PRIVATIZATION METHODS IN UKRAINE AND THEIR IMPACT ON FIRMS' PERFORMANCE.

by

Myroslava Protsiv

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

Master of Arts in Economics

National University "Kyiv-Mohyla Academy"
Master's Program in Economics

2008

Approved by _____
Mr. Volodymyr Sidenko (Head of the State Examination Committee)

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

Date _____

National University "Kyiv-Mohyla Academy"

Abstract

PRIVATIZATION METHODS IN UKRAINE AND THEIR IMPACT ON FIRMS' PERFORMANCE.

by Myroslava Protsiv

Head of the State Examination Committee: Mr. Volodymyr Sidenko,
Senior Economist
Institute of Economy and Forecasting,
National Academy of Sciences of Ukraine

In this research I investigated the impact of late privatization on the growth of labor productivity for Ukrainian industrial, agricultural and services firms during 1991-2005. Despite long history, the issue of privatization and especially the effectiveness of different methods is still widely discussed in Ukraine. The specification suggested by Earle and Telegdy, 2002 was modified to study for the first time late privatization outcomes with a particular focus on such methods as sales on auctions, share sales, management-employee buyouts, and leasing buyouts. Estimation results show that overall, private ownership is associated with 8% to 12% of additional productivity growth in services and manufacturing, while as in agricultural sector found no significant difference. The research provides strong evidence to support the opinion that share sales method was the most effective in all sectors of economy.

TABLE OF CONTENTS

LIST OF FIGURES

ACKNOWLEDGMENTS

The author wishes to express her sincere and deep gratitude to her advisor, Prof. Hanna Vakhitova for overall guidance, valuable comments, support and understanding. The special thank is devoted to Prof. Tom Coupe for his thorough review and helpful remarks during the whole year. The author deeply appreciates the feedback of her work provided by Research Workshop professors.

I am grateful to all beloved family and the best friends whose support is impossible to overestimate.

GLOSSARY

MEBO. Management-employee buyouts, method of privatization according to which the privileged right to buy a shares of privatized enterprise had managers and employees.

Chapter 1

INTRODUCTION

The Law of Ukraine[1] defines privatization as a disposal of State property to the benefit of individuals or legal entities that can be buyers according to this Law with the purpose to increase social and economic effectiveness of production and to attract investments for structural reforms in the Ukrainian economy. Already 16 years passed since privatization process started in Ukraine and now it is in its final stage. This process of transformation from a command system with leading power of state towards market relations created a rich field for economic analysis from the point of policy implementation, efficiency gain, and development of market relations. In my thesis I shall try to analyze the impact of method of firm's privatization on its further performance. This specific question needs more detailed investigation for Ukrainian enterprises, so I shall try to clarify the process and outcome of privatization from this point of view during period 1992-2005 throughout industrial, agricultural and services sectors of Ukrainian economy.

To consider historical facts from the end of the Second World War to the 1980s, governments of many countries nationalized some production activities, replacing private sector ownership in industrial and utility

[1] Law of Ukraine "Privatization of State property" , enforced by Verkhovna Rada 04.03.1992 № 2163-XII

sectors. They were mainly lead by beliefs that the free market system had deficiencies such as income inequality or less than optimal production in the "strategic" sectors. Hence, after 80s it appeared that state enterprises just favored vested interests and were inefficient. Those failures may be explained by multiplicity of goals, weak incentives and soft budget constrains. Therefore, the suggested improvement of situation was a wave of privatization of state enterprises that took place in numerous countries. To succeed in transformation process government should decide whether it is seeking to achieve efficiency gains, to attract new investments or just to raise public funds. All those principles were fulfilled in privatization plans enforced by Verkhovna Rada of Ukraine. During 1994-2005 privatization in Ukraine was guided by 8 annual Privatization Plans. A lot of Ukrainian privatization experts mention a weak legal framework that caused a lot of misinterpretation as the main drawback of those plans. In 1992 State Property Fund of Ukraine[2] was established. The Head of the Fund is chosen by Rada, but the law does not regulate the reporting requirements to any of higher authorities. Lack of clear strategy and accountability led to disputes among various government agencies (Paskhaver, 2002) which turned to be a real obstacles to the successful transformation.

Nevertheless, government tried to achieve main goals of privatization and to increase wealth of society. One of the positive sides was the variety of privatization methods that allowed all interested parts to participate in privatization process. Here I shall try to test the dependence between method of privatization and further performance of the firm due

[2] Resolution of Verkhovna Rada, enforced June 7,1992 №2558-XII with corrections № 279/97- VR

to the chosen scheme. Similar studies were done for some other post Soviet countries, not only for Ukraine. Additionally, we focus on late privatization while controlling for the previous experience, which was not done before. The choice was motivated by a widespread belief that massive privatization at the early stage creates a critical mass of effective owners (Boycko, Schleifer, Vishny, 1996).

My research will investigate privatization in Ukraine using the unique data collected during all stages of privatization. My research drives on the database of the State Property Fund in addition to some data from enterprise performance sheet (form1-pid) and annual registries (form1-balance sheet statement and form2-financial results statement) provided by the KSE-EERC Enterprise Research Group. The main aim is to analyze late privatization methods that were used by government and to find which of them were the most effective for the Ukrainian economy. This paper proceeds further as follows. First, we shall explore the literature inheritance then describe employed data and shall set up the theoretical framework of methodology. Second, we shall include our estimation results and in the end conclude our research.

Chapter 2

LITERATURE REVIEW

Privatization as a transformation process and methods of its performance is very debatable question. I shall try to follow different studies related to overall process of privatization first looking on international and Soviet block countries experience and then monitor previous works dedicated to Ukrainian privatization. Other point of interest is how well investigated methods of privatization and their impact on firms' efficiency are.

When the socialistic countries have started to reform the economy, privatization as the way of changing the state property ownership had already been known in the world's practice. Governments of USA, Great Britain, France and China used privatization as a method that increases the effectiveness of enterprises or the industry in general due to private initiative and managerial abilities (Grossman and Hart, 1985).

For our study it would be very useful to monitor privatization process in emerging countries where we can find similar features of institutional performance. A good example is Mexican economy and comprehensive study of Rafael La Porta and Florencio Lopez-de-Silanes (1999) that pointed specific features of privatization in this country. The result appeared 24% growth in average operating-income-to-sale for 233 privatized enterprises during 1983-1991. Such increase was explained either by better incentives of managers and depolitization of business or by the reduction of social expenses. Empirical evidence showed that wages in

the postprivatization period tend to be higher but employment felt. The reason is that now new owners prefer to increase efforts of worker for higher wage but they fired excessive labor that was employed on SOE.

Interesting example of economic reforms related with privatization is China. The initial preconditions of reforms were government with central planning and partially industrialized and largely agricultural economy. The peculiarity of Chinese reforms was gradual experimental implementation of economic innovations – tried in region, then extended to the rest of the country (Sachs, Woo 1999). As a result only policies that succeeded were implemented to the whole country and in this way main mistakes were avoided.

