

THE IMPACT OF STATE
CORPORATE RIGHTS
MANAGEMENT ON THE
EFFICIENCY OF UKRAINIAN
JOINT-STOCK COMPANIES

by

Eduard Melnychenko

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ABSTRACT

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Chairperson of the Supervisory Committee: Professor Serhiy Korablin
Institute of Economic Forecasting
at Academy of Sciences of Ukraine

This paper investigates the efficiency of state as a shareholder of Ukrainian JSCs conducting a comparative analysis between private Ukrainian JSCs and the joint-stock companies with state-owned shares, which are governed by different types of state representatives. We try to find out how the second-tier SCR management in Ukraine and, in particular, organizational problems of principal-agent relationship between the state and different types of state representatives influence efficiency of Ukrainian JSCs. The investigation of institutions that determine the framework for SCR management shows that there are serious problems in all managerial schemes and these problems may cause losses of efficiency for Ukrainian JSCs. Empirical research is based on a sample of 466 Ukrainian joint-stock companies for the period of 1999 – 2000. Results of estimation confirm that increase of state corporate control over an enterprise leads to substantial losses of efficiency and that institutional settings of SCR management schemes applied in Ukraine contribute to this

inefficiency; there is a significant negative relationship between performance indicators and the index of problems developed to assess degree of problems that face managerial schemes.

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GLOSSARY

Corporate governance: system consisted from economic and legal institutions that are called to provide the assurance of return on capital to investors.

JSC - Joint-Stock Company

SCR (State Corporate Rights) - Share of an enterprise owned by the state.

SPFU - State Property Fund of Ukraine

National Agency on State Corporate Rights Management. (Agency) – specialized body of Ukrainian government for the management of SCR. After two years of activity it was recognized as inefficient and was liquidated.

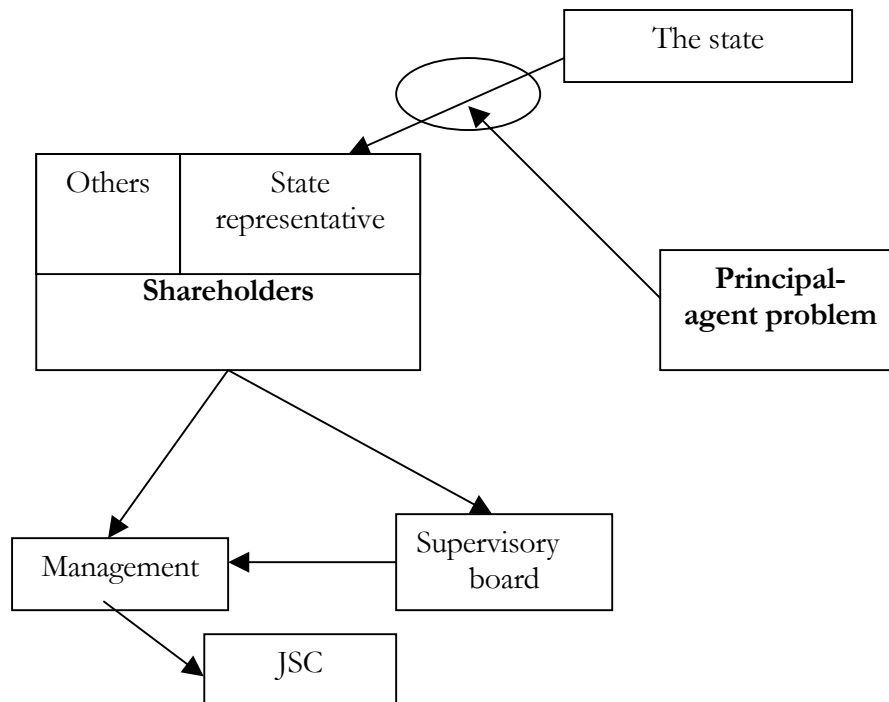
Local State Administrations – bodies that represent central government in regions.

Authorized persons – firms or persons authorized to manage SCR; according to the legislature they must be chosen via competitive tender but in practice this condition is often violated.

INTRODUCTION

Due to the specifics of the privatization process in Ukraine the state now is a shareholder in about 2000 Ukrainian JSCs and in 1300 it possesses shares of more than 25%¹ (such shares provide their owners with power to influence JSC activity). Previous research (Grygorenko, 2001; Pivovarsky, 2001) found that presence of significant state-owned share (more than 25%) in statutory capital of Ukrainian JSCs are not correlated positively with efficiency of those enterprises; however, the private owners endowed with significant shares contribute to efficiency.

Figure 1. Influence of the state as a shareholder on the activity of JSC



¹ State Property Fund of Ukraine. The Annual Report on the Accomplishment of the State Privatization Program for 2000. Available at www.spfu.gov.ua

But one really important question remains unanswered: what are the reasons for such bad performance of the state? The practical significance of the question lies in the sphere of privatization intensity; i.e., the state has two choices: to sell out its shares or to improve efficiency of the management. As it was suggested by Pivovarsky (2001), and confirmed by numerous attempts of the government to improve state corporate rights management, the problem of inefficiency of the state ownership rests in the principal-agent relationships between the state and the state representatives. Figure 1 shows how the state influence JSC activity through its representative and the principal-agent problem arises; therefore, we take this problem for our investigation.

The theory that describes the principal-agent relationship usually examines principal that delegates certain degree of power to an agent who obtains utility from reward, position, and other benefits and does not like to make any efforts for principal interest. One of the most common assumptions in such models is that principal is a residual claimant; but in case of state property management it is not necessarily the case, because there is no clear residual claimant, rather the state is multiple principles with contradicting or non-economic objectives.

Principal-agent theory considers the following main factors that determine the level of agent's efforts:

- information and incentive schemes
- commitment of agent

Under the perfect information the principal will develop and implement optimal incentive schemes that will overcome disutility of an agent to make creative efforts; since a principal is able to observe agent's efforts precisely, the optimal incentive intensity will just be equal to the agent marginal product in principal valuation.

But in reality principal does not possess complete information on agent's efforts and it can be shown that the greater information asymmetry between principal and agent the less efficient incentive scheme is. So it is likely that without mechanisms of information asymmetry reduction and monitoring an agent will find him/herself better off shirking and will not devote sufficient efforts to work. Therefore, the mechanism of information asymmetry reduction is very important for successful performance.

