered in the paper is term 'business ownership' introduced in Verheul (1999). Individual entrepreneurs are those who work on their own account but sometimes hire other people for assistance.

The most problematic is the definition of small enterprises since there is no internationally adopted standard. The definition, whether in terms of employees, assets, turnover, or other appropriate variables, differs from one country or region to another since operational definitions are linked to the specific level of development of the region or a country and to the particular purpose for which the definition is formulated (e. g. whether it is for administrative or development management purposes). Even within one country there may exist more than one definition. In Australia, for example, Holmes (2001) counts more than 10 definitions of small business: to be eligible for export assistance an enterprise

[1] OECD labor force statistics is discussed in van Stel, 2000

should meet one criterion, while for eligibility for training assistance it should satisfy another requirement

In the EU, most countries have adopted the EU definition of no more than 250 employees, but others draw the line at 100 (the Netherlands), 200 (Australia) or 500 (the United States, Canada) (Holmes, 2001). Lundstrom (1999) states that it does not really matter where this limit is drawn since the structure of the SME sector is similar in almost every country and the following are therefore true.

- More or less 99 percent of businesses will fall into the SME category if the 250 employee limit is applied,
- A limit of fewer than 10 employees will capture close to 90 percent of firms in all countries.

But certainly it is not the statistical characteristics which make small business distinctive from other sectors of economy. I am more interested in the generic characteristics of small sector units, *i. e.* characteristics which make small business units special for my analysis.

Holmes (2001) proposes the list of qualitative characteristics for defining small business. According to him, the key characteristics related to the inherent nature of small firms are:

a) Management and ownership is rarely separate.

b) Control over business operations and decisions reside with one or two persons, who are usually related.

c) The equity in the business is not publicly traded.

d) The personal security of the owners is required to secure business debt and as a result limited liability is rarely present.

e) The level and number of formal contractual relations are kept at a minimum level.

f) Personal objectives of owners will guide and directly influence business decisions.

Since legally quantitatively defined business units are in most cases business units with above listed characteristics (Lundstorm, 1999), I proceed assuming that legal definition of small business captures the essence of the phenomena under discussion *i. e.* small business.

Although Chapter 4 provides an extensive discussion of small business in Ukraine, it may be useful at this point to state explicitely what the small business definition in Ukraine is and what definition is employed throughout the paper. Thus, Ukrainian laws distinguish two groups of subjects of small entrepreneurship (small business) – individual entrepreneurs and small enterprises. Individual entrepreneurs are people who are doing business on their own account without creating legal entities. Small enterprises are enterprises with less than 50 workers employed. All these agents (individual entrepreneurs and small enterprises' owners) are classified as self-employed for my research. This definition of self-employed is used consistently throughout the remainder of the paper.

Chapter 3

3. LITERATURE REVIEW

3.1 Effects of Small Business

Since small business is relatively new field of economic research, most research papers on entrepreneurship start with discussion of small business effects. Before going deeply into discussion of causes of small business it is reasonable to answer the question – why should one care about small business sector? The introduction includes some facts demonstrating the increasing positive role of small business in modern economies. The two most extensively discussed effects of small business are stimulation of economic growth and the generation of employment.

Carree (2002) states that one important dimension of structural changes in industrialized countries has been the shift in economic activity away from large enterprises towards the smaller counterparts. The author seeks to estimate the effect of lagging behind the downsizing dimension of the restructuring process. The main finding is that industries that failed to restructure performed less well. In other words, the lack of small enterprises has been an important reason for the slow pace of economic development in some counties (Western Germany is an example). Audretsch et al. (2000) obtain similar results. They claim that countries that impede restructuring process pay a penalty in terms of forgone growth. In their paper industrial restructuring is defined as shift from prevalence of large enterprises towards the small enterprise sector accounting for a greater share of economic activity.

Employment generation is an undisputable advantage of small enterprises. Evidence from Heshmati (2001) suggests that since the 1990s employment creation is negatively related to firm size. Small and new enterprises serve as an engine of employment creation in all developed economies accounting for a significant amount of working places. Small businesses provide, for instance, 79.3% of jobs in Switzerland and 85.6% in Ireland (European Observatory for SMEs, 1995).

Apart from contributing to economic growth and creating working places small firms offer a range of other attractive advantages for economy. Scott (1991) summarizes those beneficial characteristics of small business as follows:

1. Small enterprises can be fast and flexible, and are close to their customers. As a result they can be a competitive spur to large firms. Carree (2002) provides the result of study made by Jovanovic (1993). In this study Jovanovich finds that large firms were not capable of entering into some market niches since small businesses were better in adapting to consumers' needs.

2. Many small firms are innovative. They are, however, generally more market- and less research-driven, quicker to respond to new opportunities and more oriented to small incremental advances. In total, between 30% and 60% of all SMEs can be characterised as innovative, but only a relatively small share, approximately 10%, use technology-based innovations (OECD, 1997). Acs (2002) gives the following reasons for small firms' being so inventive:

    - a greater tolerance for higher risk initiatives;

    - a collegial organisational context that values ideas and originality;

- a capacity to reap substantial rewards from market share in small, niche markets;

- greatly increased cohesion and a sense of collective purpose where all may profit directly from a successful new innovation

3. Small enterprise can provide better social environment. A similar conclusion comes from Sato (1996). Conducting a survey of 1,996 Japanese SME managers in 1993 he found considerable pride and satisfaction with working in small enterprises. SMEs are less formal and provide greater adaptability for the firm and flexibility for employees. An increased focus on personal/family goals and less on firm loyalty is developing among workers; many consider SMEs as a more appropriate context for personal self realisation. A curious fact is that many SME managers had left large corporations; two-thirds would not want their firm to become large.

Besides, Nugent and Yhee (1999) find that as SME sector expands relative to the large enterprise sector of the economy, ceteris paribus, (1) the share of labour in national income rises, (2) inequality among wage earners decreases, and (3) overall income inequality falls. This finding may be of special interest for governments striving for more wealth homogeneous societies.

d'Andrea *et al.* (1994) points out that in transitional economies small enterprises have an even more important role. Within the transformation process, she says, there are two major tasks for entrepreneurs: to assist in privatising and restructuring state-owned enterprises and to help to transform the distorted and monopolistic industrial structure of the former centrally planned economies. Winiecki (2001) argues that small and medium enterprise sector was the driving force of establishing structure of ownership based on preponderance of privately

held firms in competitive environment. *De novo* small enterprises were the agents speeding up privatization from below.

Piasecki (1998) adds that "at an early stage of transformation particularly, the development of the SME sector . . . becomes one of the most effective instruments in the reorientation of social awareness . . . Without liberating social awareness, the emergence of the private sector and a market economy are impossible"

From the above discussion I conclude that small business sector is an important component of modern economy structure. Providing a number of advantages for individual consumers, workers and economy on the whole it deserves some attention of researchers. Knowledge of key determinants of small sector may help us to raise the number of small enterprises and increase potential benefits.

3.2 Research on Determinants of Small Business

According to Wennekers (1999) and Audretsch (2002) research on small business can be classified by two criteria: the first one is the phase of small enterprise's life under study and the second one is the level of analysis.

Using the first criterion one can distinguish a static or a dynamic aspect of entrepreneurship (Wennekers, 1999). The dynamic perspective views entrepreneurs as agents of change, who start new businesses, experiment with new techniques, introduce new products or even create new markets. For the dynamic perspective several indicators can be used including nascent entrepreneurial activity, gross entry of new business start-ups, net entry. In

contrast, the static perspective views entrepreneurship as a component of the industrial structure of the economy at a particular point of time. Self-employment rate is the most important static indicator of entrepreneurship (Wennekers, 2002).

An example of dynamic approach is paper by van Galderen (2000). The goal of his research is to find what determines the success of new start-ups in Netherlands. The author reports that women are less successful in starting small businesses. Another fact worth attention is that availability of external finance matters for survival.

A static approach is much more often utilized and almost all papers discussed in the next section employ it. White (1982), Noorderhaven (2001), Wildeman (1999) are concrete examples.

A more widespread approach is to classify studies according to level of analysis (Wennekers, 2002). A distinction can be made between micro, meso and macro level of entrepreneurship (Audretsch and Verheul, 2002). The objects of study tied to these levels of analysis are the individual entrepreneur or business, sectors of industry and the national economy, respectively.

Studies at the micro level focus on the decision-making process by individuals, motives of people to become self-employed, factor that influence the success of firms' performance. Research into the decisions of individuals to become either wage- or self-employed focuses primarily on personal factors, such as psychological traits, education and other skills, financial assets, family background and previous work experience. Research into the determinants of successful performance concentrates on the quality of production inputs (human capital, technologies) and the organizational structure of an enterprise. (Audretsch, 2002)

Research by Bosma *et al.* (2000) gives the essence of the micro approach. Having at their disposal the results of 2000 questionnaires from a sample of Dutch entrepreneurs that started their business in 1994, the authors analyze to what extent investment in human and social capital, enhance entrepreneurial performance. Questionnaires provide three performance measures (earned profits, cumulative employment and survival rate) and a number of explanatory variables like experience in business ownership itself, experience in activities related to business ownership (e.g. experience in leadership), and experience in the industry in which the founded business is active. The main finding of the research is that the endowed level of talent of a small business founder is not the unique determinant of performance. Rather, investment in industry-specific and entrepreneurship specific human capital contributes significantly to the explanation of the cross-sectional variance of the performance of small firm founders. Previous experience of the business founder in the industry in which he starts his business appears to improve all performance measures. Moreover, experience in activities relevant to business ownership (e.g. experience in leadership) increases the firm's survival time. Entrepreneur's age appears to affect none of the performance measures. Finally, high-educated people make more profits, while those who have experience as an employee create more employment.

Studies at the meso level of entrepreneurship often focus on market specific determinants of entrepreneurship, such as profit opportunities and opportunities of entry and exit (Audretsch, 2002). A nice example of industry-level research is paper by White (1982). In the research he draws our attention to the fact that small businesses are prevalent in some sectors of the economy (like agriculture, construction, wholesale and retail trade) and scarce in others (like mining or manufacturing). His paper provides cross section evidence on the determinants of relative importance of small business. Using a sample of enterprises in the

manufacturing sector, the author estimates the equation where the share of industries' sales which were accounted by small firms is the dependent variable. Its role is to capture the relative prevalence or absence of small business. The hypothetisized explanatory variables were capital intensity (ratio of the value of plant to labor), the ratio of value added to sales (a rough measure of vertical integration), growth rate of the industry (can be considered as proxy for the newness of the industry), the distance that products in the industry tend to be shipped (large values indicate that the industry was operating in national market), the fraction of the industry's sales that were consumer good (consumer oriented goods probably favour small business).

He finds that small business appears to be more important in industries with low capital-labor ratios, that are less vertically integrated, that have local markets, that are growing rapidly and that sell to other industries.

The macro prospective tries to aggregate the arguments made at the micro and meso level and focuses on the range of environmental factors, such as technological, economic and cultural variables as well as government regulation (Audretsch, 2002). This approach is the subject of the next section since it requires special attention being the essence of my empirical research.

3.3 Small Business from Macro Perspective

A common way to start the analysis of the aggregate determinants of small business is to make a distinction between demand and supply side of entrepreneurship (Verheul (2001), Carree (2000), Noorderhaven (2002). Audretsch *at al.* (2002) explains that the demand side reflects the opportunities to engage in entrepreneurial activity. Increased demand means that self-employment

becomes more attractive. By contrast, the supply of entrepreneurship is shaped by characteristics of the population. People do differ in terms of their personal traits and labor market status. Some of these characteristics favour entrepreneurship; others hinder the desire to become engaged in small business. Demand and supply factors are sometimes referred to as pull and push factors respectively (Noorderhaven, 2002). People are literally pulled into entrepreneurship by promising perspectives or pushed by lack of attractive alternatives. I choose to discuss briefly the major demand and supply side factors since they are of special importance for my empirical research.