A unique feature of privatization in the countries of the former Soviet block was its concentration in time and a large scale which involved almost the entire economic space of the country (Paskchaver, 2003). It became a global socio-economic process transforming thousand enterprises into private hands to restructure the entire economy from centrally planned into market. Such restructuring first of all aimed to increase efficiency, output, and the rate of economic growth.

Russia, Poland, Czechoslovakia and Hungary are the countries where privatization process has been studied a lot. A number of works by Boycko, Shleifer and Vishny (see for example works of those authors 1995a, 1995b, 1995c) were dedicated to peculiarities of privatization in Russia. Authors claimed that inefficiency of public enterprises is mainly caused by strong political factor present in governance of the State Owned

Enterprises (SOE). Soft budget constraint and bureaucracy issues were real obstacles to maximization of effectiveness. So the relation between managers and politicians are really significant especially in Post Soviet countries as emphasized Boycko, Shleifer and Vishny (1995b). The interesting cases for empirical investigations of privatization processes were made for Czechoslovakia, Hungary and Poland by Frydman, Rapaczynski at al., Jan Svejnar at al., Olivier Jean Blanchard, as well as studies by World Bank (Kikery, Nellis, Shirley at al. 1992) and European Bank of Reconstruction and Development.

Numerous works in the economic literature have been dedicated to the problems of the privatization policy and the choice of privatization methods. Thus, two streams appeared: adherents of gradual sales such as Kornai (1990) and supporters of massive giveaways as Lipton and Sachs, (1990). In 2000, Kornai wrote a paper "Ten years after 'The road to a free economy" where he proves his assumption made ten years ago, about the privatization policy that emphasizes economic efficiency and income maximization through gradual sales. Kornai among the first suggested two strategies of development according to privatization policy. Strategy A ("organic development") refers to bottom-up development of private sector, privatization through a sale for a fair price. Additionally, give-aways to employees and managers are also possible, but for a genuine price. Other characteristics are the dominant owner, i.e. strategic investor, who is ready to invest capital, and hardened budget constraint that insures market discipline. Kornai claims that all those features have casual relations with growth of labor productivity. As an example, Kornai indicates that in 1998

in Hungary the productivity is 39% greater than in 1989, in Poland just 29%. If we look at Czech Republic the increase in labor productivity was just 6% whereas in Russia it is lower for 33% than in 1989. To conclude, according to Kornai Hungary had chosen the strategy A in privatization policy.

Strategy B ("accelerated privatization") implied to get rid of state property as soon as possible. The main privatization methods here are give-away, in particular, in a form of voucher privatization, which assumes free and equal distribution of properties rights among the citizens. The supporters of this privatization strategy claimed that privatization will automatically harden the budget constraint.

Russia as well as Czechoslovakia followed plan B. In Czechoslovakia the government of Vaclav Klaus privatized the state property relatively quickly and mostly through give-away. It was done in two stages. In this country this method appeared to be effective (Kornai, 2000).

In Russia this method demonstrated much worse results according to Kornai. "Failure" is explained by extreme case of all conditions required for a successful implementation of the plan B. Soft budget constraint did not disappear but even led to "the non-payment society". Property rights were transmitted to managers and privileged persons, whose wealth even increased with privatization of natural resources industries. The legal system was unable to prevent and fight privatization frauds and uneven allocation of recourses. Strategy B appealed to the ethical side, where all

citizens are getting equal shares, but in Russia it resulted into greater distortions and position abuse.

One of the goals that privatization was expected to achieve is a formation of the middle-class in society. Kornai claims that there exists a close relation between economic success and restratification of society. But on the other hand the obstacle for achieving such social goals are political aspect as well as timing restrains.

As experience with the privatization schemes in Hungary, Czechoslovakia, Russia and other countries shows that privatization policy can direct country's development and performance in a desired way, direct wealth distribution, political atmosphere in the country. Let us in details look on different privatization methods and possible outcomes of those policies.

Several papers analyze in more details different methods of mass privatization. Ellerman (1993), Stiglitz (1999) and Weitzman (1993) argued in favor of privatization to management and employees while Frydman and Rapaczynski (1994), and Lipton and Sachs (1990) opposed it, proving that privatization to outsiders is the most effective. But those discussions about privatizing method are not limited with comparative analysis of ways of ownership transfer, because privatization scheme significantly influence macroeconomic indicators, development of private sector, state finances, political stability in the country.

The main goal of mass privatization to outsiders was to achieve disperse ownership under certain law regulations, using methods of selling

shares for certain bids or distributing them for free. At the same time it will give a possibility to replace unskillful management. But on the other hand the problem of free-ridering can appear: owners of small shares do not want to spend any costs on collective action but get gain out of it (Roland, 1999). As well, corporate owners can collude with incumbent managers and cause expropriation of wealth from other shareholders. This is one of the drawbacks of dispersed ownership rights but on the other hand it creates more incentives to emphasize on monitoring (Djankov, 1996).

Schmidt (1998) emphasized the importance of mass privatization to avoid ex post expropriation of industry's output. He also gives several positive reasons of diversified mass privatization. The first one is that 'there will be less expropriation the more shares are distributed free to the population. Otherwise threat of nationalization adversely affects investment and restructuring efforts.' Author gives example of Eastern and Western Europe where evidently the rates of investments are different. He also shows in his paper that distribution of shares for free may generate more investments, higher expected profit and higher privatization revenue for state.

The second reason is related to the political uncertainties that can be diminished in case of dispersed property rights. Unlike privatization to insiders, mass privatization does not give incentives to undervalue the property for keeping the managerial power as it was done in Russia. (Boyko, Shleifer, Vishny, 1995c).

Using panel data from Czechoslovakia, Hungary and Poland, Frydman, Grey, Hessel, Rapaczynski (1996) demonstrate that privatization to outsiders is more efficient in terms of revenue and productivity performance than those who were privatized to insiders. But they also showed that neither of those types of privatization led to cost reduction in production process.

Mass privatization to insiders was proceeding in form of management-employee buyouts.

Hansmann (1996) tried to analyze benefits and costs of employee ownership in his book "The ownership of enterprise". The main point is that employee-owned firms can be successful as was in France and Italy, but mainly in servicing sector, such as lawyers, accountants, advertising, management consulting. Nevertheless, employee-owned firms rarely appeared in industrial enterprises. But in fact those cooperatives existed in the 80th and started to disappear in twentieth century as investor-owned firms become more profitable (Hansmann, 1996).

Bogetic (1993) says that this technique of privatization is less expensive in terms of transaction, political and monitoring costs. The author does not argue that this method should be uniformly used, but it will lead to acceleration of privatization process in socialist economies and will not cause strong political resistance. Additionally, during this process 'core class of owners' will appear which forms the main participants of transformation. As Bogetic underlines, this method of privatization is efficient mainly at small enterprises.