Also in the analysis of the relationship between the state and its agent, commitment of both sides is also very important issue. Sometimes, due to information asymmetry or high bargaining power, an agent is able to manipulate performance targets and indicators, so an agent's commitment also matters, since the lack of commitment may cause shirking of the agent.

In this paper we are going to investigate management mechanisms for SCR and determine how the management schemes applied in Ukraine deal with incentives, information, and commitment problems.

Practical part of our research consists from two parts: in the first part we will describe and study the legislative organization of different SCR management schemes in Ukraine in order to detect possible problems. For the period of our analysis (1999-2000) the following schemes were applied for the state corporate rights management (according to the type of agent responsible for SCR performance):

- officials of National Agency for State Corporate Rights Management (here and after Agency)
- SPFU officials
- ministries officials
- local state administration officials
- authorized persons (firms or persons chosen via competitive tender).

We base our analysis on legislative documents that determine organizational structures of management schemes paying particular attention to monitoring systems, power of incentives, enforcement mechanism, and commitment; in order to assess degree of problems for each management scheme we develop index of detected problems.

In the second part of investigate economic activity of Ukrainian JSCs with and without state-owned shares and determine how the size of state-owned shares influence JSCs performance. Employing institutionalized Cobb-Douglas production we estimate the impact of state-owned shares on the following performance indicators: value-added and net sales. In order to find out whether the incentives, commitment, and info asymmetry problems influence JSCs performance we include the index of problems as an explanatory variable.

Chapter 2

LITERATURE REVIEW

Since we investigate how the state as a shareholder affects activity of JSCs in Ukraine and how this impact differs depending on the type of state representatives, this paper involves three issues that widely discussed in economic literature: efficiency of state ownership, role of corporate governance, and principal-agent problem.

With regard to efficiency of state ownership the excellent review on this issue was made by Andrei Shleifer (“State Versus Private Ownership”, 1998), where he summarizes works of famous economists in which they list cases when state ownership is more preferable than private. Most authors of 30-50ths consider that the state is more efficient in those industries where competitive conditions are difficult to fulfil, e.g. railroads, mines, utilities etc. But, as Shleifer shows, nowadays there are a lot of examples when these industries are privatized or in the process of privatisation and the main reason for this is better performance of the private firms; he states that “the weak incentives of government employees with respect to both cost reduction and quality innovation underlie the basic case for the superiority of private ownership.” Therefore, from the economic point of view there is no incentive for the state to be an owner of a firm and to produce a certain good if private firms produce the same goods of better quality and in more efficient way. However, the state may be more efficient in the following circumstances:

- Cost-reduction will lead to significant unallowable reduction of quality
- Innovation is not very important
- Weak competition and inefficient consumer choice

- Reputation does not matter

However, all these circumstances are rare and, for sure, they cannot be applied to Ukrainian JSCs and, thus, state ownership cannot be economically justified, since most of these enterprises operate in quite competitive environment and to survive they have to introduce new technologies, reduce costs of production etc. Rather the enterprises, which correspond to the above criteria in Ukraine, are so-called “treasury enterprises”, but they are purely state-owned and are not subject either to privatization or to corporatization.

As a rule joint-stock companies are not owned by a single owner, since among the purposes for their creation are possibilities to depart from single ownership of a firm and to attract new owners. According to Hart’s theory corporate governance issue matters because in presence of many owners it can perform functions of the mechanism for usage and allocation of a firm’s resources (“Corporate Governance: Some Theory and Implications” Hart, 1995), i.e. not only the owners of a firm but the corporate structure and governance system determine what decisions will be made on investments, wages, profit distribution etc. The preferences of a shareholder, or a group of shareholders, who managed to get control over the firm will direct its further way and, thus, will affect its performance. The shareholders have voting power according to the size of their share and this size determine their influence on JSC; their interest and participation in the firm’s activity will heavily depend on how they value their shares. Small shareholders have no means for permanent control of firm’s activity and, thus, the ownership and control are actually separated. Moreover, they even may not have desire to do this due to free-rider problem. The control and monitoring are costly, so no one wants to bear this burden; control actions can be regarded as a public good, everybody will think than somebody else will perform controlling functions and will shirk. In contrast, large shareholders have both incentives and power to monitor and control activity of the firm.

Xu and Wang (“Ownership Structure, Corporate Governance, and Firms’ Performance: The Case of Chinese Stock Companies”, 1997) investigate whether ownership structure has effects on the performance of joint stock companies in China. This study shows that in OECD countries ownership and control rights are increasingly concentrated in the hands of financial and non-financial institutions. The driving force behind this trend seems to be related to the benefit of ownership concentration as a direct measure of corporate control. The main determinant for such concentration in transitional economies is the importance of large institutions because the legal protection of shareholders’ interests is weak due to historical and institutional reasons. Thus, the increase of share in one hands leads to increase of enterprise efficiency but this is not true for with regard to the state as a shareholder, the authors find that it is less efficient than private ones.

Evidence from Ukraine coincides with China’s. Thus, Vitalii Repei (“Ownership Structure, Corporate Governance, and Corporate Performance: Evidence from Ukraine”, 2000) analyses Ukrainian corporate sector by describing the corporate governance system in Ukraine and comparing it with other countries systems. Based on EBRD transition indices, which reflect internal and external features of corporate governance, the author states that Ukraine is one of the worst performing transition economies in the development of corporate governance mechanism. He argues that overregulation of the economy, soft budget constraints, and weak enforcement of property and contract rights harm corporate sector; but, nevertheless, if a large private owner concentrates shares in its hand this leads to significant increase of JSC efficiency. Alexander Pivovarsky (“How Does Privatization Work? Ownership Concentration and Enterprise Performance in Ukraine”, 2001) investigates the relationship between ownership concentration and enterprise performance in Ukraine. He doubts the effectiveness of mass privatization method that led to a dispersed ownership structure and suggests that privatization that grants significant ownership stakes to single owner may have greater efficiency gains than privatization that

disperses ownership. The author stresses that in comparison to private owners the state is less efficient as a core shareholder and suggests that agency problem is the main reason for the inefficiency of the state as shareholder.

Theoretical literature also supports this point (Hart, 1995); if the shareholder is an institution (or the state as in our case) then, apart from principal-agent problem in corporate governance, the relationship between the state and state representatives in JSCs itself constitutes a kind of principal-agent problem.