The two major **demand-side factors** encountered in the literature are globalization and economic development (Verheul, 2002).

Globalization. Internationalization involves the integration of world markets and removal of trade barriers. The dismantling of trade barriers results in more fierce international competition and increased variability in demand (Verheul, 2002). Carree (1997) shows that small firms can better absorb this risk utilizing production technologies that permit them to adapt quickly to changes in market demand. Globalization also indirectly influences entrepreneurship through the increased diversity in product demand. Verheul (2002) writes that "people are increasingly aware of available consumer goods all over the world, creating new 'global' wants and needs". New wants and needs require quick producers' response. These are the small enterprises that readily adjust to consumers' wants (Loveman, 1991).

Economic development. The impact of economy's prosperity on entrepreneurship is ambiguous. On the one hand, since economic development is accompanied by an increase in wages and improved system of social security, the opportunity cost of self-employment rise Verheul (2002). The logic is: why care

about illusionary benefits from entrepreneurship if one can easily ensure the minimum living standards having only wage income?

On the other hand, increasing wealth leads to higher consumer needs. The demand for a variety of products and services increases and small firms are well equipped to supply these new and specialized goods Carree (2000).

Furthermore, economic development tends to be accompanied by the emergence of new industries and technologies, creating opportunities for small firms. In addition, the employment share of the service sector characterized by intensive presence of small firms increases with per capita income (Wennekers, 2002).

A curious observation is made by Carlsson (1989). He argues that as economy develops, large firms start to concentrate on core competences and outsourcing. This tendency became especially apparent starting from the 1980s. The inclination of the large firms to externalization of activities not belonging to their core business or that are considered less profitable or more risky, creates opportunities, stimulating start-ups of new enterprises. He shows that the decrease in vertical integration and conglomeration since the mid-70s is accompanied by a decrease in mean firm size. Finally he predicts that small firms would take up sectors that earlier were dominated by the large enterprises.

The **supply side** of entrepreneurship is dominated by the characteristics of the population (gender composition, spatial dispersion, and education), unemployment rate, wage differentials between self- and wage-employment, availability of technological resources. This part of the literature review will be serving as basis for designing of my model, the goal of which is to determine empirically what factors are relevant to small business formation process. It will be an equation explaining the supply side of entrepreneurship, *i. e.* factors which force people to become entrepreneurs. Each variable included into my equation

will need a justification, so in Chapter 5, I will refer to the below material rather often.

Gender composition. Percentage of male (female) population can to a certain extent explain the differences in aggregate propensities to entrepreneurship in different societies. Wildeman (1999) shows that on average women are less likely to engage in entrepreneurial activity. His explanation for this phenomenon is that in most countries women have shorter employment history than men due to a break for upbringing of children and raising a family. Consequently there is smaller chance that they will choose for self-employment. Besides, self-employed often make long working day, which women cannot easily combine with their family obligations. Nevertheless, Mukhtar (2002) provides empirical evidence from the United States of America which indicates that the increase in entrepreneurial activity has been fuelled by female entrepreneurship. In particular, the growth in the number of female owned businesses in the U.S. increased considerably during the 1990s. Similarly, throughout most of the European Union female self-employment has increased between 14% and 37% (Audretsch, 2002).

Population density. Higher spatial concentration is likely to negatively affect the rate of self-employment in a particular country. The reasoning provided by Noorderhaven (2002) is as follows. Every region needs a minimum supply of facilities regarding trade and craft for population to survive. Therefore areas with low population density and many dispersed small villages will often have many small retail outlets and workshops. Conversely, urban areas will give rise to market size effects since an enterprise may provide goods and services to much greater number of consumers. As a consequence of this, small-sized entrepreneurship comes under pressure.

Educational level. People across countries have different educational and professional backgrounds (human capital) and these are likely to have a strong influence, in terms of competitive advantages and disadvantages, on the process of starting and running a business. Christensen (2000) argues that highly educated people in most cases have easier access to R&D facilities, and perhaps a good insight into the business world and thus a clear idea about the present and future needs of the market. Moreover, they might have a variety of important connections (personal and institutional networks). Entrepreneurs with good education are also likely to know how to transform innovative ideas into marketable products. However, there is no guarantee that they possess crucial managerial skills and market experiences. Empirical evidence regarding the role of education is rather diverse. Wennekers (2002) in his paper gives two contradicting findings about the importance of education. One research conducted on a Swedish sample by Delmar (2000) shows that nascent entrepreneurs have attained on average a higher educational level compared to employees. The counterexample is a comparative study across fourteen OECD countries by Uhlaner *et al.* (1994). The results of the study demonstrate that countries with a higher level of education tend to have a smaller proportion of self-employed[1].

Unemployment. Its impact on business ownership is ambiguous. Storey (1994) argues that if unemployment is high, than more individuals would be prepared to offer themselves for self-employment. The reason is shortage of alternative job opportunities. Since the opportunity cost for unemployed persons to become self-employed are relatively low, they are very inclined to attempt starting their own businesses provided that they have necessary resources. On these grounds higher rates of unemployment would induce the process of new firm formation.

[1] Unfortunately I do not have access to the papers by Delmar (2000) and Uhlaner (1994), so I took the results of their studies from Wennekers (2002).

Yet, the high unemployment rate may be an indicator of lack of job opportunities due to economic depression. A depressed economy makes prospects for setting up a new business very bleak and causes disillusionment. Thus it is hard to predict for sure the net effect of unemployment on the level of entrepreneurship.

Differentials in earnings. Gap in income from wage- and self-employment is an important determinant of occupational choice (Noorderhaven, 2002). Potential profits are one obvious reason to set up a business. Individuals compare expected profits and wages when weighing the attractiveness of self-employment versus wage-employment. Iyigun and Owen (1998) draw our attention to the fact that wage employment means guaranteed income which is rarely volatile. Self-employment, on the contrary, is inherently risky and there is a positive probability that entrepreneurial activity will result in failure. Consequently there must be some premium for taking the risk of starting a new business. A positive gap between expected income from self-employment and wage compensates the risk of entrepreneurship for risk-averse persons. The larger the difference, the more people are encouraged to shift to self-employment**.**

Technological improvements. Better technologies have resulted in diminished transaction costs and lower minimum efficiency scale in many industries. This opened the door for many smaller businesses which previously were not able to compete (Loveman, 2002). Carlsson (1989) adds that technological developments favor small-scale enterprises through cheaper capital goods and possibilities for flexible production specialization. Besides, technological advancements have induced a reallocation of resources towards new products, leading in turn to a more intense demand for entrepreneurship. White (1982), however, argues that reduction in transportation and communications costs due to the improved technologies may favor large-scale production. His argument is that now large

corporations can cheaply supply their products to distant areas producing them in one place on a large scale basis.

It is worth noting in this context that sometimes there is no clear distinction between supply- and demand-side factors. Some of them may serve simultaneously as pull and push determinants. A good example is income level (economic development) factor. On the one hand, as people get richer they obtain more resources for launching an enterprise. This creates more favourable supply conditions. On the other hand, as income grows the demand for small enterprises' production also increases. This enhances demand side effect.

Noorderhaven *et al.* (2002) argue that the above discussed economic and demographic factors may impact the desire of people to start businesses in a very different ways. They give two reasons. Firstly, cultural circumstances differ making the alternative employment options more attractive in one country than in another. Secondly, inhabitants of different countries may be motivated by different, or differently by one particular factor. Thus not only economic, technological or population composition factors are decisive for potential self-employment. Factors which make individuals, in the aggregate, more or less inclined to become self-employed also matter. Thus trying to explain the differences in the level of business ownership among 23 OECD countries researchers focus on motivational differences like satisfaction with life and uncertainty avoidance. The extent of dissatisfaction with life was estimated as the percentage of respondents indicating to be not at all satisfied with their life in a particular country[1]. In some countries (Italy, Greece) people consistently report lower level of life-satisfaction than in others. Uncertainty avoidance indicates to which extent the members of a culture feel threatened by unpredictable or

[1] Survey results were taken from Eurobarometer Trends (1994)

unknown situation. Uncertainty avoidance index was approximated by the degree of rule orientation and employment stability in a particular country[1]

Noorderhaven *et al.* (2002) hypothesize that dissatisfaction with life and differences in attitudes towards uncertainty can enhance or hinder the role of other determinants. Dissatisfaction is seen as a push factor since people who are more dissatisfied with their present life have lower opportunity costs of shifting to self-employment (changing life style). Using aggregate dissatisfaction data they test for the relationship between the average dissatisfaction level within a society and the corresponding rate of self-employment. They really find that countries where people are less satisfied with their life have higher proportion of self-employed. That is, those who feel dissatisfied are more likely to seek for self-employment. The impact of push and pull factors is different in low and high-uncertainty avoidance countries. In strong uncertainty avoidance countries the effect of income (wealth) on self-employment is strongly negative. This leads the authors to the conclusion that in these countries self-employment is a necessity rather than vocation. Noorderhaven *et al.* (2000) predict that as the economic situation permits people will shift from self-employment to wage-employment. Putting it differently, the lack of prosperity functions as a strong push factor in these countries. Other economic and demographic variables tell the following story: female labour share and population density have a strong negative effect on level of self-employment. Wage differentials do not alter the business ownership rate.

Wildeman *et al.* (1999) conduct similar research. Regressing number of self-employed solely on economic variables gives rather poor results. Inclusion of dissatisfaction variable significantly increases the explanatory power of regressors. Again there appears to be a negative relationship between population density and

[1] This index is taken from Hofstede (1980).

self-employment. The impact of unemployment on business ownership is positive in this study.

Study by Uhlaner *et al.* (2002) demonstrates how numerous the cultural determinants of self-employment are[1]. Their list of decisive cultural variables contains the degree of post materialistic orientation of society (attitude towards materialistic *vs.* post materialistic values), church attendance, the left-right extremism. All of them appear to be statistically and economically significant in regressions.

One noticeable paper in the existing literature on self-employment determinants is paper by Carree *et al.* (2002), which provides an investigation of the relationship between self-employment and the level of economic development. The researchers introduce the notion of equilibrium level of business ownership which is assumed to be a quadratic function of GDP. In their paper equilibrium rate reflects no more than a rate to which the actual rates of self-employment in the countries tend to adjust. However the concept of equilibrium has no theoretical justification. Afterwards Carree *et al.* hypothesise the ratio of self-employed to be contingent upon unemployment rate, earnings differentials between wage and self-employment, and the deviation of the actual rate of business ownership from the equilibrium one.

Besides, authors *a priori* explicitly recognize the reciprocal nature of the relationship between self-employment sector and stage of economic development approximated by the GDP level. Referring to papers by Schmitz (1989) and Wennekers (1999) they explain that self-employment rate may also affect GDP. Therefore, simultaneous equation model with self-employment rate and GDP as endogenous variables is ultimately used.

[1] The discussion is based on information from Wennekers' paper since the research by Uhlaner is unavailable.

All coefficients of equations appear to be significant leading to conclusion that both-direction relationship really exists. The relationship between stage of economic development and self-employment sector is U-shaped. The minimum is calculated to be approximately a business ownership rate of 8.8% of the labor force at a per capita income level of 19,000 US$ at 1990 prices. Unemployment rate contributes to self-employment. However, the study fails to show that higher business profitability acts as a pull factor for business ownership. There is also a correction mechanism when the rate of business ownership is out of equilibrium due to exogenous shocks. Most countries showed a convergence towards the equilibrium rate of business ownership in the period 1974-1994.