This method has some benefits and drawbacks that can explain its effectiveness under certain circumstances. One approach to investigating why a broad group of employees participate in a buyout is to examine the issue from the perspective of an optimal labor contract. Cash flow rights can improve employee incentives (see, Alchian and Demsetz, 1972). These rights can also mitigate asymmetric information problems when negotiating labor contracts (Ben-Ner and Jun, 1996; Kovenock and Sparks, 1990). In addition, employee control rights can help protect employees' firm-specific capital (see, e.g., Klein et al., 1978; Williamson, 1979). However, a related cost of employee ownership is inefficient risk-sharing.

Chaplinsky, Niehaus and Gucht (1994) for the first time empirically studied the factors that motivate employees to participate in a buyout. Authors compare the performance of American firms after managers' buy-outs to the firms with employee ownership. The analysis yields a number of important findings: EBO firms usually have a lower value of assets per employee, poorer stock price performance, and lower leverage but use a higher proportion of bank debt. To protect themselves such firms are more likely to have overfunded pension plans.

Privatization in Ukraine has passed several stages. Detailed investigation of privatization processes was done by Paschaver at al. (2002). He divided the whole privatization process into periods and analyzed all drawbacks of policy implementation as well as political obstacles created by government. The specifics of each method we shall discuss in further sections. Ukrainian privatization was also described in contest of Russian ownership transformation by Boycko, Schleifer, Vyshny (1996), Warzynski (2003), Earle and Telegdy (2002) and others.

Chapter 3

DATA DESCRIPTION

To track the impact of privatization method on firm's labor productivity we used the database of State Property Fund of Ukraine that contains the list of firms that were privatized in 1992-2005 and the information about the methods of privatization. This data set is matched with some enterprise performance statistics (form1-pid) and information from annual registries (form 1-balance sheet statement and form 2-financial results statement). This reach data set provides information about each enterprise privatization path during 1991-2005, shares of statutory fund that were privatized with different methods every year, foreign share, location and industry as well as employment and annual sales.

The data is divided into two parts. First part covers the period from 1991 to 2000 (hereinafter the first wave of privatization) and includes only privatization data. The second part refers to the period of 2001-2005 (hereinafter the second wave of privatization) and contains both privatization and performance information.

As in Ukraine during 1991-2005 were utilized more than 20 methods of privatization, for our estimation we divided all methods that were used into two groups: methods of privatization that were fulfilled in competitive way (57%) and those in noncompetitive (43%). To first type we assigned all auction methods (privatization certificates and compensation certificates) and sales of shares. Another noncompetitive scheme was related mainly to management and employee buyouts. More

specific distribution of shares by privatization type is the following: almost 20% of all enterprises were reorganized as so called Small privatization, where all firms of group A and B[3] were privatized by this method. Second main method of privatization in our sample is certificate auctions (17% of firms). For this method Ukrainian legislation presumes two types of intermediary organizations, investment companies and investment trusts that coordinated transactions with certificates. The first one issued their own shares in exchange for privatization certificates with further possibility to buy shares of privatized company. As certificates were non-transferable only this kind of intermediary was able to accumulate large blocks of shares as a result of their activity. In such way government limited large share concentration in hands of one owner. Investment trusts assisted individual holders in the acquisition of shares of individual enterprises.

More than 20 methods of privatization were utilized in Ukraine during 1991-2005, Almost 20% of all enterprises were reorganized during so called "small privatization", where all firms of group A and B[4] were privatized.

Second main method of privatization in our sample is certificate auctions (17% of firms). For this method Ukrainian legislation presumes two types of intermediary organizations, investment companies and investment trusts that coordinated transactions with certificates. The first one issued their own shares in exchange for privatization certificates with

[3] Agriculture, hunting, forest sector, fishing, services related to fishing.

further possibility to buy shares of privatized company. As certificates were non-transferable only this kind of intermediary was able to accumulate large blocks of shares as a result of their activity. In such a way the government limited large share concentration in hands of one owner. Investment trusts assisted individual holders in the acquisition of shares of individual enterprises.

The third large stake in our sample has employee buyout method, 14%. By this method, employees, using certificates and cash could purchase the shares with nominal value equal to 150% of value of privatization certificates using their privatization account. The same scheme was used for agricultural producers, almost 3% of our sample.

About 10% of firms were privatized by certificate auction using compensation certificates. This method was implemented in 1994. Government used those certificates to compensate for deposits in State Savings Bank and State insurance company that devalued after price liberalization in 1992. Those certificates were tradable and thus allowed concentration of large blocks of shares in property of potential owner. But real market for those certificates was not created, and only broadly spread intermediaries were the main players for significant ownership stakes at compensation certificate auctions.

The cash privatization through certificate auctions has been used starting 1998 and became the main method in 2000. No strict regulations were imposed on this type of privatization and it was relatively possible to form large share stakes by financial intermediaries, managers and outsiders.

The only obstacle was complicated organization of bidding for shares. As a rule, potential owner should declare all sources of his income to participate in auction.

Almost 8% of firms were privatized for free and another 6% are through lease buyouts. Historically by 1991 a lot of firms functioned under lease agreements. In 1992 government by passing a law "Leasing of property of State enterprises and organizations" allowed leasers to buy the equity in exchange of profits generated by the enterprise. Because of inflation, leasers quickly acquired all equity and without significant cash outlays. The shares were distributed among employees based on their position. This method played an important role on an early stage of privatization. Later on government developed other methods to involve privatization securities, such as privatization certificates, implemented in 1994, and compensation certificates.

To analyze the effect of main privatization methods we grouped them into four main blocks: auctions, sales of shares, buyouts and lease with buyouts.

Appendix A reveals that employee buyouts were widely spread in textile industry, chemical production, metal processing, metallurgy, machinery, industrial production of energy, water, gas and transportation industry (mainly industries D, E, F, I). Small privatization was mainly applied to social sphere (education, health care, insurance, development firms, and hotels). Such industries as agriculture, forest sector, fishing sector according to our data were basically distributed "for free".

.

Thus, as data summary shows (see Table 1), till 2001 almost 90% of all enterprises registered for privatization were reorganized into private firms.

Table 1. Privatization methods by years.

Methods of privatization:	Number of firms	
	1991-2000	2001-2005
Competitive		
Auction, bidding	11438	1347
Sales of shares	2092	937
Noncompetitive		
Buyouts	9409	850
Lease buyouts	1684	23

The descriptive statistics are the following

Table 2. Descriptive statistics.