One of the first who raised the problem of ownership separation and the management of the property was Adam Smith in his *The Wealth of the Nations*. He noticed that the managers of property belonging to other people would never care about it as the owners would. The modern literature has significantly developed studies at this field and now there are a lot of approaches that try to deal with the agency problem.

Both classical and neoclassical theories rest on the assumptions that we can observe all managerial effort and information is costless that do not certainly hold in reality. Relaxing these assumptions we get to the principal-agent problem where a principal hires an agent to run the principal's asset. Here we assume that agent's efforts have positive influence on the asset performance, but this not only the factor that may improve the asset's performance. Therefore, the complication is that the principal can only observe the performance of the underlying asset but not the efforts of the agent. So, how much the principal should pay to the agent, i.e. what is the optimal incentive scheme? In world with perfect information the fee is just equal to marginal value of manager's efforts but in real world principal cannot observe these efforts, so the problem of how to monitor manager's activity and how much to pay him arises.

One of the most complete reviews of the incentive literature development was made by D. Sappington ("Incentives in Principal-Agent Relationships", 1991). In his work he investigates and describes the most important and deep

concepts and ideas. Most of the approaches attempt to model incentive system in principal-agent relationships in such a way that an agent has to make efforts at the owner benefit. The developed models are quite simple and sometimes constructed under unrealistic assumptions but still they can provide important insights into relationships within a complex organization like modern firms. The most common assumptions are made on risk-neutral principal, who is a residual claimant and who gains from agent's efforts, and risk-averse agent, who has disutility of efforts.

Among different theories, Sappington emphasizes concepts of "bounded rationality" and "incomplete contracting" (Simon, 1951) as the most outstanding. This theory assumes that both the agent and the principal possess all information about the firm performance, its environment, probabilities and frequencies of "states of nature", etc. But it is well known that usually collection and assessment of information as well as stipulating all terms is costly or even cost is so high that makes it impossible, so stipulation of all details in the contract is not feasible in real world. The further development of Simon's theory (Grossman and Hart "An Analysis of the Principal-Agent Problem", 1983) leads us to some deviation from complete omniscience to possibility that unforeseen and unspecified events happens; if agent has high believes on such events s/he will tend to specify "residual rights" in the contract that will allow him/her to make critical decisions. The importance of such extension is that it provides more realistic approximation to real conditions. The main conclusions of the above-mentioned theories, which can be applied to real world settings are:

- it is never optimal for the incentive scheme when agent's and principal's payoffs are negatively related;
- optimal incentives must be very sensitive to performance only if measure of performance is good enough; under poor measurement

and evaluation of agent performance raising of incentives does not lead to better performance;

- the better the principal is informed the less the welfare losses;
- better information for agent (greater information asymmetry) contributes to lower performance of the agent

However, there are also differences in application of principal-agent theory when we have the state as a principal. The first deviation from the above mentioned assumptions is that the state cannot be regarded as a residual claimant; here we have multiple principles with different, not always coinciding objectives, because maximization of political and social objectives usually does not correspond to maximization of pure economic objectives (Jones, “The Linkage Between Objectives and Control Mechanisms in the Public Manufacturing Systems” in Trevedi, 1990). But, nevertheless, we can plausibly assume that economic indicators are still being improved along with maximization of non-economic objectives (Shirley and Xu, 1997).

The second important issue that complicates matters with the state is that the lack of commitment with both contracting parties may lead to sub-optimal performance of an agent (Shirley and Xu, 1997). Since, sometimes both the state and an agent may have enough power to avoid punishment for non-fulfillment of the contract terms, an agent will take this information into account in his/her decision making and, consequently, it will influence performance. With higher commitment of the state the agent’s efforts will be higher than those with low commitment; similarly, with lower agent’s commitment s/he will make lower efforts. Therefore, the specified enforcement mechanism may increase or reduce commitment of an agent. This issue especially important in transition countries where there are no well-established institutions for rights protection.

Shirley and Xu (“Empirical Effects of Performance Contracts: Evidence from China”, 1997) evaluate the Chinese government attempts to adopt performance contracts for state-owned enterprises in order to improve their efficiency. The China’s experience has many advantages as a natural experiment: there are a large number of contracts; Chinese performance contracts exhibit rich variations: length, type of targets, manager changes etc; enterprises with contracts vary in industries, size, capital-labour ratio, mark-up ratio, pre-contract performance etc. And the empirical evidence shows that the adoption of contracts did not improve the productivity of Chinese state-owned enterprises, moreover, they may even have reduced it. The authors argue that the reason for this is failure of the contracts to reduce information asymmetry, to implement strong enforcement mechanism, to establish well-defined link between performance and the intensity of incentives.

Summarizing theoretical and empirical works, we can say that, as rule, the state is inefficient as shareholder; its presence among the owners of a firm may harm the performance of enterprises. But the state as a shareholder may positively influence performance of a firm if the relationships between the state and state representatives are defined through:

- strong enforcement mechanism in order to ensure agent’s commitment
- incentive scheme, which is sensitive to the enterprise performance
- mechanism for monitoring and information asymmetry reduction

Research that investigate influence of corporate governance on the enterprise performance in Ukraine indicate poorer efficiency of the state on the activity of Ukrainian JSCs, they suggest greater efficiency of privatized enterprises but they do not answer the questions how the state-owned shares affect performance and what is role of the state corporate governance mechanism. Therefore, in order to remove the ambiguity we need the evidence on the

impact of state corporate rights on JSCs performance and on the role of managerial schemes applied in Ukraine.

Chapter 3

INSTITUTIONAL FRAMEWORK OF STATE CORPORATE RIGHTS MANAGEMENT

3.1. Organization of State Property Management in Ukraine

The state ownership in Ukraine is considered to be less efficient than private ownership and it is likely that the state poor performance arises from the problems with SCR management (Pivovarsky, 2001). The first grave problem with the state as an owner is the purpose of this ownership; since the state is not an individual but rather it is a multiple principal there is no clear residual claimant for SCR; therefore, the objectives may not always be economical and, moreover, they may contradict each other; for instance, an edict of National Agency for State Corporate Rights Management (1999) stipulates along with increasing of net worth of enterprises such targets as undertaking of social measures.