The material from this section can be summarized as follows. Small business dynamic is determined by aggregate economic and demographic factors. Among the most important are the level of technology, stage of economic development, educational level of population, unemployment rate, wage differentials between wage and self-employment, gender composition. All of them were tested empirically but sometimes the results were contradictory. For example, high educational level of population leads to increase in business ownership rate according to some studies and affects self-employment negatively according to other researches. Some researchers proceed further and account for cultural differences among societies. This approach has proved to be helpful since it improved the explanatory power of models.

3.4 Characteristics of Small Business in Transition Economies

Smallbone and Welter (2001) argue that the nature of small business in transition economies differs from that in mature market economies. According to him the differences mostly stem from the fact that developed countries are more stable and have tradition and experience of entrepreneurial activity. Years under centrally planned economy have reduced the role of entrepreneurship in

transition economies. Thus, entrepreneurs of transition countries do have some distinctive attributes which should be discussed.

Drawing the results from a number of large scale surveys and selected case studies, Smallbone and Welter (2001) provide very useful insights about the state of small business sector in Central and Eastern European countries. What draws our attention first is the motive combination for starting small businesses which is specific only for transition economies. Surprisingly, the major cause of entrepreneurship is the desire for more independence followed by necessity to boost income and strive for personal fulfilment. Only a minority of entrepreneurs in the survey undertaken in Ukraine, Belarus and Moldova referred to unemployment as a reason for start-up (less than 7%). Smallbone and Welter define them as "reluctant entrepreneurs". Among other factors mentioned is disappointment with previous job and hope to achieve higher social status.

An important distinctive characteristic of entrepreneurs in transition economies is high stock of human capital. 80% of surveyed SMEs in Ukraine, Belarus and Moldova had owners that were educated to university or higher education level. Moreover, 74% of all surveyed owners in these countries had previous managerial and entrepreneurial experience (mostly in state enterprises) before starting business.

On the other hand, Zhylyevskyy (2002) in his research on Ukraine and Russia finds on the micro level that employees possess relatively higher stock of human capital than entrepreneurs. The latter, however, are relatively more skilled than the unemployed. In his view this, probably, reveals the effect of a subgroup of relatively less skilled people who cannot find a regular job, but are forced to make one's living and be stuck in low-productivity and low paid types of self-employment. More specifically the lower human capital stock in Ukraine is due to both lower educational component and lower experience component of the

human stock index for the entrepreneurs/self-employed. On the contrary, in Russia the self-employed are slightly more experienced than the employees.

Two more peculiarities of small business found in Smallbone and Welter (2001) are worth mentioning: About 22% of the respondents were involved in the ownership of one or more other businesses, with little variation between countries. The researchers' explanation for this finding is phenomenon of *serial entrepreneurship*. Serial entrepreneurship is one of the mechanisms used to mobilise the financial resources required to develop enterprises under transition conditions. As at the initial stages of business development entrepreneur needs some minimum of financial assets to buy the necessary equipment for launching a long-lived enterprise. Most of them lack these resources and thus choose to temporarily be engaged in more than one businesses (create a series of businesses) especially those which do not require much initial resources. Such businesses are profitable only in the short run but they do allow people to accumulate money or managerial skills for launching a development-oriented enterprise.

Another feature of some of the enterprises set up in transition countries is their *part-time nature*. For example, a significant number of surveyed entrepreneurs in Ukraine, Belarus and Moldova (28%) had other occupations, suggesting that their business activity was only part-time. Part-time activities in transition countries, especially in those in early stages of transition, are often a part of a survival strategy made necessary by a lack of social security and low incomes.

Surdei (2000) in his analysis of SMEs development in Poland provides evidence that many enterprises were created to serve the consumption purposes of their owners and, thus, were oriented towards survival rather than development. Almost 95% of Polish enterprises are businesses of individual people: they do not have the status of legal entities and in some aspects their operations are not distinguishable from the activities of households. He also finds that the highest

concentration of SMEs is in the highly urbanized and industrialized areas. Among the factors that encourage the rise of enterprises in these areas are more educated population, closeness to metropolis, existing entrepreneurial conditions and the opportunity to utilize resources from large enterprises.

Smallbone and Welter (2001) stress an important role of government in developing small business sector in transition. Government can affect the nature and extent of entrepreneurship in transition countries by setting appropriate regulations relating to property, licensing and the registration of enterprises as well as bankruptcy, contracts and taxes. The authors find that in transition economies a highly inadequate legal system poses a major barrier for entrepreneurs. In addition, hostile and unstable macroeconomic conditions, particularly when combined with low domestic purchasing power, uncertainties over property rights and the slow pace of privatisation, provide little incentive for entrepreneurs to commit themselves to long term projects, forcing them instead to concentrate on the task of surviving.

Savych (2002) analyses factors that foster and factors that hinder further development of the sector of small and medium enterprises in Ukraine. His conclusion is that favourable government regulations, clear rules for all enterprises are supportive for small sector since they permit owners to concentrate on key activities rather than on solving bureaucratic problems. Government may also directly contribute to small businesses' successful functioning. The researcher finds that governmental purchases of outcome of the firm increase probability of making investments.

My conclusions from this section are as follows. Firstly, entrepreneurs in transition economies are driven by very specific combination of motives. What is really important is that unemployment is not among major causes of self-employment. Secondly, high stock of human capital is a distinctive feature of labor market in transition economies. Still it is difficult to make a definite

conclusion about the direction of its influence on the rate of business ownership. Thirdly, the transition process gives birth to two phenomena – serial entrepreneurship and part-time entrepreneurship, which are responses to hard financial constraints. Finally, active government participation matters for small sector creation in transition. By creating transparent and simple market rules central government and local authorities can substantially induce small sector formation.

Chapter 4

4. SMALL BUSINESS IN UKRAINE

4.1 Evolution of the Small Business Sector

Since the collapse of the Soviet Union, Ukraine has been actively searching for the optimal model of interaction between small businesses and authorities. In the early 1990s the government declared entrepreneurship as economic and social foundation of society[1]. However, this declaration was just the first step towards understanding of the actual role played by entrepreneurship and small enterprises in particular. It took government several more years to work out a comprehensive and future-oriented strategic programme for genuine small sector support. At the early stages of transition towards the market economy real policies related to small business were implemented only by special agencies responsible for small business development. The administrative system of Ukraine while recognizing certain advantages offered by small business development, still perceives it as a threat for itself (Lyapina, 2001). The main advantages and disadvantages of the small business creation for the government can be summarized as follows:

[1] See decree of Cabinet of Ministers "On the State Programme for Entrepreneurship support in Ukraine" issued in March, 1993.

Table 1. Advantages and disadvantages of small sector for the government

Advantages	Disadvantages
Creation of new jobs without budget funding	Economic autonomy of businesses, which decreases their dependence on the state
Reduction of social tension in society	Strengthening of the principles of civil society
Absorption of excessive labor force on the labor market	Demand for improved transparency for state authorities
Proceeds to the budget (of all levels)	Demand for improved accountability on the part of the state authorities.
Economic development resulting from social significance of small businesses.	

Source: Ukraine and Russia: SME Development Policy - Analytical Survey.

The evolution of the small businesses sector in Ukraine was not uniform since beneficial governmental measures significantly lagged behind public opinion. While the first stages were marked by increased persuasive belief in special destination of small businesses, it is only in the mid 1990s that this belief materialized in specific actions. We can distinguish three main stages of the SME development in Ukraine.

First stage: 1991-1995. For the first time the distinction between big and small enterprises was made in the law "On Enterprises in Ukraine" adopted by Ukrainian parliament in 1991. The widely used term 'small business' has become a legal concept. According to this law, an enterprise was defined as a small one if the number of its workers did not exceed the specified limit. This limit varied across sectors and small enterprise could have:

- in manufacturing and construction – up to 200 employees;
- in science and scientific services – up to 100 employees;
- in service industries – up to 25 employees;
- in retail trade – up to 15 employees.
- in other industries – up to 50 employees;

It seems, however, that this definition was useful only for statistical accounting of small businesses since the law did not offer special advantages for small enterprises. The law "On Enterprises in Ukraine" was a clear signal that there should be some difference in treatment of small and large enterprises but it did not provide specific guidelines for this distinction. Later on State committee for Small Business Support was created which, nevertheless, did not become an effective agency for lobbing of small business' interests. That same year started the race of numerous programmes developed by many ministries. Most of them, after all, remained virtual agendas rather than realized plans of small business renaissance[1].

[1] For discussion see interview with the manager of the International Financial Corporation project in Ukraine Thomas Raider published in 'Den' newspaper.

In a couple of years after the breakdown of command system became apparent an important peculiarity of post Soviet transition economies. After the collapse of centrally planned economy many people were encouraged by promising perspectives of launching their own ventures. However, the accumulated financial capital necessary for opening a new firm vanished as a result of hyperinflation[1]. The existing stock of enterprises was not enough to accommodate the entrepreneurial potential of the population. Consequently, since 1991 we could observe an increasingly huge number of people who were doing business by themselves without formally starting business (individual entrepreneurs)[2]. Those individual entrepreneurs did not have the label of 'small businesses'. As a result, they were not regarded as rightful market participants. A good demonstration of this biased attitude was the fact that their profits were considered not as profits from entrepreneurial activities but as individual income and was taxed accordingly. The maximum tax rate of 40% renders official business activities very discouraging.[3] This led to mass reversion to underground activities and the state budget eventually received nothing from potential source of revenues (Lyapin, 2001). It is only in year 2000 that individual entrepreneurs were recognized as small business subjects. Moreover they were given a number of privileges at different stages of business evolution, which gave impulse to formation of small family home-based businesses.

Stage two: 1996-1998. Adoption of the Constitution which guaranteed the freedom of entrepreneurship marked the beginning of the second stage. That same year Cabinet of Ministers approved the concept for Small business Development Policy. This concept particularly stressed that the government's

[1] According to the results of a national survey conducted by Razumkov Research Centre in 2003, only 3% of adult Ukrainian population have savings which are enough to survive for a period longer than a year without a job.

[2] See Appendix for exact statistics.

[3] See decree of Cabinet of Ministers "On Individual Income Tax" adopted in 1992 with amendments.

small business development policy was an integral part of the overall social and economic policy of the state and established the core principles of economic and administrative influence. The small business development programs for 1997/98, developed by Ministry of Economy, became another instrument for small business support and for fixing numerous problems that were hampering small business growth. The program of 1997 recognized the fact that the government's main role was to create preconditions for competitive environment rather than to extensively intervene in small businesses' activities.

Since 1998 the State Committee for Entrepreneurship became an important participant of small sector creation process. The main objective of the State Committee was to ensure that all norms issued by other governmental agencies are economically justified and will not threaten the freedom of small businesses. Further, it had to carry out policy recommendations for stimulating and supporting small enterprise sector. At the same time the State committee worked to create mechanisms for collaboration with the business community. An important step was the creation of the institute of "Authorized representative on entrepreneurship development". Such representatives became a bridge between entrepreneurs and local authorities. The function of the representatives is to present interests of entrepreneurs and to collect feedback from business community (Kuzhel, 2002).

Stage three: 1999- The starting point of the current stage was adoption by the Ukrainian parliament of the law "On State support to Small Businesses" in 1999. This law altered the definition of small entrepreneurship approved in 1991. Today small business subjects are individual entrepreneurs who work without establishing legal entities and small enterprises (enterprises with less than 50 employees and gross profits less than 500.000 euro).