Variable	Obs	Mean	Std. Dev.	Min	Max
employment	1416278	44.18454	557.259	0	125291
real_sales	985009	28.30771	861.3152	-878.56	311840.3
private share	111107	92.5987	19.92367	0	100

Table 3. Descriptive statistics of employment

Year	mean(empl)	mean(real_sales)	mean(prshare)
2001	51	28.061	91.313139
2002	45	27.04324	92.131298
2003	42	27.93427	92.034769
2004	42	29.72945	93.449703
2005	42	28.45221	93.852395

Chapter 4

METHODOLOGY

To begin our analysis first we have to construct a reduced form equations describing enterprise performance. After that the equation is modified to address possible problems of heterogeneity, both observed and unobserved, and simultaneity bias (Megginson and Netter, 2001; Djankov and Murrell, 2002; Earle and Telegdy, 2002), and to control for the privatization history. Following the methodology mentioned in work of Earle and Telegdy (2002) which was used for analysis of Romanian privatization, the fundamental equation is the following:

$$Growth_{it} = \beta_0 + \beta_1 PRIV_{it} + \beta_2 X_{it} + u_{it} \qquad (1)$$

where i indicates a firm unique number, t shows year of privatization cases, $Growth_{it}$ is a firm's performance, $PRIV_{it}$ stands for methods of privatization and transformation of ownership indicators used by enterprise and X_{it} is a vector of industry-region-year interaction dummies.

Dependent variable $Growth_{it}$ is measured as annual growth of labor productivity, the year-to-year difference in ratio of real sales to average employment (hereinafter $Growth_{it}$). Such definition of performance was commonly used in numerous works that investigated firm performance in developing countries, including Anderson, Lee and Murrel (2000), Earle (1998), Djankov (1999 a, b).

$PRIV_{it}$ represents the set of variables that are related to changes in ownership due to privatization. This variable could be specified in the following ways:

1. To define $PRIV_{it}$ is dummy equal to one for firms with majority private shares in statutory fund. The coefficient near this variable will indicate the average impact of change in private ownership on growth level.

2. Later on, $PRIV_{it}$ is a vector of privatization methods, namely auctions, sales, management employee buyouts, lease buyouts[5].

X_{it} is a set of control variables to trace for heterogeneity in performance that may also be correlated with growth and privatization methods. These are dummies for years, industry and region, variables for employment and productivity in previous period. Such controls are needed to specify firms' difference in production functions, capital inflows, size and capital-labor ratios. In our data set we included dummies for 24 regions, Autonomic republic Crimea, cities Kyiv and Sevastopol. An extended single-digit industries codes (A-Q in local statistics) are added to all specifications. That accounts for industry-specific difference in technology and capital intensity as well as territory common effects, for example local demand differences (input prices). Finally, we include firm's size measured by logged employment.

These controls are important to address the endogeneity problem. For example, size of the firm may initially define the method of privatization. The statistics suggest that there is a higher probability that large firms would be sold for example on auctions where as small firms could be given away for free. Also, enterprise initial conditions may affect the choice of privatization methods. Firms of more profitable industries and firms with preferential treatment by the government may face higher demand from potential owners. The vivid example

[5] During construction of our data set there were cases with utilization of several methods during one year and equal largest shares. In that situation we have chosen one with the smallest number assigned to the method as both types have the same probability of appearance.

is steel enterprises, mines, ferroalloy enterprises and other export-oriented former state companies. At the same time, firms particularly deeply impacted by the collapse of Soviet Union (broken supply chains from all over the territory of Soviet Union (Blanchard and Kremer, 1997)) may be out of interest, because costs related with suspending the workers and readjusting equipment are significant. These additional expenditures may be related to the industry and region and may differ across years.

Thus, the basic estimating equation includes a set of controls defined above for determining the impact of private ownership on growth is the following:

$$Growth_{it} = \beta_0 + \beta_1 \Pr Own_{it} + \beta_2 Log(S_{it-1} / Em_{it-1}) + \beta_3 LogEm_{it-1} + \sum_t \beta_t Year_{t-1} + \sum_j \beta_j Ind_{ij} + \sum_k \beta_k REG_{ik} + u_{it} \quad (2)$$

where S_{it} is sales in current prices of firm i in year t, Em_{it} is an employment in $Year_t$, Ind_{ij} is an industry effects (j=1…99), REG_{ik} is region impact where k=1…85[6], β are coefficients for estimation, u_{it} are unobserved factors.

The available data allows as analyzing enterprises performance only in 2001-2005, during so called "late privatization". But the first wave of ownership transformation is claimed to have a significant influence. That is why we want to control for previous privatization by including into regression equation a variable that indicates whether privatization occurred in first or second wave: (3)

$$Growth_{it} = \beta_0 + \beta_1 \Pr Own_{it} + \beta_2 \Pr iv1 + \beta_3 \Pr iv2 + \beta_4 \Pr iv1-2 + \beta_5 Log(S_{it-1} / Em_{it-1}) + \beta_6 LogEm_{it-1} + \sum_t \beta_t Year_{t-1} + \sum_j \beta_j Ind_{ij} + \sum_k \beta_k REG_{ik} + u_{it}$$

[6] Numeration of industries in accordance with State Property Fund

where $\Pr iv1$ indicates privatization during 1991-2000 $\Pr iv2$ - during 2001-2005, $\Pr iv1-2$ privatization in both periods.

To have a closer look on effects of different privatization instruments, we included four main methods, both in first and second wave, into regression (4)

$$Growth_{it} = \beta_0 + \beta_{11} priv\_type1 + \beta_{12} priv\_type2 + \beta_{13} priv\_type3 + \beta_{14} priv\_type4 + \beta_{15} Major\_sh\_type1 + \beta_{16} Major\_sh\_type2 + \beta_{17} Major\_sh\_type3 + \beta_{18} Major\_sh\_type4 + \beta_2 Log(S_{it-1} / Em_{it-1}) + \beta_3 LogEm_{it-1} + \sum_t \beta_t Year_{t-1} + \sum_j \beta_j Ind_{ij} + \sum_k \beta_k REG_{ik} + u_{it}$$

where $Major\_sh\_typeN$ is the type of privatization which was used to transform the major share of the statutory fund into private hands during 1991-2000. The base category is $Major\_sh\_type0$ and $priv\_type0$ - firms are remaining state.

In next specification to control for a possible privatization selection we add a dummy $ever \Pr Own$ equal to 1 if the firm was ever majority private. (5)

$$Growth_{it} = \beta_0 + \beta_{00} ever \Pr Own + \beta_{01} \Pr Own_{it} + \beta_{03} \Pr iv1 + \beta_{04} \Pr iv2 + \beta_{05} \Pr iv1-2 + \beta_{06} Log(S_{it-1} / Em_{it-1}) + \beta_{07} LogEm_{it-1} + \sum_t \beta_t Year_{t-1} + \sum_j \beta_j Ind_{ij} + \sum_k \beta_k REG_{ik} + u_{it}$$

where β_{0i} are the parameters to estimate and u_{it} is an error term related to ownership specification. Since the dummy variable $\Pr Own_{it}$ is nested in $ever \Pr Own$, β_{01}, such equation permits to make some conclusions about pre-privatization performance. For instance, β_{00} shows the difference between the productivity growth of firms that was not yet privatized but would be in the future and firms that would be never privatized during sample period. This coefficient should be positive if better performing firms are selected for privatization. Coefficient β_{01} here represents the post privatization performance

vs pre-privatization. This coefficient will be zero in case of pure selection. Since dummy variables $\Pr Own_{it}$, $\Pr iv1$, $\Pr iv2$, and $\Pr iv1-2$ are nested in $ever \Pr Own$, β_{01}, β_{03}, β_{04}, and β_{05} jointly show the influence of becoming the private firm in comparison with pre-privatization performance. β_{01} by itself estimates the difference in productivity growth for a firm which is started private.