The objectives for the management of SCR are provided by the Order On the Conditions of Handing Over and Building-Up the Tasks for the Management of State Corporate Rights². As the main objectives of management it names the increase of net worth of JSCs and/or increase of dividends flow to the state. The realization of the objectives is supposed through the achievement of the stipulated indicators like:

- Improvement of financial and economic activity of JSCs
- reduction of different kinds of arrears and in particular: wage arrears, tax arrears etc.
- keeping and effective use of the state property

² National Agency for State Corporate Rights Management. Order on the Conditions of Handing Over and Building-Up the Tasks for the Management of State Corporate Rights. # 213/3506. 04/06/1999

- accomplishment of the state mobilization tasks

In principle, the management of SCR can be regarded as two-tier system where the first-tier relationships are the relationships among Verkhovna Rada, CabMin, National Agency for State Corporate Rights Management (in 1999) and State Property Fund (in 2000) as managers of state property and the second-tier relationships between the Agency (1999) or SPFU (2000) and agents:

- Agency officials
- SPFU officials
- Ministries officials
- Local state administrations officials
- Authorized persons

SCR are the state property under the process of privatization and, according to the legislation, the executive body that is responsible for management of such kind of property is State Property Fund of Ukraine; but from 1998 till the end of 1999 SCR as a category of state property were taken from SPFU and handed to the newly created Agency. At the end of 1999 the President by his Edict terminated the Agency³ and SCR were returned back to SPFU; the reason for this was poor performance of the Agency as a managerial body.

3.2. Schemes of State Corporate Rights Management in Ukraine

As we know, managing share size more than 25% provided an agent with significant power to influence JSCs activity; in 2000 the state possessed more than 25% in 1300 JSCs. As other research shows (Repei 2000, Pivovarsky

³ Presidential Edict #1573/99. On Changes in the Structure of Central Executive Bodies. 15/12/1999

2001) small shareholders do not influence much JSCs performance due to free-rider problem or due to lack of power; only core shareholders are likely to influence situation because they have more incentives and means to control activity of JSC. But the state as a shareholder delegates its shareholder's power to certain type of agent and here we cannot say definitely that these agents are really interested in better performance of an enterprise. This implies that they shirk from performing of controlling and monitoring functions and it may have negative influence on JSC efficiency. The theory states that poor and asymmetric information, weak incentives and commitment lead to poor performance of the agent and, consequently, to poor enterprise performance, therefore in this section we will investigate how information, incentives, and commitment are embodied in different forms of management and how it may influence performance of JSCs.

The legislative framework of institutional settings of second-tier SCR management in Ukraine is the Enactment of Cabinet of Ministry on State Corporate Rights Management⁴. It defines the system of corporate rights belonging to the state, types of state representatives, conditions for handing SCR to the executive bodies, and the ways of control and monitoring of the activity of state representatives.

As for the second-tier management, the legislature stipulates five types of state representatives and consequently five schemes of monitoring, incentives, and enforcement applied for any particular managerial type.

National Agency for State Corporate Rights Management as a State Representative

The Agency was initially created in 1998 as independent specialized body for the management of SCR⁵. The legislature did not suppose any specific control

⁴ Cabinet of Ministry of Ukraine. Decree On State Corporate Rights Management (valid from 04/11/1999 till 54/06/2000). # 1741

⁵ Presidential Edict #969/98. On Creation of National Agency for State Corporate Rights Management. 02.09.98

mechanism over the Agency but it provides the Agency with high degree of independence and authority. The Agency performed managerial functions for SCR, controlled activity of other state representatives, determined distribution of SCR to state representatives, and developed regulatory framework for SCR management.

Since the theory relates agent's performance to information and definitely declares that greater asymmetry implies poorer incentives, we should look at mechanisms for the reduction of this asymmetry. The most efficient method (competitive bidding among the agents in order to decrease their information advantage) is not applicable for this scheme of management because the scheme simply does not allow such bidding. The agents are selected among the Agency officials and this does not mean any competition among them and we can say that such mechanism is absolutely absent. Also the internal collusion might take place and agents potentially were able to lower task indicators. One more drawback is related to monitoring: the Agency did not submit any reports of its activity (in contrast to State Property Fund), thus, there was no responsibility for final results.

There is also no direct evidence about the incentive sensitivity for the Agency officials for the performing of managerial functions; conversely, analyzing budget⁶ of the Agency for 1999 we can see that even material incentives existed they were not related to the performance because only fixed amount of money was devoted for wages and there were no further provisions for possible dependence of wages on the performance. Finally, at the end of 1999 the activity of the Agency was stopped and its functions were handed to SPFU.

⁶ Cabinet of Ministry of Ukraine. Decree on Issues Related to National Agency for State Corporate Rights management. # 1195. 31.06.1998

State Property Fund of Ukraine as a State Representative.

The second type of managers we will consider is the officials of SPFU who manage SCR. The legislature states that SPFU acts as a sole juridical owner of SCR; this implies that all responsibility for performance of SCR management, actually, lies on this executive body⁷. To a great extent this fact determines SPFU to be the most committed state representative.

As a body responsible for the management of state property it performs managerial functions for SCR and supervise activity of other state representatives. The fact that target indicators are established, fulfilled, and evaluated by people within the same office may influence the quality of evaluation, lead to artificial lowering of task indicators, since if the agent has opportunity to shirk s/he will do it.

The incentive scheme also cannot be regarded as performance sensitive; in practice, SPFU officials combine their regular job with the job of a state representative, and they are not paid separately for performing the functions of a state representative and there is no direct link between asset's performance and money they get.

Agent's commitment is probably the strongest positive factor in this model because, as it was mentioned, from the beginning of 2000 year SPFU is directly responsible for SCR management; this means that the officials of SPFU are answerable for performance of JSCs with state-owned shares, poor performance may have negative impact on the careers of those officials. Annually SPFU give a report to Verkhovna Rada and publish it at its website;

⁷ Verkhovna Rada. Decree on Temporary Status of State Property Fund of Ukraine. 07.07.1992 № 2558-XII

Verkhovna Rada approve or disapprove the report with further consequences for officials.

Ministries as State Representatives in JSCs.

The third scheme of SCR management is handing over these rights to line ministries; the Enactment on State Corporate Rights Management says that executive bodies other than SPFU may perform managerial function for SCR. It sets forth that executive bodies of Ukrainian government like ministries and local state administrations may give their proposals for certain SCR to SPFU and then according to the tender results it gives SCR to the executive body. We can just assume that the logic behind this model is to find more informed and skilled agent. Since in this model SCR are handed to the ministries engaged in supervising of certain industries (like Ministry of Energy and Fuel, Ministry of Agriculture, etc.) their officials should have more information and experience in the particular industry, e.g. officials of Ministry of Agriculture know more about activity of agricultural enterprises, officials of Ministry of Energy and Fuel also possess better information on coal mines than SPFU officials.