Alongside came the law "On the National Small Business Support Program" which was complementary to the previous one. Parliament recognizing the unique function of small businesses in transition period passed the development programme which is typically the prerogative of the executive office. The programme set guidelines for further improvement of conditions for doing small business. More precisely governmental agencies were required to enhance investment climate, develop small business infrastructure, and carry out more transparent regulatory policy.

The most noticeable changes in the institutional environment of small business originated from the President's decree on "Simplified System of Taxation and Accounting of the Subjects of Small Entrepreneurship". It is only after this decree has been issued being a small business became a real advantage[1]. Since 1999 small enterprises started to enjoy not only abstract support in the form of declarations about their special role in the Ukrainian society. The government has initiated essential transformation of the core principles of doing small business in Ukraine by changing the rules of taxation and accounting. According to the decree, subjects of small entrepreneurship could switch to simplified system of taxation and accounting. The physical entities (individual entrepreneurs) who employ up to ten workers and whose gross profits do not exceed 500 000 hryvnias per year were allowed to pay a fixed tax without doing accounting. The rate of the tax is established by local councils and is contingent upon the sector and location of the enterprise. The range is limited to 20-200 hryvnias, however.

Legal entities can also exercise their right to operate under favourable terms. Enterprises where number of employees is not greater than 50 (small enterprises) and whose gross profits are smaller than 1 million hryvnias are eligible for

[1] For discussion see interview with the manager of the International Financial Corporation project in Ukraine Thomas Raider published in 'Den' newspaper.

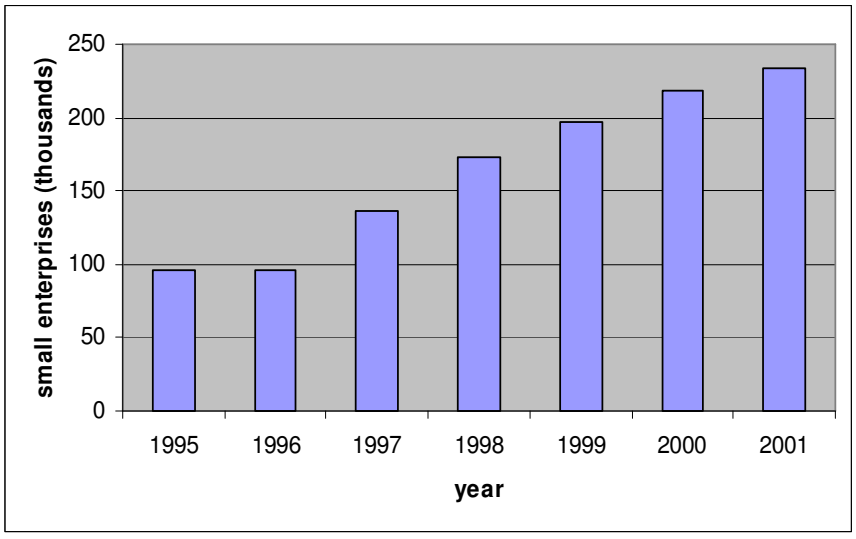
choosing the simplified taxation system. They are faced with two options: either to pay value added tax at the rate of 20% plus 6% of the gross income tax or just 10% of the gross income tax. Each year enterprises are given freedom to choose the scheme that they find most favourable for themselves.

The local communities also became beneficiaries of fixed taxation system implementation. The decree states that 43% of the tax payments by self-employed are directed to the local budgets. Similarly 23% of small enterprises' payments can be used by authorities for the needs of local communities. This explicit assignment of tax collections to local budgets has been a powerful stimulus for local bureaucracy to encourage small business creation and speed up deregulation of the registration procedure.

4.2 Some Statistical Evidence on Small Business

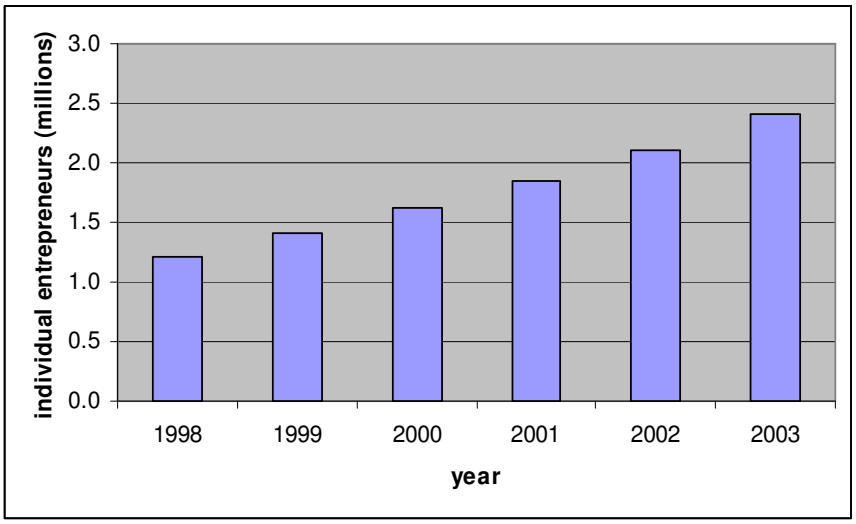
Despite many difficulties the overall conditions for doing business in Ukraine are getting better. Many indicators demonstrate marked improvements, which led to a dynamic development of small entrepreneurship.

Figure 1. Number of small enterprises



Source: Ukrainian Statistics Yearbook, 2002

Figure 2. Number of individual entrepreneurs



Source: State Committee for Regulatory Policy and Entrepreneurship

According to the State Committee for Statistics, the total number of small businesses in Ukraine in 2001 was 233,607. Thus the number of small business per 1,000 people is estimated at 4.5-4.8.

The following table summarizes the differences in small enterprises sector's characteristics across countries.

Table 2. Differences in small enterprises' characteristics across countries

Country	Number of small enterprises (thousands)	Number of small enterprises (per thousand population)	Employed in small enterprises sector (millions)	Share of small enterprises in total number of jobs (%)	Small enterprises' share in GDP (%)
UK	2,630	46	13.6	49	50-53
Italy	3,920	68	16.8	73	57-60
France	1,980	35	15.2	54	55-62
EU countries(overall)	15,770	45	68	72	63-67
USA	19,300	74.2	70.2	54	50-52
Russia	890	6.1	6.5	10	10-11
Ukraine	233	4.8	1.72	8	10

Source: Small and medium enterprise survey. Summary report.

An obvious conclusion is that small enterprises are much more numerous in developed countries than in Ukraine. Consequently they play much more significant role in Western economies. They account for at least 49% of jobs and produce more than half of total GDP.

Another way of comparing the entrepreneurial activities of societies is to look at the ratio of self employment (business ownership) in a particular country. It is defined as the number of employers (small enterprise owners) plus number of individual entrepreneurs over the total labor force in a country. The calculated

number for Ukraine is 0.112[1], which is about 48.8 self-employed per 1000 of the population.[2] The table summarises the statistics:

Table 3. The ratio of self-employment (business ownership) in some European countries and Ukraine

year / *country*	**1988**	**1992**	**1996**	**2000**
France	0.099	0.096	0.088	0.084
Germany	0.070	0.073	0.082	0.087
Italy	0.169	0.179	0.183	0.185
Netherlands	0.082	0.089	0.102	0.109
Denmark	0.056	0.058	0.064	0.061
Ukraine				0.112*

Source: COMPENDIA: a harmonized dataset of business ownership in OECD countries.
* the number is for year 2001

Thus, self-employment measure gives results that are quite comparable to European statistics. I conclude that although the proportion of entrepreneurs in Ukraine is roughly the same as in Europe, they are more inclined (or forced) to work on their own rather than to organise all officially recognized and dully legally registered enterprises.

Despite the significant increase in the number of small enterprises, their share in GDP production has fallen in 2000[3]. The explanation for these unexpected phenomena is not straightforward but is generally linked to the consequences of

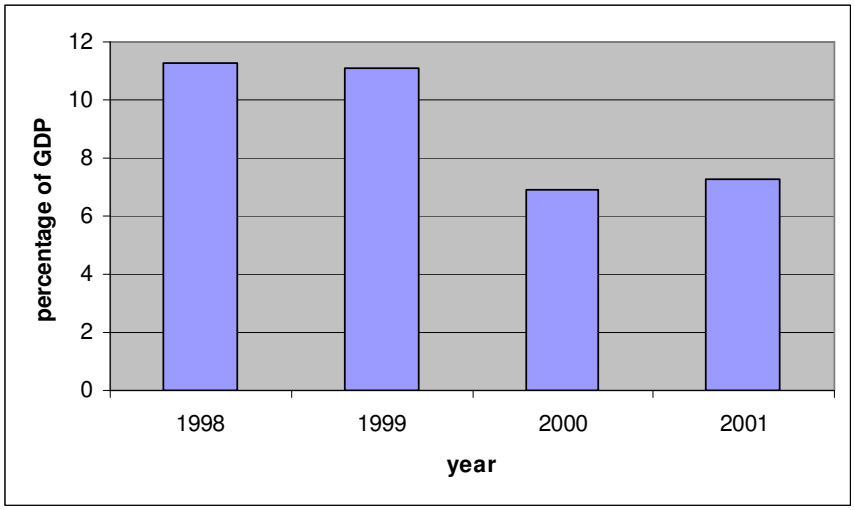
[1] (233,607(number of small enterprise)+2,112,004(number of individual entrepreneur))/21,900,000 (Ukrainian active labor force in 2001) gives 0.112.

[2] (233,607(number of small enterprise)+2,112,004(number of individual entrepreneur))/48,127,586(Ukrainian population in 2001) gives 0.0488.

[3] Unfortunately data on individual entrepreneurs is not available.

financial crises in 1998-1999. It appeared that large enterprises were better than small ones in adapting to drastic changes in economic environment (Lyapin, 2001).

Figure 3. Share of small enterprises' production in total GDP



Source: Ukrainian Statistics Yearbook, 2001

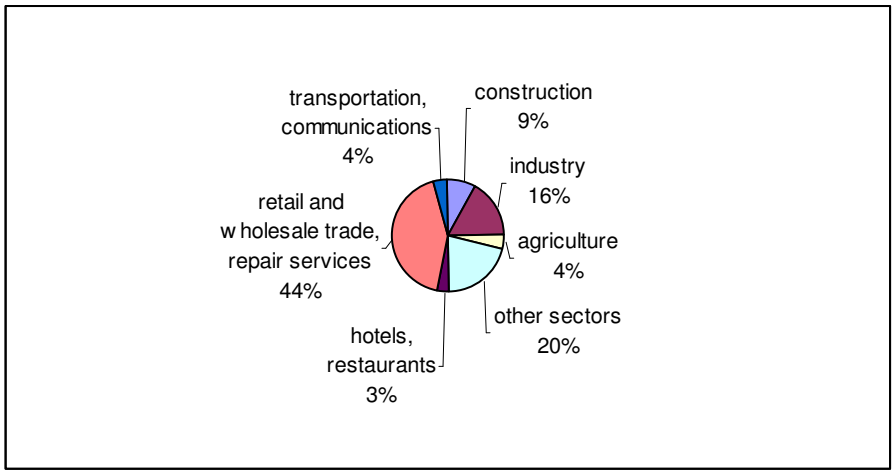
One of the most valuable sources of information on the state of small business in Ukraine is the result of a national survey.[1] The survey shows that the structure of Ukraine's economy is rapidly moving away from an outdated socialist model, overwhelmingly dominated by large businesses, to a mixed structure with a fast growing business sector. This growth in small business offsets the reduction of employment by medium and large businesses and creating new job opportunities.