The equation 4 was modified to control for a possible privatization selection and a past history, both during the first and the second wave: (6)

$$
\begin{aligned}
Growth_{it} &= \beta_0 + \beta_{01} ever\_priv\_type1 + \beta_{02} ever\_priv\_type2 + \\
&+ ever\_\beta_{03} priv\_type3 + ever\_\beta_{04} priv\_type4 + \beta_{05} priv\_type1 + \\
&+ \beta_{06} priv\_type2 + \beta_{07} priv\_type3 + \beta_{08} priv\_type4 \\
&+ \beta_{09} Major\_sh\_type1 + \beta_{010} Major\_sh\_type2 + \\
&+ \beta_{011} Major\_sh\_type3 + \beta_{012} Major\_sh\_type4 \\
&+ \beta_2 Log(S_{it-1} / Em_{it-1}) + \beta_3 LogEm_{it-1} + \\
&+ \sum_t \beta_t Year_{t-1} + \sum_j \beta_j Ind_{ij} + \sum_k \beta_k REG_{ik} + u_{it}
\end{aligned}
$$

In the last equation the same interpretation for coefficients $\beta_{01} \ldots \beta_{04}$ applies. They could be explained as estimates of selection bias, where as coefficients $\beta_{05} \ldots \beta_{012}$ explain the changes related to ownership restructuring.

But still, even with such specification there could be factors that cause heterogeneity problems related to $PRIV_{it}$ and performance in our estimation. To account for that we could estimate above equations with Fixed Effect. The estimated coefficients of vector $PRIV_{it}$ show the effect within firm variation of ownership structure allowing every enterprise to have a separate intercept. To conclude, any variation across business units will not distort received estimates. Fixed effects also clears up the fact that ownership could be defined due to expectations about further growth in productivity. If the unobserved component

of productivity growth associated with privatization propensity is fixed over time, the presence of firm effects controls for this selection bias.

Nevertheless, all included instruments control for selection bias, but only in case if there is no dynamic selection pattern. In Ukraine government during 1991-2005 had implemented several privatization policies supported by "Privatization plans" that were passed through legislation process each year. Nevertheless, there were a lot of cases (Paskhaver, 2002) when the same privatization plan was declared for several years because of blockade of the legal and regulatory institutions. Thus, we can assume that dynamic selection is minimized in our research.

As it is it reported in the literature[7], mainly all studies related to privatization and enterprise performance face this problem. Unfortunately, fixed effect does not eliminate this selection bias. The probability of dynamic selection considering Ukrainian facts should be properly interpreted in our estimation results. We have to keep in mind, that there could exist certain property of the firm that are vivid for a buyer but not for a researcher. That could be such some internal information about quality of the firm or production that supports new demand pattern at the market. This property is related neither to level nor to growth of labor productivity. In case of using fixed effect estimation those "invisible" effect would be neglected. In general, one will need more detailed data and it to include more instruments to deal with that problem.

Another issue is a measurement error. We cannot with certainty say if outliers in our data set do not represent true differences across firms or it is noise related to a large database (in ours there are 1 756 302 observations). On the other hand, fixed effect estimation in some specifications is very sensitive to

[7] In research of Smith, Cin, Vodopivec (1997) they utilized such financial indicators as exports, sales, profits, debts to instrument ownership in total factor productivity regressions. Anderson, Lee and Murrell (2000) employed specific details of privatization in Mongolia. None of these studies use group or fixed effect estimations.

mismeasurement error. Carefully considering all the arguments, in our estimation we will employ OLS.

Chapter 6

EMPIRICAL RESULTS

For our econometrical estimation we utilized the OLS, Fixed Effect and Random Effects approaches. The full results could be seen in Appendix 1. Although after running a Hausman test the estimation showed that we may reject H_0: difference in coefficients is not systematic. So random effect estimation provides a better fit for our specifications. But at a closer look all three methods give us almost similar results in terms of coefficients" sign and magnitude, though standard error rise as the sample size drops. Thus, according to our discussion in previous chapter and the fact that we want to control for the past experience, OLS is more appropriate as the number of firms that had some privatization experience in 2001-2005 is much smaller comparing to the total sample size.

Table 4. Estimation results with private ownership dummy

	1	2	3	4
L.lab_pr	-0.1963**	-0.1986**	-0.1986**	-0.1986**
	[0.0033]	[0.0033]	[0.0033]	[0.0033]
log_emp	0.0526**	0.0580**	0.0580**	0.0580**
	[0.0019]	[0.0021]	[0.0021]	[0.0021]
po	0.1131**	0.1219**	0.1217**	0.1017*
	[0.0081]	[0.0083]	[0.0083]	[0.0408]
Priv 1		-0.0662**	-0.0665**	-0.0665**
		[0.0081]	[0.0081]	[0.0081]
Priv 2		-0.0409	-0.0638	-0.0656
		[0.0371]	[0.0584]	[0.0588]
Priv 1-2			0.0321	0.0341
			[0.0746]	[0.0749]
Ever Private				0.0205
				[0.0412]
Constant	-0.6528**	-0.6793**	-0.6793**	-0.6795**
	[0.0203]	[0.0209]	[0.0209]	[0.0209]
Observations	100127	100127	100127	100127
R-squared	0.11	0.11	0.11	0.11

+ significant at 10%; * significant at 5%; ** significant at 1%

The first results are presented in table 4. The first column corresponds to equation (2) where we examine the impact of private ownership on productivity growth. The estimation shows the significant results of private ownership for every specification. Thus in general, productivity is grows by 11% more if the firm is private. The estimation pertains to average impact of obtaining the additional private shares or being private from a start up.

To have a closer look, I disaggregated cases of private ownership to answer the question: is there any difference whether firms which where started private, privatized during 1991-2000, 2001-2005 or in both periods.

The results show that productivity of firms privatized during the first wave of privatization grows for almost 6% faster than those which remained state. On the other hand there is no difference in productivity growth of privatized firms during second wave in comparison with state enterprises. The same insignificant result we obtained for both periods of privatization.

The estimation of equation (4) available at column 4 of table 4 reveals no evidence of selection bias, coefficient near EverPriv variable is insignificant. So there is no statistical confirmation to the fact that more efficient firms have higher probability become private faster.

The estimations of the impact of disaggregated privatization methods on productivity growth are presented in table 5. As one can see in column 1, the labor productivity growth is 12%higher for initially private firms if compared to state. If the firms was privatized in the first wave (during 1991-2000) by auctions, bidding method, its growth is by 4.7% higher than for firm which are remaining state. Management-employee buyouts method increased growth by almost 3% in contrast to state companies.