Nevertheless, such a model cannot remove the main drawbacks of the previous ones: there is no competition among agents for the right to manage certain SCR. The set of potential agents is still limited by executive bodies available; moreover, it is unlikely they would have too many incentives for competition; since they do not get any benefits for the SCR management, they would rather regard this as additional burden, but who likes to work more without sufficient compensation?

Well-informed and skilled agent will not necessarily devote sufficient efforts for management; conversely, s/he would enjoy information advantage if the system of monitoring and evaluation of his/her performance is inefficient.

We consider such system to be inefficient because the Enactment does not stipulate any particular mechanism for control and influence on such kind of state representatives, it only states that CabMin decision for handing SCR must include this mechanism but looking at these legislative documents we find that in 1999 SCR of about 800 JSC were handed over to ministries without stipulation of control mechanism and performance indicators; however, it is mentioned that such mechanism and indicators should be implemented in future⁸ but still we do not know whether it was done before 2001. So we have the situation when the agent even does not have task indicator to achieve. As for commitment, the ministries are not directly responsible for the management of SCR, the main burden of responsibility lies on SPFU or on the Agency; since ministries, SPFU, and the Agency had approximately equal status, the Agency and SPFU were not able to pressure ministries to perform better due to the absence of control and enforcement mechanisms. Therefore, one cannot expect great commitment of ministries officials.

Taking into account the status of ministries (that implies high bargaining power), the absence of even formal control and enforcement mechanisms, the lack of commitment, and the poor incentives we expect that performance of line ministries to be even poorer than of SPFU officials and in terms of incentives, responsibility, information asymmetry, and agent commitment they are even more problematic than the previous schemes.

State Local Administrations as SCR Managers.

The model with participation of state local administration formally is quite similar to the previous model. The organizational scheme is essentially the same but we distinguish it from the “ministry” model because here we can

⁸ Cabinet of Ministry of Ukraine. Enactment On Handing Over of State Corporate Rights to Board of

think of better managerial commitment as well as on less bargaining power of local state administrations.

Since status of local state administrations is lower than those of central executive bodies (ministries, SPFU, CabMin, the Agency) their performance as state representatives is evaluated more thoroughly; and they are more likely to be punished than, for instance, officials of SPFU. One more thing that may positively influence performance of state local administrations is responsibility of state local administrations for budget revenues of their regions (oblasts)⁹. Since these revenues partially can be obtained from successful economic activity of JSCs (e.g. value-added taxes, profit taxes etc.) good management of SCR coincides with the interests of local state administrations.

But we still have problems with this management scheme, since the absence of fee for performing of SCR management functions weakens incentives for local state administrations officials; also we have the problem similar to those with ministries: SCR of about 1200 JSCs were handed over to the local state administrations without any indicators to achieve; the problem of information asymmetry remains as well.

Authorized Persons as State Representatives.

The Enactment on State Corporate Rights Management determines an authorized person as a person who won the tender for SCR management. Formally this scheme is organized better than previous ones. The reasons for this suggestion are the following:

Ministries of Crimea Republic, ministries, and other central and local executive bodies.

⁹ Presidential Edict # 394/92. On Local State Administration. 24.07.92

- it provides possibility of information asymmetry reduction through competitive bidding, therefore this should eliminate this grave problem which is persistent in all previous models;
- it allows for material stimulus for this type of agent because it is not a state official and can receive fee for performing management functions;
- it stipulates control and monitoring mechanism of an agent's activity through contract of agency;
- it provides insurance mechanism for targets fulfillment; this means that the agent must insure against the risk of failure to carry out the tasks stipulated in the contract of agency;
- it provides explicit enforcement mechanism; the contract of agency must stipulate responsibility of the agent to carry out the tasks.

Theoretically this management form eliminates or reduces all problems that make previous ones improper in terms of incentives, information, and commitment; however the model may have a positive effect if and only if all provisions of the law are implemented in practice.

Unfortunately the reality of use of this model is not as good as it described by the law. At the end of 2000, Accounting Chamber of Verkhovna Rada investigated the practice of SCR management performed by authorized persons. The results of this investigation are quite disappointing; it was found that there were many infringements in the procedure of authorized persons appointment. First of all, there were cases when authorized persons were determined without any tender; there even was a case when authorized person performed managerial functions without the contract of agency and, thus, without any tasks and targets. Secondly, when the terms of contract of agency were not fulfilled nobody was made answerable for this and insurance

companies did not reimburse the sum insured to the state. One more thing pointed out in the investigation results is soft targets established in the contracts of agency; there were cases when losses were indicated as targets in the contracts. And the conclusion of Accounting Chamber is that implementation of SCR management through authorized persons did not justify itself.

Also, as the analysis shows, most authorized persons are holding companies, enterprises or head of enterprises related to the same industries as a JSC in question, moreover, a often a package of many JSC of the same industry were handed to them. Therefore, they might obtain some monopoly power at the market and the profit-maximizing decision for them might be not the improvement of the state-owned JSCs performance but rather to limit their output or efficiency. This might be the case when fee for the SCR management functions are less than profit from monopoly power.

3.3. Comparison of the managerial schemes applied in Ukraine

The thorough investigation of the legal framework for SCR management in Ukraine indicates a set of problems that, according to the theory, reduce agent's efforts and, thus, harm performance of underlying asset (JSCs in our case). However, in order to draw certain conclusions about managerial schemes we need to rank them somehow, i.e. to summarize all detected problems in terms of incentives, commitment, and information asymmetry which are specific to the particular scheme. We suggested the following set of problems in the schemes but not all problems in all schemes:

Incentives:

- The fee for the management is not related to the performance (1)
- The objectives of the agent do not coincide with the objectives of the principal (2)

Commitment:

- The punishment mechanism for the non-fulfilment of the targets is absent or does not work (3)
- The status of the agent is higher or equal to the status of controlling body (4)

Information asymmetry:

- The agent has more info than controlling body (5)
- The working mechanism for the reduction of the agent's information advantage is absent (6)

Now we need to assign some numerical values to every scheme: if the particular problem is present in a scheme than the value of 1 assigned (0 otherwise); then we sum up the scores, divide them by the largest possible number, and get some index according to which we will rank the schemes (the larger the index is, the greater the problems in the schemes).