To get an idea about the real state of affairs in the small business sector it may be helpful to address some interesting statistics which gives a good coverage of Ukrainian small business peculiarities. The numbers presented below come from the Summary Report of in National Small and Medium Enterprise Survey.

[1] National survey of small business in Ukraine. Kyiv International Institute of Sociology

The survey demonstrates that the majority of jobs in small business were in trade and services.

Figure 4. Distribution of small enterprises by sectors in 2001



Source: Ukrainian Statistics Yearbook, 2002

- On average one of five businesses attempted to receive a credit or loan during six months prior to the survey. Half of those succeeded in obtaining a credit. As obtaining a credit may be a crucial factor of successful enterprises' functioning (discussed in the literature review), this statistics displays that the government should be more active in developing the financial infrastructure and facilitating the access to credits.

- About 50% of small businesses invested in upgrading of production in 2001, compared to 46% in 1999.

- Approximately 60% of small firms reported paying their workers in a timely fashion in 1999, while only 36% of medium and 29% of large businesses made the same claim. In 2001, 74% of small, 55% of medium,

and 54% of large businesses reported that they had no delays in wage payments.

- In 1999, small businesses pointed to the existing taxation system as the biggest obstacle to growth of their companies. In 2001, the lack of working capital moved to the top of the list.

- Very insignificant part (about 5%) of small firms exported their goods and services.

According to the data of an international survey conducted by National Bureau of Economic Research that looked at the process of small enterprises registration in 75 countries including Ukraine, the length of the registration process in Ukraine is not the longest when compared to other countries[1]. However, it is possible and needed to streamline the process for obtaining a registration certificate. International practice demonstrates that it is possible to improve the process. For example, the creation of a single bureau to issue registration certificates and all necessary permits and approvals significantly simplifies the conditions for the start-up and the development of businesses. The establishment of a single registration office would enable business owners to reduce the time necessary to obtain registration documents and to commence operations[2]. Recently Ukrainian entrepreneurs obtained an opportunity to enjoy the simplified registration procedure. Ukrainian parliament has adopted the law obliging local authorities to issue registration certificate within three days after documents submission[3]. Moreover,

[1] The results of the survey are given in The Survey of small business in Ukraine. Kyiv international institute of sociology.

[2] Discussion is based on the material from "The survey of small business in Ukraine".

[3] See law "On registration of legal and physical entities - subjects of small entrepreneurship" adopted on May 15, 2003

entrepreneurs do not have to visit numerous offices since one specialized agency is now responsible for all procedural details. Hopefully, in a few years we will observe less entrepreneurs' dissatisfaction with authorities.

The main points of this chapter can be summarized as follows. Firstly, the market environment for doing small business in Ukraine is becoming more favourable. Most micro level studies report that entrepreneurs experience significant improvements in the institutional setup of economy. However, some problems are still to be overcome. Government should be more committed to creating simple and understandable regulations. Secondly, the small business sector in Ukraine is prevailed by individual entrepreneurs rather than enterprises. Nevertheless, the overall entrepreneurial activity in Ukraine approximated by business ownership ratio is not lower than in European counties.

Chapter 5

5. EMPIRICAL ANALYSIS

5.1 Model specification

Designing the model for empirical investigation of small business in Ukraine I use the framework developed by Carree et al (2002). They estimate the long-run relationship between the ratio of business ownership and the stage of economic development in 23 OECD counties in the period 1976-1996. The rate of business ownership is hypothesised to depend primarily on the stage of economic development of a country, approximated by GDP per capita. Besides, they choose two more variables that are likely to determine the dynamic of small businesses. These are unemployment rate and differentials in earning between wage and self-employment. Actually the estimated equation is supply side equation since it is meant to capture what combination of factors makes (pushes) people to become engaged in entrepreneurship.

To check the presence of nonlinear effects of income on business ownership researchers include GDP squared into the regression. It proves to be a useful trick since marginal effects of GDP differ among periods. Unemployment is found to be an important 'push' factor. Wage differential, however, do not matter.

I will attempt to estimate the supply-side model for Ukraine which is much akin to the one discussed by Carree (2002). In my research the dependent variable is the number of self-employed per 10,000 of inhabitants. Self-employed are those who own small enterprises plus individual entrepreneurs. I will attempt to estimate four alternative models for explaining the dynamic of self-employment

and based on the statistical testing will choose the one which gives the best description of reality for subsequent analysis. Thus I start by discussing of the model 1 specification.

Following Carree I choose to use regional value added per capita linear and quadratic terms and unemployment rate as independent variable. The wage differentials variable is omitted as no pragmatic proxies are available.

The impact of value added on small business sector is difficult to predict. It is a two-sided coin. On the one hand, increase in GDP makes people wealthier and thus gives more resources to launch business. On the other hand, as wealth grows people become more reluctant to engage in risky entrepreneurial activities (Verheul, 2002).

The unemployment rate is expected to increase the number of small business units since it stimulates people to find alternative ways of employment, among which launching a new business is a reasonable alternative. The unemployment variable is lagged reflecting the fact that people need some time to make up their mind and mobilize resources after being fired from the previous job. Carree (2000) says that lagging of unemployment is inevitable since mental preparation, practical procedures and legal requirements are involved in starting a new enterprise. The unemployment rate that I use in my research is the one calculated by ILO methodology, details of which are discussed in the Appendix G (Table 'Unemployment rate'). It is superior to the official statistics since it accounts for unregistered unemployment.

Besides variables found in Carree (2002), I include a number of other regressors that are extensively discussed in the literature and whose decisive role was checked empirically. These are human capital, urbanization rate and index of economic reform.

Human capital proxied by number of students per 10,000 people is a useful variable since labour is the main input for small businesses. Actually human capital is a very wide concept and reflects education and abilities embodied in population. The variable which perfectly captures the stock of human capital is very difficult to calculate. Becker (1993) writes that "although an investigation of human capital would be illumination, the absence of available data makes it necessary to concentrate primarily on formal education". That is why I choose to use the best available proxy for this variable which is number of students at the universities[1].

Labour/capital ratio of a typical small business is much higher than that of a large enterprise (White, 1982) Based on these, I expect human capital to have a positive influence on the number of entrepreneurs. However, a number of previous researches for European countries reach different conclusions. Storey (1994), for example, finds that self-employed are on average less educated. Thus definite judgement about the direction of influence of this variable is difficult to make.

Higher percentage of urban population (also serving as indicator of lower special dispersion) was previously found to decrease the necessity of small-scale production units. Towns do not need numerous businesses as one enterprise in urban area can serve much more clients than in the village. (Noorderhaven, 2002) Moreover, causes of small businesses in the rural areas may be slightly different from those in the towns For example; people may be much more conservative and less entrepreneurial in the villages and prefer working in collective large enterprises (Christensen, 2000).

Index of reforms used in my research is provided by 'Institute of Reforms'. There are five groups of indicators which are the base for index calculations: economic

[1] actually number of educated people approximates the human capital stock better than number of students. However, there is no data available on the number of educated people across the regions except for year 2001 when population census was conducted

development of the region, market infrastructure, financial sector, human capital, and local authorities' loyalty to business. The index itself is the weighted average of these indicators with weights given according to the judgment of experts. More specifically economic development of the region is given weight of 0.25, market infrastructure – 0.22, financial sector – 0.25, standard of living[1] – 0.13, and local authorities loyalty to business – 0.15. The index is normalized to be in the range of 0-1, with 1 indicating the best practice.

Index of reforms is an important variable since it captures to what extent government can influence the presence of entrepreneurship by creating favorable macro and microeconomic conditions. Small businesses are proved to be very sensitive to changes in the social and economic institutions. They respond very elastically to even minor changes in business environment (Ukrainian SMEs survey). Thus reform index may explain significantly the causes of small sector failure or prosperity[2].

Besides, two dummy variables are included into the model. The first one is for year 1998. Its inclusion is motivated by persuasive evidence of financial crises' detrimental impact on the sector of small enterprises. The results of the National SMEs Survey (1999) demonstrate that entrepreneurs were hurt by financial crises which resulted in increased macroeconomic instability and national currency devaluation. Thus, this dummy is expected to detect the devastating impact of 1998 financial crises on small businesses. A negative sign is likely to appear for this variable.

On the contrary, the sign for 2000-2001 dummy is likely to be positive. This dummy's role is to capture the effect of two phenomena that arose in year 2000. The first one is introduction of a simplified taxation system which occurred at the

[1] This group is called human capital in the original source but I changed the name to avoid confusion with my independent variable 'human capital..

[2] For detailed description of the Reform Index calculations see Appendix C

end of 1999. This new system concerns both individual entrepreneurs and small enterprises and thus these two groups of subjects of small entrepreneurship are likely to benefit from it. At a micro level entrepreneurs identify new taxation rules as a major cause of increased small businesses' presence in 2000 (Ukrainian SME survey). It is curious to know whether new regulations are beneficial on a nationwide scale. The second phenomenon is reversal of GDP downward trend in 2000. It is in the year 2000 that Ukrainian economy experienced economic growth for the first time. Although the direct impact of economic growth is reflected in value added variables, it is reasonable to expect that GDP growth had also some side effect. For example, people enjoying the reversed trend could become more optimistic about future prospects and more willingly to engage in entrepreneurial activities. Thus, the dummy for 2000 and 2001 is likely to capture the joint impact of both above-discussed factors.

Actually it is useful to know how valuable the two dummy variables for my modelling are. They are meant to capture some peculiarities that are not reflected in the economic variables included into the model. In order to fully justify the usage of time specific dummies it is reasonable to check statistically their value added to the regression. That is why I also design model 2. I use the same independent variables as in model 1 but exclude time dummies.

Model 3 is slightly different since it includes variable the role of which is to capture the influence of wage instability in large enterprises. Theory explains that potential entrepreneurs compare possible benefits form entrepreneurship with alternative wage in large enterprises. Iyigun (1998) explains that wages in large enterprises are relatively stable while entrepreneurship benefits are vulnerable. The things are different in Ukraine, however. Boyarchuk (2003) explains that Ukrainian labor market is characterized by extremely large wage arrears. Thus the logic is likely to work differently in this case. Ukrainian entrepreneurs compare not stable earnings with volatile entrepreneurial income but unstable wage

payments with potential business profits. Thus I construct model 3 to see if the dynamic of wage arrears (which approximates stability of earnings in the sector of large enterprises) influences the decision to launch businesses. I expect that increased wage arrears in state owned (large) enterprises (higher wage instability) will induce people to more willingly engage in entrepreneurship. Thus in the model 3 l include a set of all variables from model 1 plus wage arrears variable. It is expressed as average wage arrears per person during a year in large enterprises. By estimating model 4 I will check the value added of time dummies included in model 3.