The second wave of privatization shows different results. All employed methods of privatization bring the same productivity growth as already private firms, but we have to treat it with caution. The explanation of insignificant result could be required time effect. In other words, for getting the effect of privatization method on productivity growth there were not enough time yet.

Table 5. Estimation results, disaggregated by methods.

	1	2
po	0.1214**	0.1208**
	[0.0083]	[0.0082]
L.lab_pr	-0.1989**	-0.1990**
	[0.0033]	[0.0033]
log_emp	0.0576**	0.0574**
	[0.0021]	[0.0021]
Major_sh_ auctions	-0.0745**	-0.0773**
	[0.0103]	[0.0105]
Major_sh_share sales	-0.0191	-0.0245
	[0.0304]	[0.0303]
Major_sh_MEBO	-0.0897**	-0.0919**
	[0.0137]	[0.0139]
Major_sh_leasing	0.0002	0.0021
	[0.0174]	[0.0174]
Auctions, bidding	-0.0599	-0.0085
	[0.0713]	[0.0815]
Share sales	-0.042	-0.0942+
	[0.0514]	[0.0551]
MEBO	-0.0036	0.0478
	[0.0767]	[0.0889]
Leasing	-1.5029**	-1.2317**
	[0.0146]	[0.2181]
Auctions, bidding _ever		-0.0498
		[0.0423]
Share sales_ever		0.0677**
		[0.0206]
MEBO_ever		-0.0535
		[0.0341]
Leasing_ever		-0.1686
		[0.2083]
Constant	-0.6790**	-0.6794**
	[0.0209]	[0.0209]
Observations	100127	100127
R-squared	0.11	0.11

+ significant at10%; * significant at 5%; ** significant at1%

The negative sign near coefficient of lease buyouts method could be driven by small amount of cases of such type of privatization (32 cases), because this method was mainly employed during 1991-2000.

As to selection bias, (see column 2 of table 5), we have significant result only for shale sales method. It means that firms with higher propensity to grow fast were privatized by this method.

In our estimation we also controlled for year and territory. Those coefficients are significant which signals for correct specification of our model. The size of the firms also has significant influence on productivity growth in all our specifications.[8] As well as lagged productivity appeared significant, in other words firm with higher productivity in previous period grow faster in next period. The coefficients have the predicted signs and correspond to the results in the existing literature.

The above results are specified for industry enterprises. In my research I have decided to separate my data according to economy sectors: industry, agriculture and services. Such classification is required to address the crucial differences in production pocess across sectors. The privatization results also appeared really different (table 6 and 7).

[8] During estimations we tried to disaggregate our sample into groups according to size criteria, but did not receive significant results.

Table 6. Privatization in Service Sector

	1	2	3	4	5	6
L.lab_pr	-0.2275**	-0.2293**	-0.2293**	-0.2293**	-0.2295**	-0.2295**
	[0.0023]	[0.0023]	[0.0023]	[0.0023]	[0.0023]	[0.0023]
log_emp	0.0360**	0.0398**	0.0398**	0.0397**	0.0395**	0.0394**
	[0.0014]	[0.0015]	[0.0015]	[0.0015]	[0.0015]	[0.0015]
po	0.0664**	0.0778**	0.0777**	0.1748**	0.0774**	0.0774**
	[0.0047]	[0.0048]	[0.0048]	[0.0566]	[0.0048]	[0.0048]
Priv 1		-0.0923**	-0.0925**	-0.0923**		
		[0.0072]	[0.0072]	[0.0072]		
Priv 2		-0.0309	-0.0529	-0.0359		
		[0.0386]	[0.0785]	[0.0785]		
Cross 1-2			0.0317	0.0146		
			[0.0886]	[0.0887]		
Ever Private				-0.0980+		
				[0.0566]		
Major_sh_ auctions					-0.1068**	-0.1089**
					[0.0091]	[0.0092]
Major_sh_share sales					0.0512	0.0404
					[0.0394]	[0.0397]
Major_sh_MEBO					-0.1027**	-0.1074**
					[0.0117]	[0.0121]
Major_sh_leasing					-0.0039	-0.0063
					[0.0261]	[0.0261]
Auctions, bidding					-0.1001	-0.1018
					[0.0619]	[0.0694]
Share sales					0.0715	0.0071
					[0.0629]	[0.0688]
MEBO					-0.008	0.0051
					[0.0679]	[0.0759]
Leasing					-0.3681	-0.266
					[0.3434]	[0.4670]
Auctions, bidding _ever						0.0053
						[0.0295]
Share sales_ever						0.0701*
						[0.0289]
MEBO_ever						-0.0154
						[0.0301]
Leasing_ever						-0.1075
						[0.2166]

+ significant at10%; * significant at 5%; ** significant at1%

Table 7. Privatization in Agriculture

	1	2	3	4	5	6
L.lab_pr	-0.0081	-0.0025	-0.0026	0.0638	-0.0029	-0.0028
	[0.0114]	[0.0115]	[0.0115]	[0.1164]	[0.0115]	[0.0115]
log_emp	-0.2413**	-0.2425**	-0.2426**	-0.2425**	-0.2427**	-0.2430**
	[0.0059]	[0.0060]	[0.0060]	[0.0060]	[0.0060]	[0.0060]
po	-0.0026	-0.0023	-0.0023	-0.0024	-0.0024	-0.0025
	[0.0028]	[0.0028]	[0.0028]	[0.0028]	[0.0028]	[0.0028]
Priv 1		-0.0619**	-0.0637**	-0.0636**		
		[0.0122]	[0.0123]	[0.0123]		
Priv 2		-0.0273	-0.1325	-0.1305		
		[0.0363]	[0.1145]	[0.1142]		
Cross 1-2			0.1297	0.1276		
			[0.1198]	[0.1196]		
Ever Private				-0.0676		
				[0.1169]		
Major_sh_ auctions					-0.0782*	-0.0830**
					[0.0313]	[0.0316]
Major_sh_share sales					-0.3216*	-0.3378*
					[0.1539]	[0.1651]
Major_sh_MEBO					-0.0603**	-0.0650**
					[0.0132]	[0.0145]
Major_sh_leasing					0.0116	0.0081
					[0.0642]	[0.0636]
Auctions, bidding					-0.0038	-0.0374
					[0.0468]	[0.0559]
Share sales					0.1055	-0.0094
					[0.0787]	[0.0954]
MEBO					-0.1074+	-0.0867
					[0.0604]	[0.0655]
Leasing					0.3500**	0
					[0.0677]	[0.0000]
Auctions, bidding _ever						0.0423
						[0.0326]
Share sales_ever						0.1160*
						[0.0458]
MEBO_ever						-0.0316
						[0.0275]
Leasing_ever						0.2377**
						[0.0822]

+ significant at10%; * significant at 5%; ** significant at1%

For service sector there is a positive impact of private ownership (column 1 in table 6). On average, private firms grow by 6% faster than state companies. However, column 2 of table 6 reveals that service firms privatized during the first wave of privatization grows by almost 2% slower than firms which remained state. In agriculture sector the overall effect of private ownership is unclear (column 1 table 7). Remarkable, that first wave of privatization is even less efficient here. Yet state firms grow by 6% faster than the ones privitized in 1991-2000. On the other hand there is no difference in productivity growth of privatized firms during second wave in comparison with state enterprisesboth for services and agricultural sector. The same insignificant result we obtained for cross period privatization. The findings could be explained by overall economical situation in agriculture after the collapse of Soviet Union and stagnating land reform.