The first problem is present (the reasons are described above) in all schemes but the “authorized persons” scheme, therefore only it is assigned with value of zero.

The second problem is present in the “ministry” scheme and partially in “authorized persons” scheme: as it was mentioned, since the ministry officials did not have management tasks and authorized persons in some case may find it more profitable to reduce JSC efficiency. For SPFU and Agency this is not a problem because they were aimed for the efficiency improvement; also we can say that such problem is absent for local state administrations, because their objective of local budget revenues coincides with economic efficiency

improvement. Thus, we assign 1 to “local state administration”, “Agency”, and “SPFU” schemes; 1 to “ministries” scheme and 0.5 to “authorized persons”.

The third problem we can observe in the “Agency”, “ministries”, and “authorized persons” schemes; here the punishment mechanism is formally absent for the first two models, while it does not work for the latter.

In spite of the formal similarity of “local state administrations” and “ministries” schemes, in reality controlling body is able to influence local state administrations but not ministries, which turns to the fourth problem: the comparability of statuses of the agent the controlling body. The status of local state administrations and authorized persons can be considered as lower than the status of controlling body (SPFU, Agency), while the status of ministry officials, as well as Agency and SPFU officials, is higher or, at least, equal to the status of controlling body; therefore, the state representatives with high status may exercise their power to avoid responsibility for poor results.

The fifth problem (more informed agent) is absent only in the schemes where officials of controlling body performs managerial functions, all other schemes suffer from this problem.

The sixth problem, the problem of mechanism for the reduction of information advantage, is even formally in all schemes with government officials as state representatives and actually absent in the “authorized persons” scheme; such mechanism works when potential rivals in the process of competition disclose information about the enterprise. For instance, at least formally the “authorized persons” scheme stipulates such mechanism: all candidates compete by establishing the highest possible targets but as it was mentioned before the Accounting Chamber of Verkhovna Rada have found serious violations of this condition, therefore we may consider this problem to be present in all schemes.

The table 3.1 represents how the management schemes are ranked according to the number of problems detected. Despite this index is quite subjective and by construction assigns equal weight to every problem (while in reality it is certainly not the case), we expect it to be positively correlated with incentives, commitment, and info asymmetry problems and, therefore, negatively correlated with the enterprise performance.

Table 3.1. Index of problems with management schemes in Ukraine.

Problem #	Agency	State Property Fund	Ministries	Authorized persons	Local State Administrations
1	1	1	1	0	1
2	0	0	1	0.5	0
3	1	0	1	1	1
4	1	1	1	0	0
5	0	0	1	1	1
6	1	1	1	1	1
Total	4	3	6	3.5	3
Index	0.67	0.5	1	0.58	0.67

Chapter 4

DATA DESCRIPTION AND MODEL SPECIFICATION

Since we detected that all forms of SCR management suffer serious problems, we want to find out whether SCR have an effect on JSCs performance. We expect that detected problems poor organization of SCR management will lead to low efforts of state representatives and, thus, to worsening of performance of JSCs.

4.1. Data Description

The empirical evidence of this paper is based on the data of 466 Ukrainian JSCs for the period 1999-2000. It consists of two parts: the first part is annual reports of JSCs (all JSCs are obliged to submit these reports to Securities and Stock Market Commission) which can be obtained from official web sites of Securities and Stock Market State Commission (1999) and Stock Market Infrastructure Development Agency (2000); the second part of the dataset on state-owned shares and the types of management forms used has been provided by Ministry of Economy and European Integration (MEEI).

Annual reports of JSCs provide us with information on financial performance, number of employees, ownership structure, material costs, and productive capital.

Data on state-owned shares gives information about size of state-owned share, its status (whether the share is assigned to the state or it is in the process of privatization), and manager type for the share (National Agency for State Corporate Management, local state administration, State Property Fund of Ukraine, line ministry, or authorized person).

Here we should point out that our sample may suffer from selection problem, since not all JSCs submit their annual reports to the Commission and we selected only those JSCs that submitted reports for two years.

4.2. Model Specification

In our investigation we assume that difference in terms of incentives, information, and commitment make state representatives exert lower levels of efforts for improvement of an enterprise performance than the efforts exerted by private owners. Therefore, we measure impact of the size of state-owned share on enterprise performance; as performance indicators we use the following two indicators:

1. Value-added of JSC (calculated as net sales minus material costs): this indicator shows efficiency of an enterprise in production; impact of different management types on this indicator measures management efforts for improvement of a JSC efficiency in production.
2. Net sales of JSC: net sales represent ability of management to stimulate enterprise development, so impact on this indicator show managers efforts exerted for an enterprise development.

For estimation purposes, we employ the two inputs institutionalized production function following Shirley and Xu (1997).

$$PI_{it} = \text{const} + \alpha_0 Y2000_{it} + \alpha_1 \ln K_{it} + \alpha_2 \ln L_{it} + \sum_{j=1}^5 \beta_j \text{SECTOR}_{it} + \gamma \text{STATE}_{it} + u_{it} \quad (1)$$

where,

$t=1999,2000$

$i=1,466$

PI=[log of value-added; log of net sales] – vector of performance indicators

Y2000 – year dummy; for the year 2000 it is equal to 1 and it is equal to 0 for the year 1999. This variable captures structural changes in economy occurred in 2000; it is expected this coefficient will be positive (at least for the regression value-added as dependent variable), because in 2000 Ukrainian GDP increased significantly.

$\ln K_{it}$ – log of capital. Here we take book value of productive capital as an approximation for enterprise capital. Since the value of fixed assets changed from year to year due to price changes we take year 1999 as a base year and deflate values of capital for 2000 by PPI¹⁰. The sign at this variable should show capital elasticity; however we should bear in mind that there may be some inaccuracy in measurement; since all JSCs with state-owned share are traditional firms they inherited irrelevant or outdated capital that is not used in production but taken for accounting purposes.

$\ln L_{it}$ – log of labor. For labor we take average annual number of employees.

α_1 – capital elasticity

α_2 – labor elasticity

SECTOR - is a set of dummies that denote sector to which a JSC belongs. We distinguish the following sectors: transportation, manufacturing, energy, agriculture, service, and construction (base sector is manufacturing)

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ – these coefficients reflect intercept differences for industries.