Finally I come up with the ultimate specifications of the models:

Model 1

Self - employment = $\alpha + \beta_1 *$(*regional value added per person*)$+ \beta_2 *$(*regional value added per person*$)^2 + \beta_3 *$(*unemployment rate lagged one period*$) + \beta_4 *$(*urbanization rate*$) + \beta_5 *$(*human capital*$) + \beta_6 *$(*reform index*$) + \beta_7 *$(*dummy for 1998*$) + \beta_8 *$(*dummy for 2000 and 2001* **)** $+ \varepsilon$

Model 2

Self - employment = $\alpha + \beta_1 *$(*regional value added per person*$) + \beta_2 *$(*regional value added per person*$)^2 + \beta_3 *$(*unemployment rate lagged one period*$) + \beta_4 *$(*urbanization rate*$) + \beta_5 *$(*human capital*$) + \beta_6 *$(*reform index*$) + \varepsilon$

Model 3

Self - employment = $\alpha + \beta_1 *$(*regional value added per person*$) + \beta_2 *$(*regional value added per person*$)^2 + \beta_3 *$(*unemployment rate lagged one period*$) + \beta_4 *$(*urbanization rate*$) + \beta_5 *$(*human capital*$) + \beta_6 *$(*reform index*$) + \beta_7 *$(*wage arrears*$) + \beta_8 *$(*dummy for 1998*$) + \beta_9 *$(*dummy for 2000 and 2001**)** $+ \varepsilon$

Model 4

Self - employment = $\alpha + \beta_1 *$(*regional value added per person*)$+ \beta_2 *$(*regional value added per person*)$^2 + \beta_3 *$(*unemployment rate lagged one period*)$+ \beta_4 *$(*urbanization rate*)$+ \beta_5 *$(*human capital*)$+ \beta_6 *$(*reform index*)$+ \beta_7 *$(*wage arrears*)$+ \varepsilon$

Summarizing the ultimate models setup I point out that the value added linear and quadratic terms and lagged unemployment rate are the variables taken directly from the Carree's (2002) specification. Urbanization rate and human capital are not present in Carree, but they may be useful in my case. In many empirical studies they were proved to increase explanatory power of self-employment regressions. Inclusion of the reform index is motivated by revealed significant role of government in creating favourable environment for entrepreneurship in transition economies. The two time dummies are meant to capture Ukrainian specific effects. The wage arrear variable is meant to capture the effect of wage instability in state owned (large) enterprises.

5.2 Description of data

For my analysis I use data for years 1998-2001 for 27 administrative units of Ukraine[1]. Most of the variables are from the Statistical Yearbook issued by the State Committee for Statistics. One of the key variables for my research the reform index is provided by a Ukrainian think-tank Institute of Reforms. The source of the statistics on the number of individual entrepreneurs is the State

[1] 27 administrative units of Ukraine are 25 oblasts and two cities (Kiyv and Sevastopol) that have a special status.

Committee for Regulatory Policy and Entrepreneurship. Tables in Appendix G provide statistical data description.

5.3 Pooled OLS vs. Panel data technique

Green (2000) suggest starting analysis of the model by checking whether there are enough statistical reasons to estimate pooled regression with common intercept using standard ordinary least squares technique. The conventional way to check equality of the intercepts is to conduct F-test.[1] Under the null hypothesis the efficient estimator is pooled least squares. Otherwise we should proceed with panel data methodology in order to obtain unbiased estimates. Actually in most cases intercepts do differ since there are many unmeasured and non-included variables that determine regressand and their influence gives rise to a different intercept for each cross-section unit (Kennedy, 1998).

Application of the F-test for testing model 1 gives F-statistics equal to 72.5. It is compared with critical value form the F-distribution. The associated p-value for the calculated statistics is 0.00. Thus I reject the hypothesis of common intercept. The regions really have some unobserved unique characteristics reflected in differing intercepts and so l employ panel data. The corresponding values of F-statistics for models 2, 3 and 4 are 72.12, 52.37 and 72.5 respectively with associated p-values 0.00s. So I use panel data technique for the estimation of all four models.

5.4 Fixed Effects *vs.* Random effects

Working in panel data framework in turn presumes the choice between two kinds of estimation procedures – fixed and random effects. More specifically one must

[1] The F-ratio used for the test is $F(n-1,n*t-n-k)=((R^2_u-R^2_p)/(n-1))/((1-R^2_u)/(n*t-n-k))$ where t is number of periods, n is number of units, k is number of slopes in regression, subscript u indicates unrestricted model, p – pooled model.

decide what the nature of the group specific effects is. The intuition for the choice is as follows. If we treat units under research as randomly drawn from a large population random effects model should be used. If, on the contrary, cross section units represent the whole population we continue with fixed effects (Verbeek, 2000)

Certainly intuition may be not enough and formal judgment is necessarily required. The formal criterion for choosing the correct estimation technique is Hausman test. The test compares two estimators one of which (fixed effects) is efficient under both the null and alternative hypothesis and one (random effects), which is consistent only under the null hypothesis. So if null is true one should proceed with random effects. Fixed effects is the choice in case the null is rejected (Greene, 2000).

Cross section units at my disposal are actually the whole population and *a priori* I am inclined to employing fixed effects. Hausman test supports the intuition. The calculated Chi-statistics for my model 1 is 20.8, which is larger than critical value from Chi-square distribution with 7 degrees of freedom (number of slopes). The corresponding p-value is 0.00. Thus, the hypothesis that random effects estimators are efficient is rejected and my choice is fixed effects technique. Similarly I reject the hypothesis of random effects efficiency in models 2, 3 and 4. The Chi-statistics are 124.26, 109.5 and 81.89 respectively with corresponding p-values 0.00s.

Before discussing further estimation issues it may be useful to conduct a test for detecting heteroscedastic nature of error terms. If error terms are not homoscedastic the variables' variance estimates are not reliable. A simple test proposed by White (1980) is employed in my instance[1]. It indicates possibility of

[1] For details of testing procedure see Appendix D

heteroscadastisity in model 1 and so I should proceed using White covariance matrix for further variance estimation. This is easily done by choosing an appropriate option in software. White test has revealed that errors' variance is contingent upon values of independent variables. Since all models contain a set of common regressors I suspect that there is potential for heteroscedasticity in models 2, 3 and 4 as well. Thus the White heteroscedasticity consistent standard error matrix is used in all four instances.

5.5 Instrumental variable approach

Greene (2000) draws our attention to the fact that under many specifications the assumption about the errors which are uncorrelated with independent variable does not hold. As a consequence of this violation the parameters estimates are biased and inconsistent. A typical cause of this problem is inclusion into equation of regressors, which appear endogenous to the model. This is a potential problem for the estimation of my equation. Many empirical studies indicate reciprocal nature of relationship between the ratio of self-employment and the level of income (Carree, 2000; Thurik, 1999). I suspect that the intensity of the small business presence will influence the dynamic of value added growth. Application of standard technique which does not account for endogeneity will render the estimates unreliable.

Hausman (1978) suggests procedure for detecting endogenous right-hand side variables. In the first stage, we regress the suspect variable on all exogenous variables and instruments and retrieve the residuals. Then in the second stage, we re-estimate the equation of interest including the residuals from the first regression as additional regressors. If problem of endogeneity is not present then the coefficient on the first stage residuals should not be significantly different from zero.

Following this framework I firstly regress my suspect variable 'value added' on all exogenous ones plus an instrument. A good instrument in my case is lagged 'value added' since it is highly correlated with its present values (correlation = 93,6%) and is unlikely to correlate with the model's errors[1]. The obtained residuals are later used as an additional variable for testing of the equation of interest. Appendix C provides the results of this testing. The coefficient on residuals is significantly different from zero indicating presence of endogeneity effect.

The suggested solution in this case is to use instruments in place of endogenous regressors. Johnston and DiNardo (1997) show that instrumental variable approach may also be seen as a result of double application of estimation technique. On the first stage we regress each of the endogenous right-hand-side variables on the set of instrumental variables. This set may include exogenous variables from the model as well as other highly correlated variables. Having obtained fitted values from the first regression we use them to replace the endogenous explanatory variables in the original one. It allows purifying the problematic explanatory variable from the backward influence of regressand. The result of these manipulations is reliable estimates of the necessary variables.

The instruments required for double step estimation are already at hand. The regression which produces us the necessary instruments has already been estimated for the purposes of endogeneity testing (see Appendix E). Thus I use fitted values from it to calculate the ultimate equation. Its coefficients' estimates are what l need for further discussion. Fitted value added values purified from backward influence of the self-employment variable are also used for estimation of models 2, 3 and 4.

[1] The regression output is in the Appendix C

5.6 Results discussion

The table below presents the results of estimation.

Table 4. Self-employment equations estimates (fixed affects, instrumental variables)

Variable	Model 1	Model 2	Model 3	Model 4
Value added per person	0.454* (0.01)	0.997* (0.00)	0.424* (0.00)	0.418* (0.01)
(Value added per person)^2	$-30*10^{-5}$* (0.00)	$-57*10^{-5}$* (0.00)	$-18*10^{-5}$* (0.00)	$-29*10^{-5}$* (0.00)
Unemployment lagged one period	-0.649 (0.57)	-1.67 (0.40)	0.01 (0.99)	-0.08 (0.97)
Index of reforms	-37.48 (0.74)	-169.3 (0.11)	-3.03 (0.95)	65.9 (0.48)
Urbanization rate	31.55* (0.00)	29.20** (0.04)	4.81 (0.62)	-5.94 (0.66)
Human capital	1.105* (0.00)	1.59* (0.00)	0.91* (0.00)	1.18* (0.00)
Wage arrears			-0.38* (0.00)	-0.69* (0.00)
Dummy for 1998	-29.77* (0.00)		-28.95* (0.00)	
Dummy for 2000 and 2001	31.44* (0.00)		17.91* (0.00)	
R^2	0.982	0.966	0.980	0.979
Number of observations	108	108	108	108
Number of cross sections	27	27	27	27

The numbers in brackets are p-values of respective coefficients.
* variables are significant at 1% level
**variables are significant at 5% level

A brief inspection of the variables shows that coefficients for linear and quadratic terms of value added are significant in all four specifications at 1% level. Their signs are robust to different specifications but the coefficients values change a bit. Lagged unemployment rate and index of reforms are insignificant in all cases even at 10% level. Besides, magnitudes and signs of these coefficients differ a lot

from one specification to another. Urbanization rate being significant in the first two models is insignificant under the third and fourth specification. Human capital variable is significant in all cases at 1% and gives very stable estimates that are very robust to specifications. Wage arrears variable in the third and forth models appears to be significant at 1% level but has unexpected sign. Two time dummies in the model 1 and 3 are significant at 1% and have expected signs.

A conventional way to choose among models with alternative specifications that have a similar dependent variable is to compare R^2s of these regressions. (Verbeek, 2000). The specification with the highest R^2 that is the one which gives the best fit to data is considered superior to alternative models. However, it is better to test whether the difference in R^2 is statistically significant.

I choose to conduct a formal testing of differences in explanatory powers of alternative specifications. It is rather simple to compare the R^2s of the first and the second model since model 2 is a special case of model 1 that is model 2 is nested in model 1. A simple method to compare the R^2s of nested models is to conduct F-test[1]. It is similar to testing whether all coefficients in unrestricted model which are not in the restricted one are simultaneously equal to zero. Under null we conclude that new coefficients do not add explanatory power to regression. In my case the calculated F-statistics is 50 which is higher than critical value from F-distribution. The corresponding p-value is 0.00. I reject the null. My conclusion is that model 1 is superior to the second model based on formal testing. Model 1 really has greater explanatory power.

[1] the formula for F-statistics is $F=((R_1^2 - R_0^2)/J)/(1-R_1^2)/(N-K)$, where R_1^2 and R_0^2 are R^2 for unrestricted and restricted model respectively, J is the number of restrictions, K-number of coefficients in unrestricted model and N is number of observation.

Similarly I compare models 3 and 4 to find whether time dummies in model 3 add explanatory power to regression. The F test for these two specifications gives F-statistics of 2.5, which does not exceed critical value from F-distribution. I accept the null and conclude that dummies do not add explanatory power for specifications with wage arrears variable included.

Thus, the intermediate conclusions are: model 1 is preferred to model 2 while there is no reason to prefer model 3 to model 4. Finally, what is left to do is to choose between models 1 and 4.