In contrast to agriculture and industry sectors, we observe a clear selection pattern among privatized service firms. As shown in column 3 of the table 6, the productivity of the firms started as private is 8% higher if compared to the state firms. However, when we control for the privatization selection, this number grows to 17% (column 4 table 6), This happens as mostly less efficient firm were privatized in the service sector in the first wave which jeopardized their further growth. In particular, firms privatized in the first wave (during 1991-2000) by auctions, bidding method, as well as sold out for employees its growth slowed down by 2% compared to those remaining state in services sector. The same pattern we observe in agriculture. As in industry sector, there is a selection bias in

share sales method: better firms in terms of productivity growth were privatized faster both in agriculture and services sectors. Positive selection is also observed in lease buyouts among agriculture firms.

CONCLUSION

The discussion about effects of privatization on firms' performance has a long background. But still there are a few studies analyzing the full scope of privatization-performance relationship utilizing panel data that consist of a large sample of enterprises within one country.

This study is interesting for many reasons. First, we constructed a data set that fully characterizes privatization process for industrial, agricultural and service enterprises. In our sample various methods of privatization are represented for each sector with a control foe newly private firms and past privatization history.

During our research, we emphasized three points: change in enterprise ownership, experience of firms during first and second wave of privatization, and, finally, the influence of the method chosen to privatize certain firms.

As data shows, almost 90% of all registered state enterprises were privatized to 2001. As we possess performance data (sales, profits) just for period 2001-2005, the inclusion of control for previous period privatization was unavoidable. Thus, estimation results show that increase in productivity growth due to ownership transformation is so far observed only among services and industrial enterprises. The effect varies from 6% to 17% depending on the method and wave of privatization.

The discussion of privatization methods and as a result a change in ownership structure pointed out to the possible corporate governance

problems that might have reduced potential growth of labor productivity. Results showed that privatization by auction, bidding method as well as management employee buyouts on overall caused the increase in labor productivity but on a smaller scale than other methods. This can be due to weak restructuring abilities of new owners or due to pursuit of non-profit objectives in case of management-employee buyouts.

Our empirical findings provide strong evidence that privatization had positive and substantial impact on Ukrainian labor productivity growth. The statistical significance of these effects stays robust through most of specifications. The research substantially support the position that share sales method was the most effective among all sectors of economy, but there was present selection pattern, that better firms were privatized by this method. We do observe different influence of various methods across sectors. This suggests that policy makers should carefully consider the sector-method match when developing the program of privatization.

BIBLIOGRAPHY

Alchian, A., Demsetz, H., 1972. *Production, information costs, and economic organization.* American Economic Review 62: 777-795.

Anderson, James H., Lee, Young and Murrell, Peter.1999. *Do Competition and Ownership Affect Enterprise Efficiency in the Absence of Market Institutions? Evidence after Privatization in Mongolia* Available at SSRN: http://ssrn.com/abstract=180890

Ben-Ner, A., Jun, B., 1996. *Buy-out in a bargaining game with asymmetric information.* American Economic Review 86, 502-523.

Blanchard, Olivier and Kremer, Michael, 1997. *Disorganization* The Quarterly Journal of Economics, MIT Press, vol. 112(4), pages 1091-1126, November.

Boycko, M., Shleifer, A. and Vishny, R. W. 1994. *Voucher privatization*, Journal of Financial Economics, 35, pp. 249–67.

Boycko, M., Shleifer, A. and Vishny, R. W. 1995. *Privatizing Russia*, Cambridge, MA: MIT Press.

Boycko, Maxim, Shleifer, Andrei, Vishny, Robert W., 1995. *A theory of privatization.* Economic Journal 106, 309–319.

Djankov, S. and Murrell, P. 2002. *Enterprise restructuring in transition: A quantitative survey*, *Journal of Economic Literature*, 40, pp. 739–92.

Djankov, Simeon, Murrell, Peter, 2002. *Enterprise restructuring in transition: A quantitative survey.* Journal of Economic Literature 40, 739–792.

Ellerman, David (1993). *Management and Employee Buy-Outs in Central and Eastern Europe: Introduction.* Ljubljana, Central and Eastern European Privatization Network: 13-30

Frydman, R., C.W. Gray, M. Hessel, and A. Rapaczynski. 1997.*Private Ownership and Corporate*

Performance: Some Lessons From Transition Economies. Research Report. Starr Center for Applied Economics, New York University: 97-28

Grossman, Sanford J & Hart, Oliver D. 1986. *The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration*, Journal of Political Economy, University of Chicago Press, vol. 94(4): 691-719

Henry Hansmann. 1996. *The Ownership of Enterprise*. Harvard University press

Smith, Cin, Vodopivec .1997. *Incidence, Ownership Forms, and Firm Performance: Evidence froni Slovenia*,

John S. Earle and Álmos Telegdy.2002. *Privatization Methods and Productivity Effects in Romanian Industrial Enterprises* Journal of Comparative Economics, Volume 30, Issue 4: 657-682

Joseph Stiglitz .1996. *Whither Reform? Ten Years of the Transition.* Voprosy Economici. Journal of Comparative Economics, 25: 158-179.

Kikeri, Sunita, John Nellis, and Mary Shirley. 1992. *Privatization: The Lessons of Experience.*Washington DC: World Bank.

Klaus M. Schmidt. 1998. *The political economy of mass privatization and the risk expropriation* Working paper (136)

Klein, B., Crawford, R., Alchian, A., 1978. *Vertical integration, appropriable rents, and the competitive contracting process*. Journal of Law and Economics 21, 297-326.

Kornai, János, 2000. *Ten years after The Road to a Free Economy: The author's self evaluation*. In: Pleskovic, Boris,Stern, Nicholas (Eds.), Annual World Bank Conference on Development Economics. World Bank, Washington: 49–66.

Kovenock, D., Sparks, R., 1990. *An implicit contract approach to employee stock ownership plans*. Journal of Comparative Economics 14, 424-451.

Lipton, David, Sachs, Jeffrey, 1990. *Privatization in Eastern Europe: The case of Poland*. Brooking Papers on Economic Activity 2, 293–334.

Maxim Boycko; Andrei Shleifer; Robert W. Vishny.(1996). *A Theory of Privatisation*.