STATE – variable that describes the percentage of state-owned share in the statutory capital of the JSC

¹⁰ according to National Bank of Ukraine it was 1.208

γ – coefficients of our interest; it reflects how the percentage change of state-owned share influences enterprise efficiency

u_{it} – unobserved factor

Heterogeneity Bias

Estimating the model we may encounter two problems that complicate the matter. One problem is firms' heterogeneity; since all firms in the sample are heterogeneous units, their unobserved effects are likely to correlate with explanatory variables. Hausman test supports the assumption of correlation of unobserved effect with explanatory variables and indicates that OLS estimates are inconsistent; therefore, we should control for unobserved firm-level effect in order to remove heterogeneity bias. There are several ways to deal with this issue; the general approach is to apply fixed effect estimator. Such estimator gives us consistent estimator under weak regularity conditions; however, this approach has serious drawback - the loss of efficiency (Wooldridge, 2001), and in some cases it becomes inapplicable; it captures only "within" variations and does not take into account important time-invariant information (sector dummies in our case). Attempts to estimate our model with fixed effect showed that efficiency of these estimators are too low to make plausible inferences; the R-squared of the regression is less than 1% and all variables are insignificant at 10% level. Thus, we apply random effect estimation technique here because we consider it as the only feasible approach; the LM tests for random effect suggested by Breusch and Pagan supports RE estimation¹¹. The appropriateness of random effect estimators for individual effects is described in Mundlak (1978), where he argues that for properly specified model the random effect estimator is better choice than fixed effect estimator.

¹¹ see Greene, 2001 for discussion

Endogeneity Bias

One more complication that arises in estimation of models is the endogeneity problem. It is possible that the state does not trade its shares randomly, rather it sells its shares taking into account past performance of the enterprise or some other criteria. In this case the error term will be correlated with explanatory variables and our estimates will be biased and inconsistent. To test endogeneity we run Durbin-Wu-Hausman test (augmented regression test). We suppose the variables that influence state-owned share but do not correlate with error term are size-category of JSC (small, medium, large) and squared size of state-owned share (the use of the latter variable as an instrument is justified and accepted in econometric literature, see Verbeek, 2000) and run the following regression:

$$\text{STATE}_{it} = \text{const} + \text{PI}_{it} + \alpha_1 \text{Y2000}_{it} + \alpha_2 \ln K_{it} + \alpha_3 \ln L_{it} + \sum_{j=1}^5 \beta_j \text{SECTOR}_{it} + \gamma \text{STATE_SQUARED}_{it} + \sum_{k=1}^2 \text{SIZE}_{ik} + \text{RES}_{it} \quad (3)$$

Where,

STATE_SQUARED – squared state-owned share

SIZE – dummies for JSC size (up to 250 employees –small; 250-1500 – medium; more than 1500 – large)

RES – residuals

From the above regression we obtain predicted residuals RES_PRED and put it into our initial regression and then estimate it:

$$\text{PI}_{it} = \text{const} + \alpha_0 \text{Y2000}_{it} + \alpha_1 \ln K_{it} + \alpha_2 \ln L_{it} + \sum_{j=1}^5 \beta_j \text{SECTOR}_{it} + \gamma \text{STATE}_{it} + \delta \text{RES_PRED}_{it} + u_{it} \quad (4)$$

the results show that δ is significant at 1% in both regressions and this means that we need to instrument state-owned share by variables suggested in (3);

the results of identifying restriction tests does not reject their validity and this means that they are not correlated with error term. We regress state-owned share by above-mentioned instruments, obtain predicted values for state-owned share, and put these fitted values into our model.

Thus, in the process of estimation of our model we remove heterogeneity bias using random effect approach and instrumental variables technique to remove endogeneity bias. These procedures should give us consistent estimates for the effect of the state as a shareholder on the performance of JSCs.

In order to answer the question about the contribution of problems with management schemes to the JSCs efficiency we apply the index of the problems to our model developed previously:

$$PI_{it} = \text{const} + \alpha_0 Y2000_{it} + \alpha_1 \ln K_{it} + \alpha_2 \ln L_{it} + \sum_{j=1}^5 \beta_j \text{SECTOR}_{it} + \gamma \text{INDEX}_{it} + u_{it}$$

where,

SECTOR - set of sector dummies

INDEX – the index of problems for a particular type of scheme (larger the index is, the greater the number of problems in the scheme); it is included only for observations where state-owned share is greater than 25%, because this share size allows owner to influence activity of JSCs.

PI=[log of value-added; log of net sales] – vector of performance indicators

Since, according to the theory greater problems lead to greater inefficiency we expect the index coefficient γ to be negative. We treat the index as strictly exogenous variable here, since it describes the problems embodied independently from the enterprise performance.

4.3. Estimation Results

General impact of the state as a shareholder on JSC performance

The results for general impact of the state as an owner are provided in tables 4.1 and 4.2. As we can see, these results support our hypothesis of inefficiency of the state as a shareholder. It has highly statistically significant negative impact on the JSCs; this means that, in general, state representatives make decisions that do not allow JSCs or to improve their efficiency or competitiveness; as a result the efficiency and competitiveness of JSCs with state share decreases with the increase of state-owned share. Roughly, for the Ukrainian JSCs the increase of state share by 1% transfers into reduction of the level of sales by 1.5% per year and the level of value-added by 1.4% per year. Thus, for the sample average the state-owned share is about 11%; for an average joint-stock company this transfers to such losses: about 210 thousand of hryvnas per year or 14.3% ($1 - e^{-0.014 * 11\%}$) of value-added, and 675 thousands of hryvnas or 15.2% ($1 - e^{-0.015 * 11\%}$) of net sales per year. Sector dummies tell us that the most successful were JSCs related to service sector; in comparison with other sectors JSCs that belong to this sector significantly outperform others; the possible explanation for this phenomenon is that in Soviet time the sector was significantly underdeveloped and now it grows faster than other sectors. Agricultural JSCs exhibit significantly poorer performance than other ones and it coincides with the evidence of collapse of collective farms system in Ukraine in the last decade. The sector coefficients for transport and manufacturing sectors also have negative sign although they are insignificant.

Table 4.1. Value-added as a dependent variable.

Dependent variable	log of value-added			
	GLS (random effect)		IV (random effect)	
Estimation approach	coeff.	p-value	coeff.	p-value
state-owned shares	-0.018	0.000	-0.014	0.000
Intercept	0.182	0.726	0.231	0.651
Log of capital	0.375	0.000	0.371	0.000
Log of labor	0.680	0.000	0.688	0.000
Manufacturing	-0.353	0.259	-0.388	0.217
Agriculture	-1.996	0.000	-2.034	0.000
Transport	-0.301	0.577	-0.363	0.529
Energy	0.41	0.513	0.215	0.734
Service	1.336	0.000	1.294	0.001
OIR test (p-value)	0.998			
R-squared	0.419			

Table 4.2. Net sales as a dependent variable.