Testing Model 1 vs. Model 4 is not that easy since they are not nested (we cannot obtain one by restricting corresponding coefficients in another). Again it would be easier just to compare R^2s but we need to know whether they are statistically different. For testing non-nested model Kennedy (1998) suggests conducting J-test. Since the computational procedure for J-test is burdensome I include the detailed description of it in Appendix F. In my case the test suggests that the first model is superior to the forth one.

Thus my final decision is to proceed with Model 1 as it is superior to others in terms of explanatory power. It is, however, useful to discuss the unexpected sign for wage arrears variable in models 3 and 4. Contrary to theoretical considerations, I find that increased payment vulnerability leads to decrease in self-employment rate. My possible explanation for this is that what really matters is relative stability of wages and entrepreneurship profits. It might be the case that although wages in large (state owned) enterprises are not paid in time, the expected profits from starting a business are still not so attractive for potential entrepreneurs being very unpredictable. Delayed wages may indicate some sort of economic problems leading to decreased cash-flows and worsening of financial standing of enterprises. These same problems may also enhance volatility of entrepreneurship profits. Thus delayed wages are likely to indicate not only

instability of employment earnings, but also bleak prospect for launching a small business.

Before proceeding with detailed discussion of the findings obtained from model 1 I summarise the quantitative effects of self-employment determinants in the table.

Table 5. Quantitative effects of the self-employment determinants.

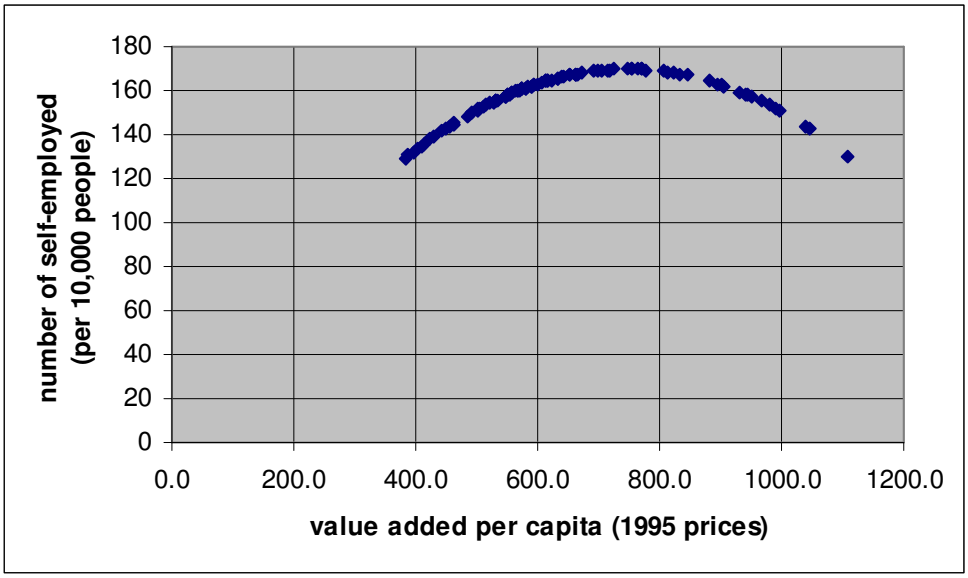
Variable	**Self-employed per 10,000 persons**
Value added per person	+45 if value added initially goes up by 100 hryvnias. The rate of growth is decreasing, however.
Unemployment	No effect
Index reforms	No effect
Urbanization rate	+31.55 if ratio of urban population over total population goes up by 1%
Human capital (number of students per 1000 persons)	+1 if number of students goes up by 1 per 10000 persons
Dummy for 1998	-30 in year 1998
Dummy for 2000 and 2001	+31 in years 2000 and 2001

My general comments are that statistically significant variables appear to be economically important as well. Statistical summary displays an impressive effect of macro variables on the rate of business ownership. Since all variables deserve special attention I comment each of them on individual basis.

Value added. Literature review provides a finding by Carree, Stel, and Wennekers (2002) who discovered U-shaped relationship between the stage of economic development approximated by GDP and business ownership rate. The minimum rate was found to be 8.8% with income level of about 19000$. The relationship

estimated in my research shows the opposite trend. Graph may be helpful to demonstrate how dynamic of self-employment changes with income. Using real values for value added, estimated coefficients for this variable and assuming all other variables to be zero I obtain the inverted U-shaped line. Of cause, sometimes the actual numbers of businesses deviates from the estimated path significantly since many other factors besides value added influence the presence of small business in the economy. Consequently the magnitudes on the vertical axis are not reliable. But what is clear is that as income growth its marginal impact on the formation of business ownership declines and after some point it becomes even negative. Thus the highest value added contribution is at the point of about 700 hryvnias[1].

Figure 5. Estimated dynamic of self-employment



The question that I pose is whether the results of my research and of the one by Carree and Stel are contradictory or maybe they can be consistent in some respect. My conclusion is that there is no contradiction. The path of small

[1] 100 hryvnias of year 1995 equal about 400 hryvnias or 75 U. S. dollars of year 2003

business is just different for developed countries and economies in transition. In Western countries small firms developed gradually during several latest decades (van Stel, 2000). European countries' statistics shows that since the 1970s a ratio of self-employment is steadily increasing (COMPEDIA, 2000). In transition economies, on the contrary, we observe boom of small businesses just after the process of transformation starts as a response to some specific conditions (Smallbone, 2000).

The official statistics has nothing to tell but the widely known fact is that many entrepreneurs earn slightly higher than the employees' income equivalent. That miserable difference serves as a premium for risk and compensation for entrepreneurial effort and is enough to keep people self-employed. However, as income grows people find it is unreasonable to take risk of conducting business and quit. For example, in Ukraine 22% of entrepreneurs were involved in more than one business (*serial entrepreneurship*) to guarantee the availability of minimum necessary resources to start a future-oriented business.. 28% stated that they perceived their businesses as part-time employment. (Smallbone, 2000). Quite probably they were waiting for improved economic conditions in order to later concentrate on the future-oriented employment activities.

So further we may expect stabilization or a slight decline of a number of small businesses as "forced" by hard conditions entrepreneurs will leave business in favour of employment in big companies.

Unemployment. Surprisingly unemployment is not among the factors stimulating self-employment. However addressing the paper by Smallbone and Welter (2000) we also discover that unemployment was a crucial argument for starting business only for about 5% of entrepreneurs in Ukraine. Others were motivated by the desire of independence (about 45%), necessity to boost income (about 17%), and dissatisfaction with the previous job (about 8%). It seems counterintuitive and

paradoxical as unemployment is an obvious reason for a person at least to try running a business. A hint about possible explanation for this phenomenon is provided in Zhylyevskyy's (2002) paper. He shows that unemployed possess the lowest stock of human capital as compared to employees and entrepreneurs. Maybe they just do not have enough self-confidence and belief in possibility to successfully compete with smarter people.

Reform index. Unfortunately, the coefficient for the index of reforms variable is insignificant indicating that the dynamic of entrepreneurship is beyond the influence of standard economic policy tools. Even if reforms occurred they were not efficient in terms of stimulating small business activities. Government thus should find other untraditional instruments for creating the 'most favored status' for small business sector. In this context it would be nice to analyze the influence of each component of the aggregate index (like efficiency of financial sector or market infrastructure) to detect what exactly needs special attention on the side of government. The data for such research is unfortunately not available.

Urbanization. The number of business owners is much greater in urban areas. One percent of increase in urbanization rate leads to creation of 31 more business units. This finding contradicts the idea about market size effects in highly populated areas. A possible explanation for this phenomenon is that the institutional setup in rural and urban areas provides different opportunities for small businesses. Towns may maintain better social, technological and business networks. Besides, urban population may be more entrepreneurial or less risk-averse, which increases chances of running a business.

Human capital. I conclude that higher human capital endowment leads to rise in the number of entrepreneurs. Actually it contributes very significantly to the intensity of entrepreneurial activity. Roughly speaking one more student means one more entrepreneur. The results are not consistent with findings of Zhylevsky (2002). At a micro level he estimated that on average small business owners and

self-employed are less educated than employees. However, another paper completely confirms my results. As Smallbone and Welter (2001) indicate "a combination of restructuring, recession and contraction of the defense sector in 1990's has lead to a reduced demand for highly qualified labor in these (former Soviet Union) countries, which has encouraged many people of this type to start their own businesses". Their statistics is that 85% of the small business owners in Ukraine were educated at the university.

Dummy for 1998. Its role was to capture the influence of financial crisis of 1998 on the self-employed. This variable is statistically significant indicating that *ceteris paribus* we had 30 self-employed less in 1998 compared to other periods.

Dummy for 2000 and 2001. The simplified taxation system for small business introduced in 1999 and reversion of downward GDP trend could have resulted in more supportive and promising business environment leading to more active entrepreneurship. Empirical results really support this idea. Even holding constant other factors under study we see that 2000 and 2001 were really very favourable for starting and doing business.

Chapter 6

6.CONCLUSIONS

Following Carree's (2002) study on macroeconomic determinants of small business in 23 OECD countries for the period 1976-1996, I design models for supply side of entrepreneurship in Ukraine. Using the data on Ukrainian regions for 1998-2001 I try to find what combination of 'push' factors stimulates or forces people to engage into entrepreneurship by launching small enterprises or becoming individual entrepreneurs.

In my research, therefore, I construct four models with alternative specifications and using statistical criteria choose the one which best explains the reality. The factor that are hypothesized to be important for the dynamic of small business sector formation and thus included into my models are value added per person, human capital stock approximated by number of students per 10,000 population, urbanization rate, lagged unemployment rate, index of reforms indicating the overall change in economic conditions, and wage arrears.

The analysis suggests that value added per capita, human capital stock, and urbanization rate were decisive for stimulating the entrepreneurial activity of the population. Initially the effect of increased value added is positive but its marginal impact is decreasing, however. Higher stock of human capital leads to increased presence of small business. More urbanized areas provide better opportunities for doing small business.

Unemployment rate was found to be insignificant in all specifications which suggests that unemployed are reluctant to create new job opportunities by starting their own businesses.

The variable which is of special interest for my research – index of reforms is also insignificant indicating that small business formation process cannot be influenced through traditional economic policy tools.

Modelling has revealed the detrimental impact of 1998 financial crises on small business sector in Ukraine. On the contrary, years 2000 and 2001 were very favourable for entrepreneurship. It is difficult to say, however, what exactly lead to improved entrepreneurial climate – introduction of a new simplified taxation system for small enterprises and individual entrepreneurs or more optimistic expectations about the future business prospects in observance of economic growth. The joint impact of these two factors is positive.

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APPENDIX A. NUMBER OF SMALL ENTERPRISES

Number of small enterprises

year	1995	1996	1997	1998	1999	2000	2001
number of small enterprises (thousands)	96.01	96.27	136.23	173.40	197.12	217.93	233.60

Source: Ukrainian Statistical Yearbook, 2002

APPENDIX B. NUMBER OF INDIVIDUAL ENTREPRENEURS

Number of individual entrepreneurs

year	1998	1999	2000	2001	2002	2003
number of individual entrepreneurs (millions)	1.219	1.414	1.615	1.847	2.112	2.411

Source: State Committee for Regulatory Policy and Entrepreneurship

APPENDIX C. REFORM INDEX CALCULATIONS

Calculations of the reform index (methodology of Institute of Reforms)

Stage 1 Five groups of variables are chosen. These are economic development of the region group, market infrastructure group, financial sector group, human capital group, and local authorities' loyalty to business group. The list of variables constituting the groups is provided below.

Stage 2 For each of the groups an intermediate indicator is calculated. Each indicator is the average of the group' standardized variables.