Megginson, W. L., Nash, R. C., Netter, J. M. and Poulsen, A. B. 2004. *The choice of private versus public capital markets: Evidence from* privatizations', *Journal of Finance*, 59, pp. 2835–71.

Olivier Jean Blanchard (1994). *Transition in Poland*. The Economic Journal, 104 (426): 1169-1177.

Paskhaver, Oleksandr, Verkhovodova, Voronkova, and Tereshchenko. 2003. *Concluding Stage of Ukrainian Privatization*. Center of Economical Development, Millenium:78.

Rafael La Porta and Florencio Lopez-de-Silanes.1999. *The Benefits of Privatization: Evidence from Mexico*. The Quarterly Journal of Economics, 114(4): 1193-1242

Roland, Gérard, 1999. *Transition and Economics Politics Markets and Firms*. MIT Press.

Sachs, Jeffrey D., Woo, Wing Thye and Yang, Xiaokai.2002. *Economic Reforms and Constitutional Transition*" Available at SSRN: http://ssrn.com/abstract=254110

Sanford, Grossman and Oliver Hart. 1986. *The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration*. The Journal of Political Economy 94(4): 691-719.

Schmidt, Klaus. 1999. *The Political Economy of Mass Privatization and the Risk of Expropriation*. European Economic Review, Vol. 44, No. 2, December 17, 1999

Smith, Stephen, Beom-Cheol Cin, and Milan Vodopivec. 1997. *Privatization*

Stiglitz, J. E. 2000. *Whither reform? Ten years of transition*, in Pleskovic, B. and Stiglitz, J.E. (eds), *Annual World Bank*

Conference on Economic Development, Washington: World Bank.

Susan Chaplinsky, Greg Niehaus and Linda Van de Gucht. 1998. *Employee buyouts: causes, structure, and consequences*. Journal of Financial Economics, Volume 48, Issue 3, 1 June: 283-332.

Susan Chaplinsky, Greg Niehaus, Linda Van de Gucht. 1998. *Employee buyouts: causes, structure, and consequences* Journal of Financial Economics 48:283-332

Svejnar, J. 2002. *Transition economies: Performance and challenges*, Journal of Economic Perspectives, 16, pp. 3–29.

Frederic Warzynski. 2003.*Managerial change, competition, and privatization in Ukraine* . Journal of Comparative Economics, Volume 31, Issue 2, June 2003, Pages 297-314

Weitzman, Martin, and Chenggang Xu. 1993.*Chinese Township and Village Enterprises as Vaguely Defined Cooperatives*. Harvard University,

Williamson, O., 1979. *Transaction-cost economics: the governance of contractual relations*. Journal of Law and Economics 22, 233-261.

Zeljko Bogetic 1993 *The Role of Employee Ownership in Privatisation of State Enterprises in Eastern and Central Europe* Europe-Asia Studies, 45(3): 463-481

Appendix A. Methods of privatization by industry

	A	B	C	D	E	F	G	H	I	J	K	M	N	O
Certificate auctions, Privatization Property Certificates	403	2	1	415	39	513	63	30	520	1	130	0	5	1
Employee buyouts	264	4	1	443	45	530	35	23	582	1	75	2	4	2
Free of charge	1107	50	1	236	1	116	4	0	36	0	17	0	0	0
Certificate auction, for cash	434	5	1	329	3	227	21	4	359	0	36	1	0	1
Certificate auctions, compensation certificates	379	1	0	195	4	327	12	3	378	0	57	0	0	2
Small privatization	23	0	0	59	4	244	42	309	39	3	219	8	11	16
Lease-buyout procedure	65	0	1	337	4	236	11	12	36	0	48	2	3	2
Stock exchange	47	4	0	238	24	97	17	10	121	1	48	2	4	0
Sales to Agricultural producers	148	1	1	273	1	74	23	0	25	0	27	0	2	0
Other citizens that have privileges for shares purchase	52	4	0	63	3	21	8	2	26	0	10	0	1	0
State property	68	4	0	31	10	13	0	2	27	0	2	0	0	1
redemption and privileged sell of shares	16	0	0	29	0	42	2	5	20	0	13	0	0	1
Open engagement	3	0	0	16	0	31	2	2	11	0	5	0	0	0
Non commercial competition	4	0	0	14	2	22	5	2	8	0	8	0	0	0
Management buyouts, for Compensation Certificates	5	0	0	15	8	18	3	3	11	0	2	0	0	0
Management buyouts, that have additional rights for buying those shares	7	1	0	12	9	19	2	5	6	0	1	0	1	0

Appendix B. Detailed methods of privatization, 1991-2000 37

Type of privatization	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	Total
Small privatization	0	0	4	358	1326	2557	1418	186	54	21	14	5938
Certificate auctions, Privatization Certificates	1	0	0	0	5	574	1677	1503	1059	297	2	5118
Employee buyouts	1	0	0	10	249	657	1401	960	655	212	67	4212
Certificate auctions, compensation certificates	0	0	0	0	1	3	562	1263	1063	1	186	3079
Certificate auction, for cash	1	0	0	0	1	0	0	0	335	165	768	2755
Free of charge	1	0	0	1	19	156	399	400	859	382	221	2438
Lease-buyout procedure	0	2	0	119	285	455	476	190	130	17	10	1684
Stock exchange	2	0	0	1	1	9	141	252	464	394	419	1683
Sales to Agricultural producers	0	0	0	0	2	48	275	546	196	43	2	1112
Other citizens that have privileges for shares purchase	0	0	0	0	11	23	116	170	56	15	4	395
redemption and privileged sell of shares	0	0	1	93	129	100	19	1	0	1	1	345
Non commercial competition	0	0	0	3	34	118	119	15	22	23	6	340
Open engagement	1	0	0	3	63	212	17	5	4	4	6	315
State property	1	0	4	0	5	40	68	57	41	27	15	258
Transferred to holdings	0	0	0	0	2	15	17	35	62	21	42	194
Management buyouts, that have additional rights for buying those shares	0	0	0	0	8	45	13	37	24	29	13	169
Management buyouts, for Compensation Certificates	0	0	0	0	0	1	14	72	66	2	0	155
Commercial competition	0	0	0	0	3	16	35	4	30	13	45	146
For balance on deposit accounts	0	0	0	0	0	0	1	6	45	17	0	69
Sale on open cash regional auctions	0	0	0	0	0	0	0	0	0	8	56	64
Shares of State holdiings	0	0	0	0	3	6	7	5	9	6	5	41
Sale with spread payments	0	0	0	0	0	0	0	0	1	6	12	19
Over-the-counter trading	0	0	0	0	0	0	0	0	0	7	7	14
Sale on cash auction	0	0	0	0	0	0	0	1	0	2	6	9
Sale of block of shares for competitive bidding	0	0	0	0	0	0	0	1	0	0	5	6
Shareholders that have privilaged rights for additional purchase of shares	0	0	0	0	0	0	0	0	0	1	1	2
Publlic sale for cash	0	0	0	0	0	0	0	0	0	0	1	1