Dependent variable	log of net sales			
	GLS (random effect)		IV (random effect)	
Estimation approach	coeff.	p-value	coeff.	p-value
state-owned shares	-0.021	0.000	-0.015	0.000
Intercept	0.143	0.719	0.096	0.817
Log of capital	0.455	0.000	0.471	0.000
Log of labor	0.757	0.000	0.736	0.000
Manufacturing	-0.260	0.285	-0.325	0.194
Agriculture	-1.130	0.000	-1.209	0.000
Transport	-0.504	0.257	-0.611	0.181
Energy	0.232	0.638	-0.085	0.867
Service	0.778	0.011	0.667	0.033
OIR test (p-value)	0.999			
R-squared	0.520			

The impact of problems in management schemes on the efficiency of JSCs

The tables 4.3 and 4.4 represent the estimation results when we have the index of problems as a dependent variable. The results reveal strong statistical

significance of the relationship between the number of detected problems and the reduction of JSCs efficiency.

Table 4.3. Impact of problems in SCR management schemes on value-added

Dependent variable	Log of value-added	
Estimation approach	GLS (Random Effect)	
	Coefficient	p-value
Index	-1.721	0.000
Intercept	0.216	0.669
Log of capital	0.354	0.000
Log of labor	0.713	0.000
Manufacturing	-0.316	0.310
Agriculture	-1.866	0.000
Transport	0.013	0.982
Energy	0.529	0.396
Service	1.368	0.000
R-squared	0.424	

Table 4.4. Impact of problems in SCR management schemes on net sales

Dependent variable	Log of net sales	
Estimation approach	GLS (Random Effect)	
	Coefficient	p-value
Index	-1.979	0.000
Intercept	0.117	0.762
Log of capital	0.431	0.000
Log of labor	0.795	0.000
Manufacturing	-0.218	0.364
Agriculture	-0.979	0.002
Transport	-0.139	0.754
Energy	0.375	0.436
Service	0.794	0.008
R-squared	0.561	

This negative relationship tells us that the greater number of problems embodied in any particular SCR management scheme, the greater efficiency

losses for a JSC. Statistical significance of these index coefficients allows us to suggest that the detected problems can be regarded as factors that contribute to the inefficiency of state as a shareholder.

CONCLUSIONS

Summarizing the findings of the paper we should say that we get more evidence on the inefficiency of state ownership and about its harmful impact on the performance of enterprises; the inefficiency of state ownership can be explained by many reasons, among which we point out non-economic or contradictory objectives of the state, and improper organization of agency schemes in terms of incentives, commitment and info asymmetry.

Our empirical results suggest that increase of state corporate control negatively affects value-added of JSCs as well as net sales; these results are actually expected because we fail to find any satisfactory scheme for SCR management and the theory predicts that this will lead to non-optimal performance of state representatives and, as a consequence, to the non-optimal performance of joint-stock companies. However, we found the managerial schemes are not homogeneous by their impact on JSCs and scheme with SPFU officials may be the most preferable for SCR management.

We argue that, as a rule, managerial schemes suffer from poor, not sensitive to performance incentives, great information asymmetry and uncertainty, and lack of enforcement mechanism. The first rate problems with the organization of SCR management are information asymmetry and poor incentives; all applied schemes are actually built without strong mechanism of information asymmetry reduction, there is no real competitive bidding for the right to manage SCR and this in its turn may lead to lower targets or deviation from the contract terms. Also in all four schemes with participation of officials we notice really weak incentives schemes where there is no direct link

between performance and payments; therefore, it may cause low efforts of agents.

Actually, Ukrainian government has two options: to improve organization of SCR management or sell them to more efficient owner, because given the number of JSCs with state-owned share the inefficient management of SCR leads to losses in budget revenues and losses in efficiency of the whole Ukrainian economy. But already Ukrainian government has realized poor quality of SCR management and from the second half of 2000 began to implement modified scheme, where they try to strengthen monitoring and to reinforce competitive bidding mechanism. Therefore, when the data for 2001 become available it will be interesting to investigate how these changes affect performance of JSCs.

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APPENDIX A

Table A1. Decomposition of the sample by sector

Sector	Number of JSCs
Agriculture	48
Construction	48
Energy	15
Manufacture	279
Service	60
Transport	16
Total	466

Table A2. Decomposition of the sample by state-owned share

State-owned share	Number of JSCs	
	1999	2000
(0-25%]	67	41
(25%-50%]	32	33
(50%-100%]	59	22
Total	178	114

APPENDIX B

Table B1. First-stage regression for Durbin-Wu-Hausman tests (equation 3)

Dependent variable	Log of net sales	
	coefficient	p-value
Large	1.636	0.320
Medium	0.694	0.532
Squared state-owned share	0.011	0.000
Intercept	-0.079	0.970
Log of capital	-0.698	0.007
Log of labor	0.937	0.039
Manufacturing	3.160	0.000
Agriculture	1.710	0.324
Transport	9.586	0.000
Energy	1.711	0.324
Service	6.300	0.000
R-squared	0.895	

Table B2. Durbin Wu-Hausman test (log of net sales as dependent variable)

Dependent variable	Log of net sales	
	coefficient	p-value
Predicted residuals	-0.44	0.000
State-owned share	-1.979	0.000
Intercept	0.1105	0.704
Log of capital	0.444	0.000
Log of labor	0.777	0.000
Manufacturing	-0.289	0.025
Agriculture	-1.15	0.000
Transport	-0.547	0.182
Energy	0.065	0.922
Service	0.736	0.000
R-squared	0.562	

Table B3. Durbin Wu-Hausman test (log of value-added as dependent variable)

Dependent variable	Log of value-added	
	coefficient	p-value
Predicted residuals	-0.025	0.044
State-owned share	-0.018	0.000
Intercept	0.219	0.579
Log of capital	0.383	0.000
Log of labor	0.672	0.000
Manufacturing	-0.357	0.095
Agriculture	-2.001	0.000
Transport	-0.307	0.426
Energy	0.396	0.553
Service	1.350	0.000
R-squared	0.423	