For standardization the following algorithm is employed:

$Z_{ij} = \left| X_{ij} - X^{ave}_{i} \right|$

Xij – i^s variable for j^s region

X^{ave}_{i} – average magnitude of the i^s variable among regions

Having this we proceed:

$Y_{ij} = (Z_{ij} - \min Z_i)/(\max Z_i - \min Z_i)$

Y_{ij} is standardized variable

Stage 3 Indices of reforms for each region are calculated. It is a weighted average of the indicators with weights given according to the judgment of experts. More specifically, economic development of the region is given weight of 0.25, market infrastructure – 0.22, financial sector – 0.25, human capital – 0.13, and local authorities loyalty to business – 0.15.

This procedure is done for each year since 1998 till 2001.

Group 1: Economic development of the region (weight – 0.25)

subgroup1: Production sector

- local budgets' revenues per capita
- proportion of barter in the overall financial turnover
- local budgets' expenditures per capita
- increase in inter-enterprise debt
- net profits of enterprises
- value of newly involved machinery

subgroup2 International economic activity

- export per capita
- import per capita
- foreign direct investment per capita
- investment abroad per capita

Group 2: Infrastructure of the region
(weight – 0.22)

subgroup1: Market infrastructure

- number of audit firms
- number of insurance companies
- number of rent companies

subgrou2: Transportation infrastructure

- density of transport routes
- density of railway roads
- total passenger transportation
- total air transportation
- total cargo transportation
- cargo transportation by water transport

subgroup3: Information and communications infrastructure

- number of telephones per capita
- hours of local television companies' broadcasting
- hours of local radio companies' broadcasting

Group 3: Financial sector of the region
(weight – 0.25)

- short-term bank loans for enterprises
- long-term bank loans for enterprises
- total value of stock exchange operations
- the value of financial assets in enterprises' investment funds
- total dividends and rent paid by enterprises

- total value of initial public offerings
- population deposits to banks in national currency
- population deposits to banks in foreign currency
- number of securities registers

Group 4: Standard of living[1]
(weight – 0.13)

- local budgets' per capita expenditures on education
- local budgets' per capita expenditures on health care
- death rate
- number of criminal offences per capita
- number of places per capita available in recreation centres
- available living area per capita
- wage arrears per capita
- percentage of active labor force
- rate of growth of local budgets' revenues from personal income tax
- number of injuries per capita received in working places

Group 5: Local authorities' loyalty to business
(weight – 0.15)

- number of local councils' officials per capita
- number of executive and judiciary powers' officials per capita
- number of entrepreneurship supporting funds
- number of business incubators
- local budgets' revenues per capita from small businesses
- the share of small enterprises' production in total regional output

[1] This group is called human capital in the original source but I changed the name to avoid confusion with my independent variable 'human capital..

APPENDIX D TESTING FOR HETEROSCEDASTICITY

White (1980) suggests a simple test for detecting the presence of heteroscedasticity. First, regress squared residual on constant term, regressors from the equation being estimated and their squared terms and obtain R-squared. Second, compute statistic N*R-squared where N is number of observation. This test statistic is asymptotically distributed as Chi-squared with p degrees of freedom (p-number of regressors except constant term). Under null, errors are homoscedastic and we can continue with standard procedure.

Auxiliary regression for testing heteroscadasticity

Dependent Variable: (residuals)^2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Value added	16.65	30.92	0.54	0.59
(value added)^2	-0.01	0.01	-0.57	0.57
(index of reforms)	47401.2	50260.46	0.94	0.35
(index of reforms)^2	-41866.4	81256.24	-0.51	0.60
urbanization rate	-44.32	506.31	-0.08	0.93
(urbanization rate)^2	-0.48	3.72	-0.13	0.90
(human capital)	-45.57	25.46	-1.79	0.07
(human capital)^2	0.04	0.03	1.23	0.21
(lagged unemployment)	-7484.24	2419.57	-3.09	0.00
(lagged unemployment)^2	342.19	99.03	3.45	0.00
constant	42687.32	17812.31	2.39	0.01
R-squared	0.246966	N*R-squared		25.92

N*R-squared exceeds critical value from Chi-square distribution with 10 degrees of freedom at 1% confidence level. I reject the null and conclude that there is a possibility of heteroscedastic errors. So I proceed using heteroscedasticity-consistent (White) standard errors matrix. This is easily done in Eviews by choosing the corresponding option.

APPENDIX E. SECONDARY ESTIMATION OUTPUT

Intermediate regression used for retrieving error terms and fitted values (instruments)

Dependent Variable: value added per person

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	418.50	124.51	3.36	0.01
lagged value added	-0.26	0.06	-4.33	0.00
urbanization rate	3.62	1.29	2.80	0.01
human capital	0.09	0.16	0.60	0.55
index of reforms	1039.12	268.63	3.86	0.00
lagged unemployment	-10.98	6.34	-1.73	0.09
dummy for 1998	7.49	41.36	0.18	0.86
dummy for 2000 and 2001	67.99	36.20	1.87	0.06

Estimation output of auxiliary regression for testing endogeneity

Dependent Variable: number of self-employed

Variable	Coefficient	Std. Error	t-Statistic	Prob.
(value added)	-0.20	0.17	-1.17	0.24
(value added)^2	13E-05	7E-05	-1.72	0.08
Human capital	-0.03	0.11	-0.26	0.79
Index of reforms	640.19	239.02	2.67	0.00
lagged unemployment	0.67	3.34	0.20	0.83
urbanization rate	5.89	0.89	6.64	0.00
dummy for 1998	104.14	23.29	4.47	0.00
dummy for 2000 and 2001	-37.01	24.83	-1.49	0.13
residuals	0.40	0.16	2.60	0.01*

***coefficient for residuals variable is significant at 5% level indicating presence of endogeneity.

APPENDIX F TESTING FOR APPROPRIATE SPECIFICATION

The procedure for testing alternative non-nested specifications is described by Kennedy (1998).

Suppose we want to test two alternative specifications:

H_0: $y = X^*\beta + \varepsilon_0$

H_1: $y = Z^*\delta + \varepsilon_1$

We need to construct an artificial model:

$y = (1-\lambda)(X^*\beta) + \lambda(Z^*\delta) + \varepsilon_2$

Under the null hypothesis that H_0 is correct specification, λ is zero. However there is a potential problem: regressing y on X and Z will permit estimation of $(1-\lambda)^*\beta$ and $\lambda^*\delta$ but not λ.

However there is a simple solution to this problem:

1) regress y on Z, obtain δ and calculate the fitted values form this regression (y^{fitted});
2) regress y in X and y^{fitted} and test the slope coefficient estimate λ of y^{fitted} against zero by t-test.

Thus hypothesis H_0 is either rejected or accepted. The roles of H_0 and H_1 are reversed and procedure is repeated to allow H_1 to be either accepted or rejected.

This is what I do for models 1 and 4.

Stage 1 I run the regression from model one and obtain fitted values of y.

Stage 2 I run the regression for model number 4 including in it fitted values form step 1.

The estimation output is presented below

Estimation output 1 of auxiliary regression for testing specification.

Dependent Variable: **number of self-employed**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Value added	0.05	0.19	0.27	0.78
(Value added)^2	-8.08E-05	0.00	-0.68	0.49
Index of reforms	13.19	211.23	0.06	0.95
Urbanization rate	2.62	1.66	1.58	0.11
Lagged unemployment	0.70	3.41	0.20	0.83
Human capital	-0.01	0.10	-0.16	0.86
Wage arrears	-0.57	0.25	-2.22	0.02
Fitted values from step 1	0.70	0.20	3.45	0.00*

* coefficient is significant at 1% level indicating that we accept hypothesis about appropriateness of model 1.

Step 3 I run regression of model 4 and obtain fitted values of y.

Step 4 I run regression 1 including in it fitted values form step 3.

Estimation output 1 of auxiliary regression for testing specification

Dependent Variable: **number of self-employed**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Value added	-0.15	0.22	-0.68	0.49
(Value added)^2	-0.00013	0.0001	-1.21	0.22
Index of reforms	500.16	248.16	2.01	0.04
Urbanization rate	3.56	1.54	2.30	0.02
Lagged unemployment	-0.60	3.44	-0.17	0.86
Human capital	0.01	0.10	0.13	0.89
Dummy for 2000 and 2001	68.78	29.40	2.33	0.02
Dummy for 1998	-36.38	24.58	-1.47	0.14
Fitted values from step 3	0.45	0.23	1.94	0.06*

* coefficient insignificant at 5% level indicating that we reject the hypothesis about appropriateness of model 3.

Conclusions: formal testing procedure has revealed the superiority of the model 1 over the model 4. Model 1 has greater explanatory power compared to the model 4.

APPENDIX G. VARIABLES DESCRIPTION

Variables description (statistics is calculated for 27 administrative units of Ukraine)

Number of self-employed per 10,000 people

year / *statistics*	**1998**	**1999**	**2000**	**2001**
Average	317.4	362.7	404.3	468.2
Standard deviation	105.8	114.3	118.7	138.9
Minimum	122.0	162.8	198.8	250.9
Maximum	576.2	642.4	698.9	881.9

Source: Ukrainian State Committee of Statistics, State Committee for Regulatory Policy and Entrepreneurship

Regional value added per person (1995 prices)

year / *statistics*	**1998**	**1999**	**2000**	**2001**
Average	671.5	684.3	710.9	751.3
Standard deviation	221.2	245.7	271.4	297.9
Minimum	382.8	403.0	388.4	395.9
Maximum	1362.2	1491.8	1642.1	1786.4

Source: Ukrainian State Committee of Statistics

Unemployment rate

year / *statistics*	**1998**	**1999**	**2000**	**2001**
Average	11.40	12.27	12.40	12.06
Standard deviation	2.35	2.07	2.17	2.98
Minimum	7.9	8.1	7.9	6.1
Maximum	15.1	19.2	17.3	18.4

Source: Ukrainian State Committee of Statistics

The unemployment rate is calculated using the methodology developed by ILO. According to definition provided by ILO, unemployed is the one who is aged 15-70 and satisfies three conditions: a). do not have a job, b) have been looking for a job or trying to launch own business in the last four weeks, c) are ready to be employed within next two weeks. This rate is superior to official statistics since it accounts for unregistered unemployed.

Urbanization rate

year / *statistics*	**1998**	**1999**	**2000**	**2001**
Average	63.26	63.14	63.21	63.46
Standard deviation	16.55	16.56	16.54	16.45
Minimum	39.0	38.5	38.5	38.9
Maximum	100.0	100.0	100.0	100.0

Source: Ukrainian State Committee of Statistics

Number of students per 10,000 persons

year / *statistics*	**1998**	**1999**	**2000**	**2001**
Average	218.8	235.5	252.5	283.2
Standard deviation	155.5	166.3	178.8	201.0
Minimum	80.5	89.2	101.1	110.5
Maximum	838.9	911.8	987.8	1108.5

Source: Ukrainian State Committee of Statistics

Index of reforms (on 0 -1 scale, 1 indicating the best practice)

year / *statistics*	**1998**	**1999**	**2000**	**2001**
Average	0.278	0.297	0.283	0.281
Standard deviation	0.133	0.122	0.125	0.131
Minimum	0.141	0.183	0.175	0.185
Maximum	0.697	0.719	0.781	0.810

Source: Institute of Reforms

Wage arrears (1998 prices)

year / *statistics*	**1998**	**1999**	**2000**	**2001**
Average	127.881	124.271	92.067	47.174
Standard deviation	39.9	44.5	36.1	29.5
Minimum	50.942	38.640	27.414	13.050
Maximum	225.069	227.095	176.163	148.429

Source: Ministry of economy